WESTON RANCH TOWNE CENTER PROJECT

Final Environmental Impact Report
EIR No. 5-04
State Clearinghouse No. 2005012056

Prepared for:
City of Stockton
Community Development Department

October 2008

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Final Environmental Impact Report

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EXECUTIVE SUMMARY

Introduction

The California Environmental Quality Act (CEQA) requires that all state and local government agencies consider the environmental consequences of programs and projects over which they have discretionary authority before taking action on them. The primary purpose of this Final Environmental Impact Report (FEIR) is to inform agencies and the public of any significant environmental effects associated with the Weston Ranch Towne Center (project).

A Draft Environmental Impact Report (Draft EIR) was released for the Weston Ranch Towne Centre Project in November of 2006. Among other components, the project included a proposed 232,000 square foot Wal-Mart Supercenter and a proposed 143,720 square foot major retail space ("Retail Major 2", identified in the Draft EIR). The project also included other retail stores for a total maximum floor area of 710,000 square feet. In accordance with section 15126.6 of the CEQA Guidelines (Cal. Code of Regulations, Title 14), the Draft EIR analyzed five alternatives to the proposed project, including a reduced density alternative (Alternative 4). The Reduced Density Alternative would reduce the maximum total square feet of retail space to 500,000 square feet. Since the release of the Draft EIR, changes in City-wide policy relevant to the project and this Final EIR have occurred:

City of Stockton "Big-Box" Ordinance (No. 018-07)

On August 14, 2007, after the release and circulation of the Draft EIR, the Stockton City Council passed an ordinance that prohibited retailers from opening stores larger than 100,000 square feet that used at least 10 percent of their floor space to sell groceries. In order to comply with this ordinance, the Weston Ranch Towne Center project has been revised. The revised project reduces the floor area of the proposed Wal-Mart Supercenter to and removes the second large 134,720 square foot retail space (Retail Major 2). The total maximum size of the revised project is 481,000 square feet. Although slightly smaller than the Reduced Density Alternative (Alternative 4) analyzed in the Draft EIR, with respect to the potential environmental impacts associated with the project, the revised project is consistent the Reduced Density Alternative. As with the Reduced Density Alternative, many impacts of the revised project are of lesser severity than those of the original project analyzed in the Draft EIR.

City of Stockton 2035 General Plan Update

After the release and circulation of the Draft EIR, in December 2007, the City of Stockton approved the Stockton 2035 General Plan Update. Under the City's previous General Plan (in place at the time the Draft EIR was released and circulated), the project included a proposed General Plan Amendment to amend the General Plan designation of the project area from Low/Medium Density Residential and Commercial to Commercial for the entire site. The 2035 General Plan designates the entire project area as Commercial and as such, a General Plan Amendment is no longer required for the Project. This Final EIR updates the information in the Draft EIR to reflect the new land designation. Readers should be cautioned, however, that the 2035 General Plan Update has been challenged in court. Because the lawsuit is pending, it is uncertain whether the Update will be upheld. If the Update is not upheld, then the project will again require a General Plan Amendment to change the project area's General Plan designation from Low-Medium Density Residential / Commercial to entirely Commercial. The effects of such an amendment were analyzed in the Draft EIR, including the analysis of the Reduced Density Alternative, which is consistent with the revised project.

As discussed more fully in the "Introduction and Reader's Guide" to this Final EIR, under the heading "Discussion of Standard for Recirculation", the above-described modifications to the project would not result in a new substantial environmental impact or a substantial increase in the severity of an environmental impact previously identified in the Draft EIR. Accordingly, recirculation of the EIR for additional public review and agency consultation is not required before the City may certify the Final EIR for the project. (Pub. Resources Code, § 21092.1; CEQA Guidelines, § 15088.5; Laurel Heights Improvement Association of San Francisco, Inc. v. Regents of the University of California (1993) 6 Cal.4th 1112 (Laurel Heights II)).

City of Stockton will be the CEQA lead agency for the project and will consider the information presented in this FEIR before taking discretionary action on the project. Other agencies may use some or all of the analysis presented in this document for purposes of permit review and approval.

Project Objectives

The City of Stockton is San Joaquin County's (County) largest metropolitan center and has the most extensive supply of developable urban land based on zoning classifications. Consequently, it is assumed under the County's General Plan that it will absorb the bulk of the County's growth through the year 2010 and that commercial activities and the need for commercial space will grow at a rate similar to population growth. Continuing regional growth, as well as the cost and availability of housing in other parts of California are expected to promote continuation of strong housing demands in the Stockton area for the immediately foreseeable future. In light of these above-mentioned factors, the objectives of the project are as follows:

1. To construct a regional commercial and retail space along the Interstate 5 corridor in south Stockton that will accommodate the existing and future demand for such services in the southern portion of the City.
2. To augment the City's available commercial space for continuing growth demands.
3. To provide job opportunities for members of Stockton's work force.
4. To provide an expanded economic base for the City by generating substantial property and sales tax and fee revenue and by increasing the proportion of local income invested and spent locally.
5. To provide retail and commercial services at a currently vacant location that is safe and convenient for customer access by locating the project immediately adjacent to an existing regional interchange with Interstate 5 and where economic viability can be sustained.
6. To provide a commercial center on a large, undeveloped site in close proximity to an existing highway and near other commercial centers, that will minimize travel lengths and utilize existing infrastructure to the extent possible.
7. To provide a commercial center that provides sufficient development area to allow a mixture of uses in outlying parcels in addition to major anchor tenants, in order to create a destination commercial center that will attract various types of customers to the City.
8. To provide a commercial development that is of a high quality design and that can be adequately served by public services and utilities.
9. To provide large-scale retail activities that will compliment existing smaller scale retail activities located throughout the City.

Project Description

The project would develop the project site (Revised Figure 3-2) with a regional shopping center including large-scale retail stores; in-line shops (located contiguously between large-scale retail stores); retail pad stores; restaurants (including quick service restaurants and traditional restaurants); fuel centers; and parking (Revised Figure 3-4, Site Plan).

The project would develop in three phases. The first phase would be the construction of a 29.28-acre regional mall (on the 34-acre Vestar property). The second phase, the 4.3-acre MCD property, would consist of additional commercial uses, including a potential hotel/motel. The third phase is the 6.1-acre Barkett property. No site specific entitlements are sought at this time on the Barkett property.

The project is consistent with the 2035 General Plan land use designation of "Commercial." The project includes an application to the City of Stockton to rezone the project site, consistent with the general plan and the proposed use. The current and proposed zoning are summarized in the following table:

PROPOSED ZONING AMENDMENTS

	Current	Proposed
Zoning District	RL – Residential, Low Density	CL – Commercial large-scale

The other entitlements requested by the applicants include the following:

- As stated previously, the approved Stockton 2035 General Plan Update has recently been sued. The lawsuit is currently pending. If a judge overturns the approval of the Update and it is not implemented, then a General Plan Amendment would be necessary for the property to re-designate a portion of the site from Low/Medium Density Residential to Commercial.
- Approval of Development Agreements.
- Approval of Tentative Maps.
- Certification of adequate water supply via a Water Supply Assessment (WSA)
- Issuance of a Use Permit(s) including:
  - a Project Plan,
  - an increase of monument sign up to 30-feet in height, and
  - adding additional monument signs (7-feet) within the shopping center
- Use permit(s) for the alcohol sales including off and on-sale alcoholic beverages
- Variance for the following:
  - location of driveways, and
  - number of driveways along French Camp Road and Manthey Road,
- Design review approval.
- Approvals for sewer, water, drainage and transportation connections and improvements.
- Review and recordation of parcel and final maps.
- Approval of grading and erosion control permits.
- Issuance of building permits.

The floor area and design of the stores, particularly the inline stores and pads, may change during the design process. The most recent site plan provides for approximately 405,541 square feet (for all phases, including the Mill Creek Development and Barkett properties). This EIR assumes a maximum floor area of 481,000 square feet. The larger "envelope", which is 75,459 square feet

larger than currently envisioned, allows the lead agency to consider future revisions to the regional shopping center and development of the Barkett property. The future development of the Barkett property, or additional development within the regional shopping center, allowable under the recently adopted General Plan Update and proposed rezoning is considered part of the "whole of the action" for the purpose of this EIR.

It is assumed for purposes of the EIR that the project, excluding the Barkett property, would begin construction as early as 2009 and be fully operational by 2010. This is the "buildout" year for the project, when the major tenants and the majority of the in-line shops and pads would be occupied. Timeframe for development of the additional approximately 6.1 acres of the Barkett property would occur at a future date not yet determined.

Summary of Environmental Impacts

All of the impacts analyzed in the EIR, including those considered to be less-than-significant, are summarized in **Table ES-1**. In addition, any revisions to the mitigation measures are shown in italics and are described in **Chapter 4,** "**Minor Changes and Edits to the Draft EIR**".

Where feasible, mitigation measures have been identified to reduce the level of the impacts to less-than-significant for all potential environmental impacts. The project identifies significant and unavoidable impacts to agricultural resources, transportation and circulation, and air quality. No new significant impacts not previously identified in the Draft EIR have been identified for the revised project. If the City of Stockton decides to approve the project, a Statement of Overriding Considerations must be adopted by the Board of Directors for any identified significant and unavoidable impacts, as required by the State CEQA Guidelines, Section 15093(b).

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Land Use and Agricultural Resources			
Impact 4.2.1. The project has the potential to physically divide an established community. This impact is considered less than significant.	LS		
Impact 4.2.2. The project would conflict with an applicable land use plan, policy or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. This impact is considered less than significant.	LS		
Impact 4.2.3. The project would conflict with an applicable land use plan, policy or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. This impact is considered less than significant.	LS		
Impact 4.2.4. The project could conflict with an applicable habitat conservation plan (HCP) or natural community conservation plan (NCCP). This impact is considered potentially significant.	PS	Implement Mitigation Measure 4.11-1a or 4.11-1b.	LS
Impact 4.2.5. The project would convert economically viable prime farmland to a non-agricultural use. This impact is considered potentially significant.	PS	**Mitigation Measure 4.2.5.** The applicant shall be required to mitigate for converted farmland by obtaining agricultural conservation easements on farmland of equal quality at a ratio of 1:1 acre. The land on which the easements are acquired shall be located not more than twenty miles from the project site, and shall be of equal or greater quality as the farmland converted by the project. Prior to approval of the final map, the applicant must acquire agricultural conservation easements. The easements, which will remove the development rights from the subject agricultural lands, shall be granted to an appropriate third party, as directed by the Community Development Department. The land on which easements are acquired must be designated for agricultural use and must consist of farmland of equal or better quality as the project site, and shall not be within the sphere of influence of an incorporated city. The agricultural conservation easement may overlap a habitat easement acquired under Mitigation Measure 4.11.1a or 4.11.1b. However, an existing habitat easement does not meet the requirement for mitigating the loss of agricultural land. 1:1 mitigation, where the easement land is of equal or greater agricultural value as the project site, is roughly proportional to the impact of the project to prime farmland. A ratio greater than 1:1 would not be roughly proportional. (See CEQA Guidelines, §15041.) Should the City of Stockton approve an agricultural mitigation fee program prior to approval of the final map, the developer may meet this requirement by paying the appropriate in-lieu fee to the City.	SU

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Aesthetics			
Impact 4.3.1. Aesthetic Resources – Degradation of Local Visual Character. This is a potentially significant impact.	PS	**Mitigation Measure 4.3.1.** Impacts will be reduced by the project's compliance with all municipal design guidelines (e.g., design review, landscaping, building articulation, etc.).	LS
Impact 4.3.2. Aesthetic Resources - Create new source of light or glare. The project would require a significant amount of new lighting for security and for parking areas. This new lighting would create a new source of light and/or glare that could be considered an impact to adjacent residential areas. Additionally, the project could contribute to additional lighting that would diminish the degree of darkness in the project area and effectively obscure night sky views. However, the project is subject to the City of Stockton Municipal Code. The lighting and glare guidelines outlined in the City of Stockton Municipal Code are designed to reduce and minimize these impacts. Therefore, this impact is considered less than significant.	LS		
Impact 4.3.3. Architecture and Design – Consistency with City of Stockton 2035 General Plan Update, Municipal Code, and Citywide Design Guidelines. The project has been designed in accordance with the designed standards contained within the City of Stockton 2035 General Plan Update, Municipal Code, and Citywide Design Guideline. Therefore, this impact is considered less-than-significant.	LS		
Urban Decay			
Impact 4.4.1. The project would introduce retail uses that would add $118.8 million in new sales to the Stockton retail market - equivalent to up to 5.2 percent of existing (2006) retail sector sales. Combined with the other recent new retail development at Stonecreek Shopping Center, the project would add $140.2 million in new sales to the Stockton retail market – equivalent to up to 6.2 percent of existing (2006) retail sales. The net projected "sales shift" impact from the project on existing retailers would be more than offset by future retail demand growth. This shift is not expected to result in a substantial number of existing business closures. If some business closures were to occur and to result in vacancies, the EIR analysis indicates that vacated properties would be re-tenanted or redeveloped and thus unlikely to deteriorate physically. The project in itself would not result in significant urban decay impacts.	LS		
Impact 4.4.2. Combined with other major new retail developments proposed in Stockton and considered reasonably foreseeable, the project would result in up to a net 2.5 percent net shift in retail sales away from existing Stockton retailers. A sales shift of this magnitude would not be expected to result in a substantial number of business	LS		

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
closures among existing competing retailers. The EIR analysis also suggests that most of any vacated properties would be re-tenanted due to the current relatively stable commercial real estate demand in Stockton. In the event that vacant properties were not reoccupied in the near term, City of Stockton economic development, oversight and code-enforcement would ensure that vacant properties would not be permitted to deteriorate. The project would not result in a cumulatively considerable adverse change in the physical condition of any shopping area in Stockton. This impact is less than significant.			
Population, Housing, and Employment			
Impact 4.5.1. Induce substantial population growth. The project could directly and/or indirectly induce substantial population growth in the City of Stockton by creating new employment opportunities through commercial development. This impact is considered less than significant.	LS		
Public Services and Utilities			
Impact 4.6.1. The project would increase the need for law enforcement services from the City of Stockton Police Department. This impact is considered less-than-significant.	LS		
Impact 4.6.2. The project has the potential to impact the stormwater drainage system. This impact is considered potentially significant.	PS	**Mitigation Measure 4.10.5 (**see Hydrology, below)	LS
Impact 4.6.3. The project has the potential to impact energy distribution facilities and infrastructure. This impact is considered potentially significant.	PS	**Mitigation Measure 4.6.3.** The project applicant and/or developer shall coordinate with PG&E to ensure that all upgrades to the energy distribution facilities and infrastructure comply with state and federal energy standards.	LS
Transportation and Circulation			
Impact 4.7.1. The project would contribute to the need to construct planned roadway improvements under Near-Term conditions. This impact is considered significant.	S	**Mitigation Measure 4.7.1.** The project applicant shall implement the following improvement: • Widen French Camp Road along the project frontage from two lanes to four lanes	LS
Impact 4.7.2. The French Camp Turnpike/Downing Avenue intersection is projected to operate at a deficient LOS F in the Near-Term condition during the PM peak hour prior to the addition of project traffic. The proposed project is not projected to increase traffic through this intersection in the near-term condition. Therefore, this impact is less than significant.	LS		
Impact 4.7.3. The addition of traffic generated by the project in conjunction with traffic shifts associated with the vacation of Henry Long Boulevard, proposed to occur with the project, would result in deficient service levels at the worst movement in the French Camp Road/McDougald Road intersection in the Near-Term With Project	LS		

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
condition during the PM peak hour. Levels of service for average traffic at this intersection maintains an acceptable LOS A with and without the revised project traffic for AM and PM peak hours. This impact is considered less-than-significant.			
Impact 4.7.4. The French Camp Road/Manthey Road (east) intersection is projected to operate at a deficient LOS F in the Near-Term condition during both peak hours prior to the addition of project traffic. Average delay would increase through this intersection by more than 5 seconds with the addition of project traffic. This impact is considered significant.	S	**Mitigation Measure 4.7.4.** The project applicant shall contribute its fair share towards the planned interchange improvements at the French Camp Road/I-5 interchange through the payment of traffic impact fees. With construction of the French Camp Road interchange improvement project, the southern leg of Manthey Road intersection would be relocated approximately 800 feet from the I-5 southbound ramps/French Camp Road intersection and become the western edge of the project site (it was assumed that as part of the project, the northern leg of the intersection would be realigned and that French Camp Road would be widened to provide two lanes in each direction along the project frontage). With implementation of these planned improvements, this intersection would operate at an acceptable service level. Should construction of the planned interchange improvements be scheduled for completion subsequent to project completion, the project applicant shall make the following interim improvements: • Signalize the French Camp Road/Manthey Road (east) intersection and provide a 270-foot westbound left-turn pocket • Interconnect and coordinate the traffic signals at the following intersections along French Camp Road: Secondary Project Driveway, Manthey Road (east), I-5 southbound ramps, and I-5 northbound ramps. Synchro 6.0/SimTraffic analyses indicate that as an interconnected system, these intersections would operate acceptably, as shown on Table 4.7-24.	LS
Impact 4.7.5. The French Camp Road/I-5 Southbound Ramps intersection is projected to operate at an acceptable overall service level of LOS B in the Near-Term condition during both peak hours prior to the addition of project traffic. The addition of project traffic would result in overall LOS C conditions. This impact is considered less than significant.	LS		
Impact 4.7.6. The French Camp Road/I-5 Northbound Ramps intersection is projected to operate at an acceptable level in the Near-Term without project condition and would continue to do so with the addition of project traffic. The addition of traffic from the Revised Project could result in a queuing impact. This impact is considered significant.	S	**Mitigation Measure 4.7.6.** The project applicant shall contribute its fair share towards the planned interchange improvements at the French Camp Road/I-5 interchange through the payment of traffic impact fees. Should construction of the planned interchange improvements be scheduled for completion subsequent to project completion, the project applicant shall modify the eastbound approach to extend the eastbound left-turn storage to Manthey Road (east	LS

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		intersection). This improvement can be implemented within the existing right-of-way. With this improvement, the intersection would operate at an overall acceptable service level. Vehicle queue spillback could still occur with extension of the single eastbound left-turn lane, although vehicle queues would clear within one to two signal cycles. Conversion of the through lane to a second eastbound left-turn lane could create trap vehicles intending to travel through the intersection and create construction staging problems during reconstruction of the interchange, although vehicle queues would be minimized under this alternative.	
Impact 4.7.7. The French Camp Road/Val Dervin Parkway intersection is projected to operate at a deficient LOS F in the Near-Term condition during the AM peak hours prior to the addition of project traffic. Average delay would increase through this intersection by more than 5 seconds with the addition of project traffic during the AM peak hour. The addition of project traffic would also result in overall LOS E conditions during the PM peak hour. This impact is considered significant.	S	**Mitigation Measure 4.7.7.** The project applicant shall contribute its fair share towards the planned interchange improvements at the French Camp Road/I-5 interchange through the payment of traffic impact fees. With planned improvements at this interchange, Val Dervin Parkway would be closed at French Camp Road, and a new roadway constructed connecting the business park at the new French Camp Road/Sperry Road intersection. Should construction of the planned interchange improvements be scheduled for completion subsequent to project completion, the project applicant shall install a traffic signal at this intersection. This signal shall be interconnected and coordinated with the adjacent traffic signals on French Camp Road. However, as this intersection would operate acceptably in the Existing Plus Project condition in both the AM and PM peak hours, and this intersection would be relocated and reconstructed as part of the interchange project, the Project Applicant shall monitor operations of this intersection to determine the timing of installation of an interim traffic signal. Prior to the issuance of the first building permit for the site, the Project Applicant shall retain a qualified traffic engineering firm from the City's list of approved firms to conduct peak period (AM and PM) traffic counts at the intersection. The intersection service levels shall be calculated and peak hour volume and delay traffic signal warrants evaluated. Should signal warrants be satisfied, the Project Applicant shall design and install an interim signal at this location. Should the warrants not be satisfied, trips generated by the permitted uses under construction shall be added to the existing traffic counts based on the trip generation rates and trip distribution percentages presented in the Final Environmental Impact Report (FEIR). If the intersection is projected to operate at an overall deficient service level and peak hour traffic signal warrants are satisfied, the Project Applicant shall design and install an interim signal at this location. The monitoring requirement would be terminated when reconstruction of the I-5/French Camp interchange begins.	LS
Impact 4.7.8. Mathews Road/Manthey Road intersection is projected to operate at a LOS B in the Near-Term condition during the AM and PM peak hours prior to and after the addition of project traffic. This impact is considered less-than-significant.	LS		

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 4.7.9. Mathews Road/I-5 Northbound Ramps intersection is projected to operate at a deficient LOS F in the Near-Term condition during both the AM and PM peak hours. Average delay would increase through this intersection by more than 5 seconds with the addition of project traffic during both peak hours. This impact is considered significant.	S	**Mitigation Measure 4.7.9.** Signal installation would result in LOS D conditions during the AM and PM peak hours. Caltrans has determined that it is infeasible for this project to install a traffic signal. The County of San Joaquin may program this signal as a future improvement. If this occurs, the project applicant shall contribute its fair share to the County.	SU
Impact 4.7.10. Northbound I-5, north of Downing Avenue is projected to operate at LOS D during the PM peak hour prior to and after the addition of project traffic for the Near-Term condition. The addition of project traffic would increase total freeway volumes by more than 3 percent. This impact is considered less-than-significant.	LS		
Impact 4.7.11. The proposed project would contribute to the need to construct planned roadway improvements under Future 2025 conditions. This impact is considered significant.	S	**Mitigation Measure 4.7.11**. The project applicant shall contribute its fair share towards the implementation of the following improvements: • Widening of I-5 to eight lanes from French Camp Road to Charter Way • Widening of French Camp Road to six lanes from Wolfe Road to Manthey Road • Widening of French Camp Road to eight lanes from Manthey Road to Val Dervin Parkway • Construction of an L-9 interchange including loop on-ramps in the southeast and northwest quadrants. In conjunction with this improvement, Manthey Road would be realigned to the west and Val Dervin Parkway to the east across from the Sperry Road/French Camp Road intersection • Widening of El Dorado Street to six lanes north of the proposed Sperry Road extension to McKinley Avenue and four lanes south of the proposed Sperry Road extension to I-5 • Widening of Sperry Road/Arch-Airport Road to eight lanes from French Camp Road to Airport Way This measure may be satisfied by payment of adopted impact fee programs to the extent the improvements are included in the programs, or other means deemed appropriate by the City.	LS
Impact 4.7.12. The addition of project traffic would increase average intersection delay by less than five seconds at the Manthey Road/Mathews Road intersection, which is projected to operate at an acceptable LOS B in the Future 2025 Without Project and With Project condition for the AM peak hour. The intersection is projected to operate at an acceptable LOS C in the Future 2025 Without Project and With Project condition for the PM peak hour. This impact is considered less-than-significant.	LS		

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 4.7.13. The proposed project would contribute to the need to construct planned roadway improvements under Future 2035 conditions. This impact is considered significant.	S	**Mitigation Measure 4.7.13**. The project applicant shall contribute its fair share towards the implementation of the following improvements: • Widening of I-5 to ten lanes from Roth Road to French Camp Road and from French Camp Road to Charter Way • Widening of French Camp Road to eight lanes between Manthey Road and Sperry Road • Widening of French Camp Road to six lanes between Wolfe Road and Manthey Road • Construction of an L-9 interchange including loop on-ramps in the southeast and northwest quadrants. In conjunction with this improvement, Manthey Road would be realigned to the west and Val Dervin Parkway to the east across from the Sperry Road/French Camp Road intersection • Widening of Manthey Road to four lanes from Carolyn Weston Boulevard to south of Mathews Road • Widening of El Dorado Street to six lanes north of the proposed Sperry Road extension and four lanes south of the proposed Sperry Road extension • Widening of Sperry Road/Arch-Airport Road to eight lanes from French Camp Road to Airport Way • Widening of Mathews Road to six lanes between Wolfe Road and Manthey Road, and eight lanes between Manthey Road and I-5 • Construction of a diamond interchange with a seven lane cross section (including turn lanes) under the freeway, and northbound and southbound free right-turn lane at the Mathews Road/I-5 interchange This measure may be satisfied by payment of adopted impact fee programs to the extent the improvements are included in the programs, or other means deemed appropriate by the City.	LS
Impact 4.7.14. The addition of project traffic would result in vehicle queue spillback at the French Camp Road/I-5 interchange. This impact is considered significant.	S	**Mitigation Measure 4.7.14**. Monitoring of the traffic signals to ensure arterial progression through the interchange area could reduce the amount of queue spillback in the area. It should be noted that all intersections in the French Camp Road/I-5 interchange area are projected to operate at acceptable service levels during the morning and evening peak hours in 2035.	SU
Impact 4.7.15. The proposed project site access would result in safety and operational deficiencies. This impact is considered potentially significant.	S	**Mitigation Measure 4.7.15.** The project applicant shall modify the site plan as described below and shown in Figures 4.7-17, 4.7-18a, and 4.7-18b. 1. Full access driveway on Manthey Road (west) between Shop 5 and Shop 6 – Provide separate left and right-turn lanes to reduce the 95th percentile vehicle queue to 4 vehicles. (The southbound left-turn pocket would accommodate	LS

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		projected vehicle queues). 2. Manthey Road (west)/Right-in only Service Driveway – This driveway is proposed to serve as a right-in only driveway to the service area behind Major 6. Modifications would be needed at this driveway to accommodate the turning radii of large trucks, as shown on Figure 4.7-18b. 3. Consult with the City of Stockton fire department to ensure adequate emergency access. 4. Conduct a detailed review of the final site plan to ensure pedestrian crossings are provided, pedestrian paths are identified throughout the site, and pedestrian crossings are in appropriate locations to ensure pedestrian safety. 5. Schedule large semi-truck deliveries for off-peak periods to minimize conflicts between delivery trucks and passenger vehicles. 6. Design project driveways and internal roadways to accommodate the turning movements of large delivery vehicles. 7. Provide sufficient bicycle parking designed to City standards to satisfy City code requirements. 8. Coordinate with SJRTD and City staff to identify the location of potential transit features and modify the site plan accordingly. 9. Designate Park and Ride parking locations adjacent to planned transit facilities.	
Air Quality			
Impact 4.8.1. Construction activities associated with development of the project would generate short-term emissions of criteria pollutants, including suspended and inhalable particulate matter (PM10) and equipment exhaust emissions. This impact would be significant.	S	**Mitigation Measure 4.8.1a:** The applicant shall comply with Regulation VIII Rule 8011 and implement the following control measures during construction: • The applicant shall submit a Dust Control Plan subject to review and approval of the SJVAPCD at least 30 days prior to the start of any construction activity on a site that includes 40 acres or more of disturbed surface area. Specific control measures for construction, excavation, extraction, and other earthmoving activities required by the Valley Air District include: • All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover in order to comply with Regulation VIII's 20 percent opacity limitation. • All onsite unpaved roads and offsite unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.	LS

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking. • When materials are transported offsite, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained. • All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. However, the use of blower devices is expressly forbidden, and the use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. • Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant. • Within urban areas, trackout shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday. • Any site with 150 or more vehicle trips per day shall prevent carryout and trackout. Enhanced and additional control measures for construction emissions of PM10 shall be implemented where feasible. These measures include: • Limit traffic speeds on unpaved roads to 15 mph. • Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent. • Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site. • Install wind breaks at windward side(s) of construction areas. • Suspend excavation and grading activity when winds exceed 20 mph. • Limit area subject to excavation, grading, and other construction activity at any one time.	
Impact 4.8.2. Construction activities associated with development of the Barkett property would potentially produce short-term emissions of suspended asbestos. This impact would be potentially significant.	PS	**Mitigation Measure 4.8.2.** Before any site work is done on the Barkett Property parcels, the property owner shall contact the SJVAPCD Compliance Division and follow all appropriate asbestos cleanup procedures.	LS

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 4.8.3. The project would result in an increase in operational emissions of criteria air pollutants (ROG, NOx and PM10) from on-road motor vehicle traffic traveling to and from the project area and onsite area sources associated with the project. This impact would be significant.	S	**Mitigation Measure 4.8.3a:** To reduce the operational impacts of the project, feasible mitigation measures from the following table shall be implemented as required by the City: See revised section 4.8 (Chapter 4 of the FEIR) for the full text of this measure.	SU
		Mitigation Measure 4.8.3b: Implementation Plans for the project shall comply with Rule 9510 Indirect Source Review. Compliance with Rule 9510 will require reductions of 33.3% of the NOx operational emissions, 45 % of the PM10 construction emissions and 50% of the PM10 construction operation emissions, or payment of fees (as calculated in Rule 9510) to offset NOx or PM10 operational emissions not reduced to the specified levels.	SU
Impact 4.8.4: Project traffic would increase localized carbon monoxide concentrations at intersections in the project vicinity. This impact would be less than significant.	LS		
Impact 4.8.5. Emissions of diesel particulate matter from truck traffic and operations within the loading dock and toxic air contaminants from the service station area could pose a risk to human health. This impact would be less than significant.	LS	**Mitigation Measure 4.8.5a:** All diesel truck operators shall be monitored to strictly abide by the applicable state law requirements for idling, as described in the air borne toxic control measure (CCR, Title 13, section 2485), which limits vehicles with gross vehicular weight ratings of more than 10,000 pounds to no more than 5 minutes of idling of the primary engine or the diesel-fueled auxiliary power system at any location. This limit shall be posted onsite.	
Cumulative Impact 4.8.6. The project would contribute to a cumulative air quality impact in the project area. This impact is considered significant.	S	**Mitigation Measure 4.8.6:** Implement Mitigation Measure 4.8.3a and Mitigation Measure 4.8.3b.	SU
Noise			
Impact 4.9.1. Construction and grading activities associated with the development of the project would temporarily and intermittently increase noise levels at nearby sensitive receptor locations. This impact would be potentially significant.	PS	**Mitigation Measure 4.9.1a.** The applicant shall implement the following measures: • Construction activities shall be limited to between 7:00 a.m. and 7:00 p.m. Monday through Saturday to avoid noise-sensitive hours of the day. Construction activities shall be prohibited on Sundays and holidays. • Construction equipment noise shall be minimized during project construction by muffling and shielding intakes and exhaust on construction equipment (per the manufacturer's specifications) and by shrouding or shielding impact tools. • Construction contractors shall locate fixed construction equipment (such as compressors and generators) and construction staging areas as far as possible from nearby residences. • Construction contractors shall prohibit material haul trucks from using William Moss Boulevard and the segment of Manthey Road north of William Moss Boulevard to access the project site. Instead, haul trucks shall exit Interstate 5 at French Camp Road and approach the project site via French Camp Road, Henry Long Boulevard, and/or the segment of Manthey Road between French Camp Road and Carolyn Weston Boulevard.	LS

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Mitigation Measure 4.9.1b. To further address the nuisance impact of project construction, construction contractors shall implement the following: • Signs will be posted at the construction site that include permitted construction days and hours, a day and evening contact number for the job site, and a contact number with the City of Stockton in the event of problems. • An onsite complaint and enforcement manager shall track and respond to noise complaints.	LS
Impact 4.9.2. Operational activities (non-transportation) associated with the project could increase ambient noise levels at nearby existing and planned residences. This impact would be potentially significant.	PS	**Mitigation Measure 4.9.2a.** The project applicant shall incorporate the following design features into the final site plans: • Building equipment (e.g., HVAC units) shall be located away from nearby residences, on building rooftops, and properly shielded by either the rooftop parapet or within an enclosure that effectively blocks the line of sight of the source from the nearest receptors to the west. • For the proposed major retailers that would be located on the western edge of the project site, appropriate wing-walls around the truck wells, rubberized gaskets at the loading bays, and acoustically absorptive materials shall be implemented at the primary loading docks of each facility to reduce noise. • A sound wall shall be maintained along the entire western edge of the property, to reduce noise that would reach the existing and planned residences to the west of the project. Note that a sound wall has been constructed to the west of the project site as part of the residential subdivision. • Noise levels from operations (including the loading docks) on the northern edge of the property shall not exceed the commercial standards in the 2035 General Plan. The project applicant shall be responsible for landscaping and maintaining their portion of the wall on the re-routed Henry Long Blvd. Landscaping will occur on the south side of the re-routed Henry Long Blvd. and will include a mix of berm and landscaping with trees (at least 15 gallons) and shrubs to be installed for screening purposes. • Screen or enclose trash compactor. • Minimize truck idling per Mitigation Measure 4.8.5a. • Design delivery areas so that loading and unloading occur within the structure. • Post delivery areas prior to the issuance of a Certificate of Occupancy to inform delivery personnel that noise reduction efforts are in effect at all times. •	LS

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Mitigation Measure 4.9.2b. The following activities shall be prohibited between the hours of 10:00 p.m. and 7:00 a.m., per section 16-340.030 of the City of Stockton Noise Ordinance: • Use of loudspeakers or loudspeaker systems. • Garbage removal activities including trash compaction. • Use of parking lot sweeping units (e.g., air system sweeping devices, truck-mounted parking lot sweeping devices or other similar devices) and landscape equipment (e.g., leaf blowers). • Minimize truck idling per Mitigation Measure 4.8.5a.	
Impact 4.9.3. Traffic associated with operation of the project would result in an increase in ambient noise levels on nearby roadways used to access the shopping center. This impact would be less than significant.	LS		
Cumulative Impact 4.9.4. Increases in traffic from the project in combination with other development would result in cumulative noise increases. This impact would be les than significant.	LS		
Hydrology and Water Quality			
Impact 4.10.1. Construction of the project could potentially degrade water quality and/or violate water quality standards. This impact is considered potentially significant.	PS	**Mitigation Measure 4.10.1.** All construction plans and activities shall implement multiple BMPs to provide effective erosion, runoff, and sediment control. These BMPs shall be selected to achieve maximum soil protection and sediment removal; and represent the best available technology that is economically achievable. BMPs to be implemented as part of this mitigation measure shall include, but are not limited to, the following measures: • Temporary erosion control measures (such as staked straw bales/wattles, soil mats, earthen berms, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) will be employed for disturbed areas. • Onsite storm drain inlets and in downstream offsite areas will be protected from sediment with the use of BMPs acceptable to Stockton Municipal Utilities Department. • Dirt and debris will be swept from paved streets in the construction zone on a regular basis, particularly before predicted rainfall events. • Grass or other vegetative cover will be established on the construction site as soon as possible after disturbance. At minimum, vegetative application shall be done by September 15th to allow for plant establishment. No disturbed surfaces will be left without erosion control measures in place during the wet season (October 15t to April 15).	LS

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• Hazardous materials such as fuels and solvents used on the construction sites shall be stored in covered containers and protected from rainfall, runoff, vandalism, and accidental release to the environment. All stored fuels and solvents will be contained in an area of impervious surface with containment capacity equal to the volume of materials stored. A stockpile of spill cleanup materials shall be readily available at all construction sites. Employees shall be trained in spill prevention and cleanup, and individuals shall be designated as responsible for prevention and cleanup activities. • Equipment shall be properly maintained in designated areas with runoff and erosion control measures to minimize accidental release of pollutants. As shown in Table 4.10-1, multiple BMPs used in combination, assuming proper installation and maintenance, can achieve nearly complete sediment removal. Therefore, the City shall require the applicant and its construction contractor(s) to incorporate multiple BMPs to achieve this result and protect water quality. The final selection and design of erosion and sediment controls shall require approval from Stockton Municipal Utilities Department and demonstrate that this result can be achieved. In all cases, these BMPs shall be subject to approval by the City at its discretion, and the applicant shall incorporate into contract specifications the requirement that the contractor(s) comply with and implement these provisions, as well as provisions for monitoring to verify that these standards are met.	
Impact 4.10.2. Project operation could increase non-storm and stormwater runoff, thereby potentially transporting contaminants to nearby surface waters. This impact is considered potentially significant.	PS	**Mitigation Measure 4.10.2a.** To minimize the amount of pollutants entering the storm drain system, project roadways and parking areas will be cleaned regularly using street sweeping equipment. Additionally, litter and debris that may accumulate on the project site will be regularly collected and properly disposed. Collection and disposal activities shall be the responsibility of the City provider (Sunrise Sanitation).	LS
		Mitigation Measure 4.10.2b. The Applicant shall develop and implement a pesticide and fertilizer management plan for landscaped areas with the goal of reducing potential discharge of such chemicals, chlorpyrifos, and diazinon in particular, to adjacent waterways. The Applicant will ensure that the Plan is issued to all future owners and tenants.	LS
		Mitigation Measure 4.10.2c. As required by the Stormwater Quality Control Criteria Plan, the owners, developers, and/or successors-in-interest must establish a maintenance entity acceptable to the City to provide funding for the operation, maintenance, and replacement costs of the stormwater best management practices.	LS
		Mitigation Measure 4.10.2d. The property owners, developers, and/or successors-in-interest shall comply with any and all requirements, and pay all associated fees, as required by the City's Stormwater Pollution Prevention Program as set forth in its NPDES Stormwater Permit.	LS
		Mitigation Measure 4.10.2e. The Drainage Plan for the project will include BMPs to maximize non-storm and stormwater quality. The Drainage Plan will include both BMPs that will address the project site as a whole, as well as guidance for BMPs to be implemented for	LS

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		future tenants. These BMPs shall be selected to achieve maximum contaminant removal and represent the best available technology that is economically achievable. The BMPs will include a combination of source control, structural improvements, and treatment systems. BMPs will include, but not be limited to the following: • Water quality units to be located within the storm drain system. The selected units will provide effective water quality control for the pollutants that are commonly present in stormwater runoff generated by retail centers. These pollutants include trash and debris, oil and grease, and limited amounts of sediment. The water quality units will be periodically inspected and maintained to the levels and at the frequencies that are recommended by the product manufacturers. The units will accommodate the following parameters: 1. Treatment capabilities for the expected pollutants (trash and debris, oil and grease, and limited amounts of sediment). 2. Ability to treat the amount of runoff generated by the low-flow storm event that is specified by the local jurisdiction. 3. Ability to accommodate or bypass the flood control design storm event as determined by the local jurisdiction. • Grass strips, high infiltration substrates, and grassy swales shall be used where feasible throughout the project site to reduce runoff and provide initial storm water treatment. This type of treatment will apply particularly to parking lots. • Small settling, treatment, and/or infiltration devices will be installed beneath large parking areas to provide initial filtration prior to discharges into flood control basins. This will include the use of oil and grease separators. • Roof drains shall drain to natural surfaces or swales where possible to avoid excessive concentration and channelization of storm water. Roof drains may be directly connected to the storm drain system, if treatment control measures are provided downstream. • All drain inlets shall be permanently stamped with the message “NO DUMPING, FLOWS TO DELTA.” • Permanent energy dissipaters will be included for drainage outlets. Because the assimilative capacity of the receiving waters is impaired, the Applicant shall remove the maximum level of pollutants from stormwater discharges using the best available technology to maintain ambient water quality. To achieve this goal, the Applicant shall select a combination of BMPs that is expected to reach a target goal of 100 percent removal of suspended solids, nitrogen, phosphorus, pathogens, and metals from stormwater discharges, given the lowest expected pollutant removal efficiencies	

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		identified in Table 4.10-1 or elsewhere. While 100 percent contaminant removal is often not feasible, the final selection and design of BMPs shall provide maximum contaminant removal, represent the best available technology that is economically achievable, and shall explicitly identify the expected level of effectiveness at contaminant removal. A monitoring program shall be implemented to verify BMP effectiveness and compliance with water quality standards for the San Joaquin River, as outlined in the Central Valley RWQCB's Basin Plan (1998). In the event that the BMPs are not meeting the identified performance standards, BMPs shall be redesigned, or new BMPs implemented, to achieve this result. The Drainage Plan shall include, and the Applicant shall implement, a schedule that implements BMPs prior to or concurrent with new development such that water quality is maintained. The City shall require the incorporation of these BMPs into project designs as a condition of project approval.	
Impact 4.10.3. Implementation of the project would not substantially interfere with groundwater recharge or result in adverse impacts to groundwater quality. This impact is considered less than significant.	LS		
Impact 4.10.4. Domestic water demands generated by the project could deplete groundwater supplies. This impact is considered less than significant.	LS	**Mitigation Measure 4.10.4.** The water irrigation system installed for the Project shall be installed such that it may be converted to a non-potable reclaimed water system in the future. The applicant shall monitor the City's efforts to develop a reclaimed water system. If the City develops a reclaimed water system that is feasibly accessible to the project site, non-potable water shall be used for Project landscape irrigation.	
Impact 4.10.5. Development of the project would increase the amount of impervious surfaces, which in turn would increase local storm runoff volumes that could exceed the capacity of on- and offsite drainage systems, and create localized flooding or contribute to a cumulative flooding in down-gradient locations. This impact is considered potentially significant.	PS	**Mitigation Measure 4.10.5.** The Applicant shall prepare a Master Drainage Plan for the project site. The Drainage Plan should incorporate measures to minimize the increased runoff during peak conditions. The applicant will implement measures provided in the Drainage Plan. A detailed drainage report shall be prepared by a registered civil engineer prior to site development. The report shall include the following items: • An assessment of existing drainage facilities within the project vicinity, and an inventory of necessary upgrades, replacements, redesigns, and/or rehabilitation. • A description of the proposed maintenance program for the onsite drainage system. • Standards for drainage systems to be installed on a project-specific basis. • The drainage system shall be designed to meet standards in the Stockton Municipal Code and the City of Stockton Department of Public Works Standard Specifications (current edition). The Drainage Plan shall include, and the Applicant shall implement, a schedule for identified drainage improvements. In addition, when approving specific developments that may result in increased drainage flows on the project site, the Applicant shall concurrently implement any necessary drainage improvements such that new development does not exceed the capacity of Master-Planned drainage facilities.	LS

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 4.10.6. Construction of the proposed project could place structures within a 100-year flood area and expose people or structures to a significant risk of loss, injury, or death involving flooding. This impact is considered less than significant.	LS		
Biological Resources			
Impact 4.11.1. Construction activities in the project area could result in adverse impacts to special-status species, including Swainson's hawks, burrowing owls, Greater western mastiff-bat and Yuma myotis bat, Ferruginous hawk, Mountain plover, White-tailed (black shouldered) kite, Greater sandhill crane, and Loggerhead shrike. This impact is potentially significant.	PS	**Mitigation Measure 4.11.1.** The SJMSCP provides a means of providing mitigation for species covered by the plan. Regulatory agencies (USFWS, DFG) have approved the SJMSCP. All of the special-status species potentially present at the site are covered species under the SJMSCP. Thus, compliance with the SJMSCP would provide adequate mitigation for the project's impacts to special-status species. As an alternative, the applicant could provide mitigation for each of the special-status species potentially present at the site, without complying with the SJMSCP. Either approach would provide adequate mitigation. Accordingly, the Applicant shall mitigate impacts to special status species by one of the following approaches: a) The Applicant shall comply with the terms of the SJMSCP. In the event the Applicant complies with the SJMSCP, the Applicant shall implement one of the following measures: • Pay the applicable in-lieu fee to the JPA, as indicated in section 7.4.1 of the SJMSCP. The site is currently categorized as agricultural land under the SJMCSP. • Dedicate conservation easements, fee title, or in-lieu dedications. • Purchase approved mitigation bank credits as specified in section 5.3.2.4. • Propose an alternative mitigation plan consistent with SJMSCP goals and equivalent in biological value to the other options, subject to SPA approval. These measures may also be combined, provided the combined measures provide equivalent biological value, subject to confirmation of compliance with this standard by the JPA. (See SJMSCP, p. 5-52). Or;	LS

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		b) The project shall implement pertinent avoidance and mitigation measures commensurate with those described in Sections 5.2 and 5.3 of the SJMSCP subject to review and approval by the appropriate regulatory agencies. Mitigation measures shall include, but are not limited to, the following: 1. Pre-construction clearance surveys for presence of special-status species, particularly nesting Swainson's hawks, Loggerhead Shrikes, burrowing owls, and other raptors, and roosting special-status bats. • Surveys for nesting Swainson's hawk shall be conducted in accordance with the Swainson's Hawk Technical Advisory Committee (2000) guidelines in the project area and within one-half mile of the project area. This survey consists of six visits during the breeding season. • A preconstruction clearance survey shall be completed for Loggerhead Strikes in the project area and within one-half mile of the project area. This survey consists of six visits during the breeding season. • Surveys for burrowing owl shall be conducted in accordance with the CDFG (1995) guidelines in the project area and a 150-meter buffer area. Surveys shall be conducted during both the wintering and nesting seasons, unless burrowing owls are detected on the first survey, to determine if the site is occupied. A subsequent survey within 30 days prior to the construction shall be performed to ensure that the site has not become occupied since the previous surveys. 2. Specified construction timing to avoid impacts to migratory or seasonal species or breeding periods. • Construction activities shall be avoided within one-quarter mile of an active nest of a Swainson's hawk from March 1 to September 15 in accordance with the CDFG (1994) guidelines unless the approval of a local CDFG biologist is obtained. • If the project site is occupied by burrowing owls, a buffer area of 250 feet shall be maintained around the occupied burrow, unless a qualified biologist determines that the birds have not begun egg-laying and incubation or the juveniles are foraging independently and capable of independent survival, in accordance with CDFG (1995) guidelines. If owls must be moved away from the area, passive relocation techniques rather than trapping shall be used. 3. Replacement of lost habitat. • Swainson's hawk foraging habitat shall be replaced at a ratio specified in the November 1994 CDFG Staff Report on Mitigation for Impacts to Swainson's Hawks in the Central Valley of California. This includes a 1:1 ratio for lands	

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		within 1 mile of an active nest tree, 0.75:1 for lands within 1 to 5 miles of an active nest tree, and 0.5:1 for areas within 5 to 10 miles of an active nest tree. This may include purchase of credits at an approved mitigation bank. • To offset the loss of burrowing owl foraging and burrow habitat, preservation of 6.5 acres per owl pair or unpaired resident bird shall be acquired and permanently protected in accordance with the CDFG (1995) guidelines. If occupied burrows cannot be avoided, existing unsuitable burrows shall be enhanced or new burrows created on these protected lands at a ratio of 2:1. This may include purchase of credits at an approved mitigation bank. A monitoring plan and reports for the protected lands shall be submitted to CDFG. • Construction activities within 250 feet of other active raptor nests shall be prohibited unless approval from CDFG biologists is obtained. 4. Swainson's hawk nest trees shall not be removed for the project unless there is no feasible way to avoid them and a Management Authorization from CDFG is received. Swainson's hawk nest trees shall be removed between October 1 and February 1. 5. If roosting special-status bat species are detected, one-way exclusion devices shall be implemented so that bats may exit but not reenter structures prior to demolition. 6. Construction monitoring shall be performed by a qualified biologist to ensure compliance with all of the above avoidance, protection, and mitigation measures. Swainson's hawk monitoring shall be performed in accordance with the CDFG (1994) guidelines. Burrowing owl monitoring shall be performed in accordance with the CDFG (1995) guidelines.	
Impact 4.11.2. The project may result in impacts to heritage and other oak trees as defined in the Stockton Municipal Code. This impact is considered less than significant.	LS		
Cultural and Historic Resources			
Impact 4.12.1. Implementation of the project could result in damage to previously unidentified buried archaeological and/or human remains during project construction. This impact is considered potentially significant.	PS	**Mitigation Measure 4.12.1.** Pursuant to CEQA Guidelines 15064.5 (f), "provisions for historical or unique archaeological resources accidentally discovered during construction" should be instituted. Therefore, in the event that any prehistoric or historic subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project proponent and/or lead agency shall consult with a qualified archaeologist or paleontologist to assess the significance of the find. If any find is determined to be significant, representatives of the project proponent and/or lead agency and the qualified archaeologist and/or paleontologist would meet to determine the appropriate avoidance measures or other	LS

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		appropriate mitigation, with the ultimate determination to be made by the City. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and a report prepared by the qualified archaeologist according to current professional standards. In considering any suggested mitigation proposed by the consulting archaeologist in order to mitigate impacts to historical resources or unique archaeological resources, City Planning Staff shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the project site while mitigation for historical resources or unique archaeological resources is carried out. If the discovery includes human remains, CEQA Guidelines 15064.5 (e)(1) shall be followed, which is as follows: (e) In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the following steps should be taken: (1) There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until: (A) The coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required, and (B) If the coroner determines the remains to be Native American: 1. The coroner shall contact the Native American Heritage Commission within 24 hours. 2. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American. 3. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98, or (2) Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance.	

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		(A) The Native American Heritage Commission is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 24 hours after being notified by the commission. (B) The descendant identified fails to make a recommendation; or (C) The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.	
Hazards and Hazardous Materials			
Impact 4.13.1. Construction of the project would occur in an area with wells and septic systems. This impact is considered potentially significant.	PS	**Mitigation Measure 4.13.1.** All onsite water supply wells and sewage disposal systems shall be properly destroyed by the project applicant in accordance with applicable permit and inspection by the San Joaquin County Environmental Health Department.	LS
Impact 4.13.2. Construction activities associated with the project could uncover areas of unknown contamination by hazardous substances. This impact is considered potentially significant.	PS	**Mitigation Measure 4.13.2.** If contaminated soil and/or groundwater are encountered or suspected contamination is encountered during project construction, work shall be stopped in the suspected area of contamination, and the type and extent of the contamination be identified by the project applicant or the applicant's consultant. If necessary, a remediation plan shall be implemented in conjunction with continued project construction. A contingency plan shall be developed and implemented to dispose of any contaminated soil or groundwater. In addition, if groundwater is encountered and any dewatering is to occur at this location, the RWQCB would need to be consulted for any special requirements such as containing the water until it can be sampled and analyzed to ensure that no contaminants are in the groundwater.	LS
Impact 4.13.3. Construction of the project may involve the temporary use and storage of hazardous materials such as gasoline, diesel fuel, solvents, hydraulic fluids, oils, paints, and other materials. This impact is considered potentially significant.	PS	**Mitigation Measure 4.13.3a.** The project applicant shall ensure, through the enforcement of contractual obligations, that all contractors transport, store and handle construction-related hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended and enforced by the DOT, California RWQCB, SJCEMD, and the Stockton Fire Department. Recommendations may include, but are not limited to, transporting and storing materials in appropriate and approved containers, maintaining required clearances, and handling materials using the applicable federal, state and/or local regulatory agency protocols. In addition, all precautions required by the RWQCB issued NPDES construction activity stormwater permits would be taken to ensure that no hazardous materials enter any nearby waterways.	LS
		Mitigation Measure 4.13.3b. The project applicant shall ensure, through the enforcement of contractual obligations, that all contractors immediately control the source of any leak and immediately contain any spill utilizing appropriate spill containment and countermeasures. If required by the SJCDEM, Stockton Fire Department, or any other regulatory agency, contaminated media shall be collected and disposed of at an offsite facility approved to accept such media.	LS

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 4.13.4. A natural gas well was identified on the project site at the northwest corner of Manthey Road and Henry Long Boulevard that has not been in use for 15 to 20 years. This impact is considered potentially significant.	PS	**Mitigation Measure 4.13.4.** The natural gas well shall be properly abandoned by the project applicant in consultation with and in accordance with the regulations of the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources and the San Joaquin County Environmental Health Department. As the applicant does not control the well property, should abandonment prove infeasible, the applicant shall comply with all state and local building setback requirements.	LS
Impact 4.13.5. The project site is located within the Stockton Metropolitan Airport Area of Influence Boundary and the Conical Surface Outer Boundary. This impact is considered potentially significant.	PS	**Mitigation Measure 4.13.5.** The project applicant shall ensure that the design of structures and other features of the project include the following land use guidelines as provided in the San Joaquin County Airport Land Use Plan (adopted 1983): • Non-reflective materials • No transmissions (such as communication towers) • No visual distractions • No very tall structures	LS
Impact 4.13.6. During construction, equipment and vehicles may come in contact with vegetated areas and accidentally spark and ignite dry vegetation. This impact is considered potentially significant.	PS	**Mitigation Measure 4.13.6.** The Stockton Fire Department provides fire protection and emergency services to the project site. However, the following mitigation measures are recommended to reduce this potentially significant impact: • The project applicant shall ensure, through the enforcement of contractual obligations that during construction, staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. The contractor shall keep these areas clear of combustible materials in order to maintain a firebreak. Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws. • The project applicant, in consultation with the Stockton Fire Department, shall create fire-safe landscaping near the structures, develop a maintenance plan, and develop a plan for emergency response and evacuation at the project site.	LS
Impact 4.13.7. Exposure of individuals to asbestos-containing dust and lead-based paint. This impact is considered potentially significant.	PS	**Mitigation Measures 4.13.7.** An asbestos survey and a lead-based paint survey shall be completed by the project applicant on all of the structures located on the project site prior to any demolition activities. All asbestos work must comply with the NESHAP, California Occupational Safety and Health Administration (Cal/OSHA) regulations, San Joaquin Valley Unified Air Pollution Control District, and/or California Air Resources Board (CARB) regulations, as well as any local ordinances.	LS

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		The California Department of Health Services (DHS) recommends that a contractor who is State certified be hired to perform lead-related construction work. Cal/OSHA requires contractors and workers to be state-certified for high exposure lead work. Prior to renovation or demolition of any structures on the project and alternative sites, painted surfaces should be tested by a State certified lead inspector to determine if the paint contains lead and what action, according to DHS recommendations and Cal/OSHA requirements, are recommended and required for the project and alternatives.	
Impact 4.13.8. An asbestos landfill has been identified on the project site that if disturbed could result in a release of asbestos fibers into the air. This impact is considered potentially significant.	PS	**Mitigation Measure 4.13.8a.** Until the asbestos landfill has been remediated and approved for development by the California Integrated Waste Management Board, State of California Department of Toxic Substance Control and the San Joaquin Valley APCD, the asbestos landfill shall be sectioned off from the rest of the project site by a fence (chain-link or better) so that the area cannot be accessed by construction workers or the public.	LS
		Mitigation Measure 4.13.8b. Pursuant to 27 CCR, Section 21190, all proposed land use of the asbestos landfill must be submitted to the Enforcement Agency (EA) section of the CIWMB for review and approval, including any future excavation of this former disposal site.	LS
		Mitigation Measure 4.13.8c. Prior to development of any uses on the Barkett property (the asbestos landfill), the developer shall supply the City of Stockton with a report showing that either the asbestos has been removed from the site (constituting "a clean closure") or evidence that the site would be adequately capped so that the buried asbestos would have no potential to expose future users of the site. The City of Stockton must accept the report prior to approval of a Use Permit for the Barkett property.	LS
Impact 4.13.9. Exposure of individuals to agricultural chemical residue in the soils on the project site. This impact is considered less than significant.	LS		
Impact 4.13.10. The project itself, once developed, would involve the use of underground fuel storage tanks at the two proposed fuel centers (gasoline stations). This impact would be less than significant.	LS		
Energy			
Impact 4.14.1. Construction of the project would result in use of non-renewable energy resources.	LS		
Impact 4.14.2. Over the long term, the project would result in increased energy consumption from vehicle trips and building operations.	PS	Implement Mitigation Measure 4.8.3a.	LS
Impact 4.14.3. The project would incrementally contribute to cumulative energy consumption.	PS	**Mitigation Measure 4.14.3**: The owners, developers and/or successors-in-interest (ODS) shall implement the following measures: 1. GCC-1. All commercial buildings (over 5,000 square feet) within the project site will comply with LEED-Certified standards in effect at the	LS

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		time of construction. The ODS will not be required to participate in the formal LEED inspection and certification process, but will be required to demonstrate to the City the ability to be certified to LEED standards.	
		2. GCC-2. The ODS shall address the impacts from project-related emissions through implementation of the following measures: a. Implement Mitigation Measure 4.8.3b (Rule 9510 Indirect Source Rule) b. Implement Mitigation Measure 4.8.5a (Impose idling time restrictions for delivery vehicles)	
		3. GCC-3. The following measures shall be used in combination to accomplish an overall reduction in energy consumption relative to the requirements of Title 24 (California Code of Regulations): a. Contractors shall minimize and recycle construction-related waste. b. Implement Mitigation Measure 4.8.3a (energy-saving features)	
		4. GCC-4: The ODS is required to prepare a water conservation plan for the proposed project to the satisfaction of the Director of Municipal Utilities. The plan shall address the following, as appropriate: a. Water-efficient landscapes shall be provided for all public landscaped areas, including roadway medians and roadside landscaping. b. Water-efficient irrigation systems and devices shall be required in all landscaped areas.	
		5. GCC-5. The ODS is required to implement the following to reduce the solid waste impacts from the proposed project. a. Implement Mitigation Measure GGC-3.a. b. Provide interior and exterior storage areas for recyclables and green waste and adequate recycling containers located in public areas.	
		6. GCC-6. Implement the bicycle, pedestrian, and transit improvements described in Mitigation Measure 4.8.3a.	

LS = Less than Significant; PS = Potentially Significant; S = Significant; SU = Significant and unavoidable.

CHAPTER 1
Introduction and Reader's Guide

Introduction

During the public review process for the Weston Ranch Towne Center Project Draft Environmental Impact Report (Draft EIR), the City of Stockton received a number of written comments from public agencies, organizations, and individuals concerning this document and the recommendations and findings it contains. During the public review period for this document, the City also held a public workshop on the project.

This Final EIR includes the comments made on the Draft EIR and provides written responses to these comments. The required contents of a Final EIR and the certification process are described below. The information in this document will be presented to the City of Stockton Planning Commission and City Council and will be used as part of their review, consideration, and approval of the project.

Project Background

In November of 2006 a Draft EIR was published for the originally proposed Weston Ranch Towne Center project. The project included a 232,000 square foot Wal-Mart Supercenter (including a garden center) and a 134,720 square foot major retail space. In addition, the project included other retail stores for a total maximum floor area of 710,000 square feet. On August 14, 2007, subsequent to the publication and circulation of the Draft EIR, the Stockton City Council passed an ordinance which prohibited retailers from opening stores larger than 100,000 square feet which used at least 10 percent of their floor space to sell groceries.

The Weston Ranch Towne Center has subsequently been revised to comply with the ordinance passed in August, 2007. The revised project reduces the floor area of the proposed Wal-Mart Supercenter to 99,996 square feet and removes the second large major retail space (previously noted at 134,720 square feet). The project consists of three phases. The project applicant, Vestar Development Company, is applying to the City to develop the majority of the project site (+/- 29.28 acres of the approximately 34-acre Vestar Property) with a regional shopping center. This shopping center represents Phase I of development. In addition to the Vestar Property, the Mill Creek Development property (approximately 4.3 acres, planned for 10,496 square feet of commercial space) is included in the project analysis. This site would be constructed as Phase II. The project also includes two additional parcels (APN 1689008 and 1689009), owned by Manthey Road Holdings, LLC, and known as the Barkett Property. The requested entitlement for the Barkett property is a rezone from low density residential to commercial large-scale. No development is currently proposed for this parcel. Any future development of this site would be undertaken during Phase III.

Though slightly smaller, the size of the revised project (405,541 square feet for Phases I, II and III with a 481,000 maximum square foot envelope for all phases) is generally consistent with the Draft EIR's Alternative 4 – Reduced Density Alternative." Alternative 4 analyzed the impacts of a maximum total retail space of 500,000 square feet. As explained in the Draft EIR, impacts under the Reduced Density Alternative would be slightly less than the project as originally proposed with respect to public services and utilities, transportation and traffic, air quality, noise and hydrology and water quality. However, as also explained in the Draft EIR, none of the significant impacts identified for the originally proposed project (Draft EIR, pp.5-14 through 5-17) would be reduced to a level of insignificance under the Reduced Density Alternative. Because the revised project is consistent with the Reduced Density Alternative, the analysis contained in the Draft EIR sufficiently analyzes all of the potential impacts of the revised project. As with the Reduced Density Alternative, many impacts of the revised project are of lesser severity than those of the original project analyzed in the Draft EIR.

Additionally, the November 2006 Draft EIR included a General Plan Amendment to change the General Plan designation from Low-Medium Density Residential/Commercial to entirely Commercial. Since the publication of the Draft EIR, the Stockton 2035 General Plan Update has been approved by the Stockton City Council (December 11, 2007). The Stockton 2035 Land Use Diagram designates the project area as Commercial, and a General Plan Amendment is no longer required for this project. However, at the time of publication of this Final EIR, the Stockton 2035 General Plan Update is being challenged in the San Joaquin County Superior Court (Superior Court case numbers CV 034405, CV 034370). As such, it is uncertain whether the Update will be upheld. If the Update is not upheld and the previous General Plan reinstated, then the project would again require a General Plan Amendment to change the General Plan designation from Low-Medium Density Residential/Commercial to entirely commercial. The potential environmental effects associated with the General Plan Amendment required under the City's previous General Plan were analyzed in the Draft EIR, including in the Reduced Density Alternative Analysis. This Final EIR has been revised to reflect the fact that a General Plan Amendment is no longer required for the project under the 2035 General Plan Update. However, the reader of this Final EIR should bear in mind that an adverse judgment in the litigation challenging the 2035 General Plan Update may cause the previous General Plan to be reinstated; under such a circumstance, this project would require a General Plan Amendment as analyzed in the Draft EIR.

Project Overview

The project proposes development of the project site (Revised Figure 3-2) with a regional shopping center including large-scale retail stores; in-line shops (located contiguously between large-scale retail stores); retail pad stores; restaurants (including quick service restaurants and traditional restaurants); fuel centers; and parking (Revised Figure 3-4, Site Plan).

The project includes an application to the City of Stockton to rezone the project site. The current and proposed zoning are summarized in the following table:

PROPOSED ZONING AMENDMENTS

	Current (Stockton 2035 General Plan Update)	Proposed
Zoning district	RL Residential, Low Density	CL (commercial large-scale) district

The other entitlements requested by the applicants are Development Agreements, Tentative Maps covering the project site, Use Permit(s), and one or more variances (please see the revised project description in Chapter 4 of this FEIR for a complete list of required approvals). No site specific entitlements are sought at this time on the Barkett property.

The floor area and design of the stores, particularly the inline stores and pads, may change during the design process. The most recent site plan provides for approximately 405,541 square feet (including the Mill Creek Development and Barkett properties). This EIR assumes a maximum floor area of 481,000 square feet. The larger "envelope", which is 75,459 square feet larger than currently envisioned, allows the lead agency to consider future revisions to the regional shopping center and development of the Barkett property. The future development of the Barkett property, or additional development within the regional shopping center, allowable under the recently adopted General Plan Update and proposed rezoning is considered part of the "whole of the action" for the purpose of this EIR.

It is assumed for purposes of the EIR that the project, excluding the Barkett property, would begin construction as early as 2009 and be fully operational by 2010. This is the "buildout" year for the project, when the major tenants and the majority of the in-line shops and pads would be occupied. Timeframe for development of the additional approximately 6.1 acres of the Barkett property would occur at a future date not yet determined.

Project Objectives

The City of Stockton is San Joaquin County's (County) largest metropolitan center and has the most extensive supply of developable urban land based on zoning classifications. The recently adopted General Plan 2035 provides a framework for residential and commercial development into the future. The Weston Ranch area has experienced residential growth, but is relatively underserved by retail/commercial uses. In light of these above-mentioned factors, the objectives of the project are as follows:

1. To construct a regional commercial and retail space along the Interstate 5 corridor in south Stockton that will accommodate the existing and future demand for such services in the southern portion of the City.
2. To augment the City's available commercial space for continuing growth demands.
3. To provide job opportunities for members of Stockton's work force.
4. To provide an expanded economic base for the City by generating substantial property and sales tax and fee revenue and by increasing the proportion of local income invested and spent locally.
5. To provide retail and commercial services at a currently vacant location that is safe

and convenient for customer access by locating the project immediately adjacent to an existing regional interchange with Interstate 5 and where economic viability can be sustained.

6. To provide a commercial center on a large, undeveloped site in close proximity to an existing highway and near other commercial centers, that will minimize travel lengths and utilize existing infrastructure to the extent possible.
7. To provide a commercial center that provides sufficient development area to allow a mixture of uses in outlying parcels in addition to major anchor tenants, in order to create a destination commercial center that will attract various types of customers to the City.
8. To provide a commercial development that is of a high quality design and that can be adequately served by public services and utilities.
9. To provide large-scale retail activities that will compliment existing smaller scale retail activities located throughout the City.

California Environmental Quality Act Compliance

The Final EIR for the Proposed Project has been prepared in accordance with the guidelines for implementation of CEQA. Specifically, Section 15132 of the State CEQA Guidelines requires that a Final EIR consist of the following:

- The Draft EIR or a revision of the draft;
- Comments and recommendations received on the Draft EIR;
- A list of persons, organizations, and public agencies commenting on the Draft EIR;
- The responses of the lead agency to significant environmental concerns raised in the review and consultation process; and
- Any other information added by the lead agency.

The Draft EIR for the Proposed Project was prepared in compliance with CEQA and the CEQA Guidelines (California Code of Regulations, Title 14). As described in the CEQA Guidelines, Section 15121(a), an EIR is a public information document that assesses the potential environmental effects of a proposed project, as well as identifies mitigation measures and alternatives to the project that could reduce or avoid adverse environmental impacts. CEQA guidelines require that state and local government agencies consider the environmental consequences of projects over which they have discretionary authority. Consequently, the EIR is an information document used in the planning and decision-making process. It is not the purpose of an EIR to recommend either approval or denial of a project.

The procedures required by CEQA "are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects (Public Resources Code Section 21002)."

As a general rule, "public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects". However, in the event specific economic, social, or other conditions make infeasible such project alternatives or such mitigation measures, individual projects may be approved in spite of one or more significant effects thereof (ibid)".

The lead agency must "certify" the Final EIR. According to the "CEQA Guidelines", "certification" consists of three separate steps. Prior to approving a project, the lead agency (in this case the City of Stockton) shall certify that: (1) the Final EIR has been completed in compliance with CEQA; (2) the Final EIR was presented to the decision-making body of the lead agency and the body has reviewed and considered the information contained in the Final EIR prior to approving the project; and (3) that the Final EIR reflects the lead agency's independent judgment and analysis [CEQA Guidelines, Section 15090(a); see also Public Resources Code, Section 21082.1 (c)(3)].

Under CEQA, a lead agency must make certain determinations before it can approve or carry out a project if the EIR reveals that the project will result in one or more significant environmental impacts. First, before approving a project for which a certified Final EIR has identified significant environmental effects, the lead agency must make one or more specific written findings for each of the identified significant impacts. These findings [see CEQA Guidelines, Section 15091(a)] include and are limited to the following:

(1) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

(2) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

(3) Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the Final EIR.

Second, if there remain significant environmental effects even with the adoption of feasible mitigation measures or alternatives, the agency must adopt a "statement of overriding considerations" before it can proceed with the project. The statement of overriding consideration must be supported by substantial evidence in the record (CEQA Guidelines, Sections 15092 and 15093).

These overriding considerations include the economic, legal, social, technological, or other benefits of the proposed project. The lead agency must balance these potential benefits against the project's unavoidable environmental effects when determining whether to approve the project. If the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects, the lead agency may consider the adverse environmental impacts to be "acceptable" [CEQA Guidelines, Section 15093(a)]. These benefits should be set forth in the statement of overriding considerations, and may be based on the Final EIR and/or other information in the record of proceedings [CEQA Guidelines, Section 15093(b)].

Notably, the California Supreme Court, reflecting on this multi-step process for considering project impacts and benefits, has stated that, "[t]he wisdom of approving…any development project, a delicate task which requires a balancing of interests, is necessarily left to the sound discretion of the local officials and their constituents who are responsible for such decisions. The law as we interpret and apply it simply requires that those decisions be informed, and therefore balanced." [See *Citizens of Goleta Valley v. Board of Supervisors* (1990)52 Cal.3d 553,576)

Changes to the EIR

Chapter 4, "Minor Changes and Edits to the Draft EIR," provides revised text for some sections of the Draft EIR. These revisions are provided in response to comments received on the Draft EIR as well as changes to the project description, described above. Impacts that are not shown as revised text in Chapter 4 remain the same as stated in the Draft EIR. After careful consideration of all of the letters received on the draft EIR, the responses to the comments in the letters, and the revised analysis based on the revised project description, City staff has concluded that none of the information received or generated since the publication of the draft EIR constitutes "significant new information" within the meaning of Public Resources Code Section 21092.1 and CEQA Guidelines Section 15088.5. For clarification purposes, one traffic impact statement included in the revised transportation chapter was not included in the Draft EIR transportation section. This impact (Impact 4.7-13) discussed 2035 traffic, which was included in the appendix of the Draft EIR even though 2035 impacts were not included in the main chapter. This impact statement is added consistent with the recent adoption of the Stockton 2035 General Plan. Therefore the analysis in this impact does not represent "new information." Additionally, the significance of this impact after mitigation is determined to be less-than-significant, so this additional impact statement does not add any significant impacts to the project. For these reasons, the City need not "recirculate" for additional public comment either a full or a partial revision to the draft EIR and the preparation of a final EIR is appropriate.

CEQA Final EIR Process

The Draft EIR for the Proposed Project was submitted to the State Clearinghouse (SCH# 2004122100) and released for public and agency review on December 4, 2006. The public review and comment period for the Draft EIR closed on February 5, 2007. A notice of availability was published in the Stockton Recorder, a newspaper of general circulation in the City of Stockton, on December 4, 2006. These notices are included in Appendix B of this Final EIR.

Upon additional review of the Proposed Project and the Final EIR, the City of Stockton Planning Commission, at a public hearing, will recommend to the City Council whether to certify the EIR and whether to approve or deny the project. The City Council will then review the Proposed Project, Final EIR, the recommendations of the Planning Commission and Community Development Department staff, and public testimony to decide whether to certify the Final EIR and whether to approve or deny the project.

Discussion of Standard for Recirculation

Under CEQA, a Draft EIR is normally circulated for one public review period. Only if a lead agency adds 'significant new information' to an EIR subsequent to the commencement of public review and interagency consultation but prior to the Final EIR certification, must the lead agency 'recirculate' a revised EIR, or portions thereof, for additional Commentary and consultation. (Pub. Resources Code, § 21092.1; CEQA Guidelines, § 15088.5; *Laurel Heights Improvement Association of San Francisco, Inc. v. Regents of the University of California* (1993) 6 Cal.4th 1112 (*Laurel Heights II*)).

The 'significant new information' standard was clarified in *Laurel Heights II*. There, the court held that recirculation was only required when new information was added to an EIR that changed it in such way that the public was deprived of meaningful comment on a new adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative) that project proponents have declined to implement. *(Laurel Heights II, supra*, 6 Cal.4th at p. 1129; CEQA Guidelines 15162, subd. (a)(1).) The court reasoned that by codifying the 'significant new information' language, the Legislature did not intend to promote endless rounds of revision and recirculation of EIRs. (*Laurel Heights II, supra*, 6 Cal.4th at p. 1132.) Instead, recirculation was intended to be an exception, rather than the general rule (*Ibid.*).

The court in *Laurel Heights II, supra*, 6 Cal.4t at p. 1130, set forth four examples of situations in which recirculation is required:

- When the new information shows a new, substantial, environmental impact resulting either from the project or from a mitigation measure;
- When the new information shows a substantial increase in the severity of an environmental impact, except that recirculation would not be required if mitigation that reduces the impact to insignificance is adopted;
- When the new information shows a feasible alternative or mitigation measure, considerably different from those considered in the EIR, that clearly would lessen the environmental impact of a project and the project proponent declines to adopt it; and
- When the Draft EIR was "so fundamentally and basically inadequate and conclusory in nature" that public comment on the Draft EIR was essentially meaningless.

These examples are now reflected in section 15088.5 of the CEQA Guidelines.

In this case, the 'new' information added to the Final EIR reflecting the revised project as well and the new information included in response to the comments submitted on the Draft EIR does not show a new substantial environmental impact or a substantial increase in the severity of an environmental impact previously identified. Indeed, many of the revised project's impacts are less than those associated with the project as originally proposed. Also, the comments, responses, and information updated in response to the project's revisions do not demonstrate that there is a feasible alternative or mitigation measure considerably different from the alternatives and mitigation measures evaluated in the draft EIR that would clearly reduce environmental impacts. Finally,

the fourth example of a circumstance in which recirculation is required, as interpreted by case law, applies only in unusual situations where an entire section on basic and critical analysis was omitted from the Draft EIR. Here, the EIR contains a thorough evaluation of all the potentially significant impacts, including those associated with the Reduced Density Alternative, which is consistent with the revised project. The revised project will not result in any new significant impacts and, in many cases, will reduce the significant impacts identified in the draft EIR. Accordingly, recirculation is not required (Pub. Resources Code, § 21092.1; CEQA Guidelines, § 15088.5; *Laurel Heights II*, *supra*, 6 Cal.4th at p. 1130).

Organization of the Document

This Final EIR comprises five chapters that meet the requirements of the State CEQA Guidelines, as outlined above. The five chapters that make up this Final EIR are as follows:

- **"Executive Summary"** provides a brief project description and presents a summary table of the Proposed Project's environmental effects.
- **Chapter 1, "Introduction and Reader's Guide"** provides a brief overview of the Proposed Project, environmental compliance activities conducted to date, and outlines the contents and organization of the Final EIR
- **Chapter 2, "Comments on the Draft EIR"** provides a list of commentors and copies of written comments (coded for reference).
- **Chapter 3, "Response to Comments on the Draft EIR"** provides the lead agency responses to the comments identified in Chapter 2.
- **Chapter 4, "Minor Changes and Edits to the Draft EIR"** includes any corrections and/or additions to the Draft EIR text as a result of comments made on the Draft EIR, and in response to the revisions made to the project. These changes to the Draft EIR are indicated by revision marks (underline for new text and strikeout for deleted text).
- **Chapter 5, "Report Preparation"** provides a list of the individuals involved in the preparation of the Final EIR.

In reference to Section 15132(a) of the State CEQA Guidelines, the Draft EIR for the Proposed Project has been incorporated by reference into this Final EIR. A copy of the Draft EIR is on file at the City of Stockton Community Development Department located 345 N. El Dorado Street Stockton, CA. A copy can also be viewed by visiting the City's web site at http://www.stocktongov.com/cd/PlanningDivision.cfm.

STATE OF CALIFORNIA – THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 942360001
(916) 653-5791

Letter 1

RECEIVED
DEC 18 2006
CITY OF STOCKTON
PERMIT CENTER DIVISION

December 13, 2006

Mark Martin
City of Stockton
345 North El Dorado Street
Stockton, California 95202

Weston Ranch Towne Center
State Clearinghouse (SCH) Number: 2005012056

The project corresponding to the subject SCH identification number has come to our attention. The limited project description suggests your project may be an encroachment on the State Adopted Plan of Flood Control. You may refer to the California Code of Regulations, Title 23 and Designated Floodway maps at http://recbd.ca.gov/. Please be advised that your county office also has copies of the Board's designated floodways for your review. If indeed your project encroaches on an adopted food control plan, you will need to obtain an encroachment permit from the Reclamation Board prior to initiating any activities. The attached Fact Sheet explains the permitting process. Please note that the permitting process may take as much as 45 to 60 days to process. Also note that a condition of the permit requires the securing all of the appropriate additional permits before initiating work. This information is provided so that you may plan accordingly. 1-1

If after careful evaluation, it is your assessment that your project is not within the authority of the Reclamation Board, you may disregard this notice. For further information, please contact me at (916) 574-1249.

Sincerely,

Christopher Huitt
Staff Environmental Scientist
Floodway Protection Section

cc: Governor's Office of Planning and Research
State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814

Encroachment Permits Fact Sheet

Basis for Authority
State law (Water Code Sections 8534, 8608, 8609, and 8710 – 8723) tasks the Reclamation Board with enforcing appropriate standards for the construction, maintenance, and protection of adopted flood control plans. Regulations implementing these directives are found in California Code of Regulations (CCR) Title 23, Division 1.

Area of Reclamation Board Jurisdiction
The adopted plan of flood control under the jurisdiction and authority of the Reclamation Board includes the Sacramento and San Joaquin Rivers and their tributaries and distributaries and the designated floodways.

Streams regulated by the Reclamation Board can be found in Title 23 Section 112. Information on designated floodways can be found on the Reclamation Board's website at http://recbd.ca.gov/designated_floodway/ and CCR Title 23 Sections 101 - 107.

Regulatory Process
The Reclamation Board ensures the integrity of the flood control system through a permit process (Water Code Section 8710). A permit must be obtained prior to initiating any activity, including excavation and construction, removal or planting of landscaping within floodways, levees, and 10 feet landward of the landside levee toes. Additionally, activities located outside of the adopted plan of flood control but which may foreseeable interfere with the functioning or operation of the plan of flood control is also subject to a permit of the Reclamation Board.

Details regarding the permitting process and the regulations can be found on the Reclamation Board's website at http://recbd.ca.gov/ under "Frequently Asked Questions" and "Regulations," respectively. The application form and the accompanying environmental questionnaire can be found on the Reclamation Board's website at http://recbd.ca.gov/forms.cfm.

Application Review Process
Applications when deemed complete will undergo technical and environmental review by Reclamation Board and/or Department of Water Resources staff.

Technical Review
A technical review is conducted of the application to ensure consistency with the regulatory standards designed to ensure the function and structural integrity of the adopted plan of flood control for the protection of public welfare and safety. Standards and permitted uses of designated floodways are found in CCR Title 23 Sections 107 and Article 8 (Sections 111 to 137). The permit contains 12 standard conditions and additional special conditions may be placed on the permit as the situation warrants. Special conditions, for example, may include mitigation for the hydraulic impacts of the project by reducing or eliminating the additional flood risk to third parties that may caused by the project.

Additional information may be requested in support of the technical review of

your application pursuant to CCR Title 23 Section 8(b)(4). This information may include but not limited to geotechnical exploration, soil testing, hydraulic or sediment transport studies, and other analyses may be required at any time prior to a determination on the application.

Environmental Review
A determination on an encroachment application is a discretionary action by the Reclamation Board and its staff and subject to the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code 21000 et seq.). Additional environmental considerations are placed on the issuance of the encroachment permit by Water Code Section 8608 and the corresponding implementing regulations (California Code of Regulations – CCR Title 23 Sections 10 and 16).

In most cases, the Reclamation Board will be assuming the role of a "responsible agency" within the meaning of CEQA. In these situations, the application must include a certified CEQA document by the "lead agency" [CCR Title 23 Section 8(b)(2)]. We emphasize that such a document must include within its project description and environmental assessment of the activities for which are being considered under the permit.

Encroachment applications will also undergo a review by an interagency Environmental Review Committee (ERC) pursuant to CCR Title 23 Section 10. Review of your application will be facilitated by providing as much additional environmental information as pertinent and available to the applicant at the time of submission of the encroachment application.

These additional documentations may include the following documentation:

- California Department of Fish and Game Streambed Alteration Notification (http://www.dfg.ca.gov/1600/),
- Clean Water Act Section 404 applications, and Rivers and Harbors Section 10 application (US Army Corp of Engineers),
- Clean Water Act Section 401 Water Quality Certification, and
- corresponding determinations by the respective regulatory agencies to the aforementioned applications, including Biological Opinions, if available at the time of submission of your application.

The submission of this information, if pertinent to your application, will expedite review and prevent overlapping requirements. This information should be made available as a supplement to your application as it becomes available. Transmittal information should reference the application number provided by the Reclamation Board.

In some limited situations, such as for minor projects, there may be no other agency with approval authority over the project, other than the encroachment permit by Reclamation Board. In these limited instances, the Reclamation Board may choose to serve as the "lead agency" within the meaning of CEQA and in most cases the projects are of such a nature that a categorical or statutory exemption will apply. The Reclamation Board cannot invest staff resources to prepare complex environmental documentation.

Additional information may be requested in support of the environmental review of your application pursuant to CCR Title 23 Section 8(b)(4). This information may include biological surveys or other environmental surveys and may be required at anytime prior to a determination on the application.

DJS / MM

Letter 2

S J C O G, Inc.

555 East Weber Avenue • Stockton, CA 95202 • (209) 468-3913 • FAX (209) 468-1084

San Joaquin County Multi-Species Habitat Conservation & Open Space Plan (SJMSCP)

SJMSCP RESPONSE TO LEAD AGENCY ADVISORY AGENCY NOTICE TO SJCOG, Inc.

To: Mark Martin, City of Stockton Community Development Department

From: Erin Sickler, SJCOG, Inc.

Date: December 26, 2006

Re: **Lead Agency Project Title:** Weston Ranch Towne Center Project

Lead Agency Project Number: EIR5-04

Assessor Parcel Number(s): 168-190-06; 07; 10, 168-190-08; 09, 168-170-07

Total Acres to be converted from Open Space Use: approximately 65.8 acres

Habitat Types to be Disturbed: Agricultural Land

Species Impact Findings: Findings to be determined by SJMSCP biologist.

Dear Mr. Martin:

SJCOG, Inc. has reviewed the Weston Ranch Towne Center Project EIR. It is suggested this project participate in the SJMSCP as necessary. This project involves a commercial development including up to 710,000 square feet of shopping center retail space on 65.8 acres. This property is located at the southern boundary of the City of Stockton immediately north of French camp Road, west of Manthey Road and Interstate 5, and east of McDougal Blvd.

The City of Stockton is a signatory to San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP). Participation in the SJMSCP satisfies requirements of both the state and federal endangered species acts, and ensures that the impacts are mitigated below a level of significance in compliance with the California Environmental Quality Act (CEQA). Although participation in the SJMSCP is voluntary, lead agents should be aware that if project applicants choose against participating in the SJMSCP, they will be required to provide alternative mitigation in an amount and kind equal to that provided in the SJMSCP. 2-1

This Project is subject to the SJMSCP. This can be up to a 30 day process and it is recommended that the project applicant contact SJMSCP staff as early as possible.

Please contact SJMSCP staff regarding completing the following steps to satisfy SJMSCP requirements:

- Schedule a SJMSCP Biologist to perform a pre-construction survey ***prior to any ground disturbance***
- Sign and Return Incidental Take Minimization Measures to SJMSCP staff (given to project applicant after pre-construction survey is completed)
- Pay appropriate fee based on SJMSCP findings
- Receive your Certificate of Payment and release the required permit

If you have any questions, please call (209) 468-3913.

D55/MM

State of California—Business, Transportation and Housing Agency ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL
3330 Ad Art Road
Stockton, CA 95208
(209) 943-8666
(800) 735-2929 (TT/TDD)
(800) 735-2922 (Voice)

Letter 3

December 26, 2006

File No.: 265.11045.11485.WESTONTC

Mr. Mark Martin
City of Stockton
Community Development Department
345 North El Dorado Street
Stockton, CA 95202

Dear Mr. Martin:

Thank you for the opportunity to review the Notice of Preparation of a Draft Environmental Impact Report (EIR) for the Weston Ranch Towne Center project located in the area of French Camp Road and Manthey Road (SCH# 2005012056). While the development area is within the City of Stockton, the project will have significant impacts on surrounding county roads as well as Interstate-5. As you know, the California Highway Patrol (CHP) has the primary responsibility for traffic enforcement on county roads as well as this interstate. These roadways will see a dramatic increase in the average daily traffic volumes. 3-1

The project plan includes approximately 65 acres with an anticipated building plan encompassing up to 710,000 square feet of shopping center retail and restaurant space. The Draft EIR discusses attempts to mitigate expected increased traffic volumes throughout the project and adjacent roadways, including the reconfiguration of several roadways and French Camp Road/I-5 interchange. The report also notes the potential impact this project will have on traffic volume, congestion, and emergency access in the area. Therefore, it is important the City of Stockton continues to work closely with the Department of Transportation (Caltrans), the San Joaquin County Department of Public Works, and California Highway Patrol in developing long range plans that are beneficial to all the citizens utilizing the highway system. 3-2

Mr. Mark Martin
Page 2
December 26, 2006

It is clear the proposed project will create challenges for daily commuters and tax the already busy roadway systems in the area and will directly impact I-5 and the CHP's ability to effectively manage traffic without an increase in resources. This need should be addressed in the project's Environmental Impact Report. Should you have any questions, please feel free to call me or Lieutenant Craig Oliver of my staff at (209) 943-8666. 3-3

Sincerely,

S. M. COUTTS, Captain
Commander
Stockton Area

cc: Special Projects Section

ENVIRONMENTAL HEALTH DEPARTMENT

SAN JOAQUIN COUNTY

Donna K. Heran, R.E.H.S.
Director
Laurie A. Cotulla, R.E.H.S.
Assistant Director

304 East Weber Avenue, Third Floor
Stockton, California 95202-2708
Telephone: (209) 468-3420
Fax: (209) 464-0138
Website: www.sjgov.org/ehd/

Program Coordinators
Carl Borgman, R.E.H.S.
Mike Huggins, R.E.H.S., R.D.I.
Margaret Lagorio, R.E.H.S.
Robert McClellon, R.E.H.S.
Jeff Carruesco, R.E.H.S.
Kasey Foley, R.E.H.S.

Letter 4

January 11, 2007

Mark Martin Project Manager II
Lead Agency
City of Stockton
c/o Community Development Dept.
Planning Division
345 North El Dorado Street
Stockton, California 95202

SUBJECT: PUBLIC REVIEW OF THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE WESTON RANCH TOWNE CENTER PROJECT (EIR5-04)

The San Joaquin County Environmental Health Department has no comment regarding the above-named environmental document. 4-1

Should you have any questions, please call Steven Shih, Lead Senior R.E.H.S., at (209) 468-9850.

Donna Heran, R.E.H.S., Director

Mike Huggins, Program Coordinator, R.E.H.S., R.D.I.
Environmental Health Department

MH: tl

01/17/2007 15:32 12099487164 CALTRANS PAGE 02/04

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

DEPARTMENT OF TRANSPORTATION
P.O. BOX 2048 STOCKTON, CA 95201
(1976 E. CHARTER WAY/1976 E. DR. MARTIN
LUTHER KING JR. BLVD. 95205)
TTY: California Relay Service (800) 735-2929
PHONE (209) 941-1921
FAX (209) 948-7194

Flex your power!
Be energy efficient!

Letter 5

January 17, 2007

10-SJ-5-PM22.5
SCH 2005012056 (DEIR)
Weston Ranch Towne Center
(DEIR)

Mark Martin
City of Stockton
Community Development Department
Planning Division
425 North El Dorado Street
Stockton, CA 95202-1997

Dear Mr. Martin:

The California Department of Transportation (Department) appreciates the opportunity to have reviewed the Draft Environmental Impact Report (DEIR) for this proposed 710,000 square feet (SF) of commercial development to include 91,000 SF on the 6 acres of "undeveloped" Barkett property, on the east side of the site. The DEIR states that it will be used in the entitlement process to approve a General Plan Amendment (from low density residential to commercial), a Rezoning (from low density residential and commercial general to commercial large-scale), a Development Agreement, Tentative Maps, a Certification of Adequate Water Supply, Use Permits, and Site Plans. In total the DEIR examines 500,000 SF of large scale retail, (including a 232,000 SF Walmart Supercenter), 100,000 SF of in-line shops, 60,000 SF of retail pads (including 2 fueling stations), 50,000 SF of restaurants, and parking for 2,929 cars. The development is located in the northwest corner of the Interstate 5 (I-5)/French Camp Road interchange, west of Manthey Road. The Department has the following comments: 5-1

Opening Day Temporary Mitigation at I-5 and French Camp

1. The DEIR in Mitigation Measures 4.7.5 French Camp Road/I-5 Southbound Ramps states that "Should construction of the planned interchange improvements be scheduled for completion subsequent to project completion, the project applicant shall install a traffic signal at the I-5 southbound ramp..." Since reconstruction of French Camp interchange I-5 will occur after the opening date of this retail development, the proposed temporary mitigation **must** be re-evaluated for effectiveness. The DEIR must evaluate if the existing southbound off-ramp right-turn lane has adequate storage capacity during this interim period. 5-2

"Caltrans improves mobility across California"

01/17/2007 15:32 12099487164 CALTRANS PAGE 03/04

Mr. Martin
January 17, 2007
Page 2

2. The DEIR in Mitigation Measures 4.7.6 French Camp Road/I-5 Northbound Ramps states that "Should construction of the planned interchange improvements be scheduled for completion subsequent to project completion, the project applicant shall install a traffic signal at the I-5 Northbound Ramp/French Camp Road intersection; modify the eastbound approach to provide dual eastbound left-turn lanes; and modify the westbound approach to provide a 200-foot right-turn-only lane." Since reconstruction of French Camp interchange I-5 ramps will occur after the opening date of this retail development, the proposed temporary mitigation **must** to be evaluated for effectiveness. The DEIR must evaluate if the proposed dual eastbound left-turn lanes will have adequate length to accommodate the required storage capacity, in addition to addressing storage for the northbound off-ramp left-turn movement onto westbound French Camp Road. 5-3

Re-Alignment of Manthey Road

3. Currently Manthey Road functions as a frontage road. The proposed site plan, although it realigns Manthey Road, reconstructs Manthey Road in a way that essentially turns it into an aisle-way of the shopping center parking lot. The site plan shows that Manthey Road has numerous driveways into parking lots, lack of throat depth into the parking lots, through traffic having to make a left-turn at Intersection #8, an adverse curve #11, and the truck loading dock for major store #6 that would require the truck to back in (while on and) from Manthey Road. The aforementioned issues will lower the level of service and hinder through traffic on Manthey Road. This will result in encouraging traffic to use I-5 as a local road in lieu of continuing on Manthey Road. 5-4

French Camp and Manthey Road Intersection

4. The intersection of French Camp Road/Manthey Road needs to be reevaluated for operational analysis. For example the northbound direction has a thru lane and a thru with a shared right-turn. However, the opposite side of the intersection directs the thru lane into a dedicated left-turn lane into the Walmart parking lot. This would result in vehicles shifting lanes in a short distance. Additionally this left-turn pocket has a minimal storage length which may result in queue spillback to into French Camp Road and thus potentially affecting the French Camp Road intersection. 5-5

I-5 and Downing Avenue

5. The 2025 peak hour queuing analysis shown in Table 4.7-17 does not show any information on I-5 or Downing Avenue. Specifically the southbound off-ramp, and the left-turn from Downing Avenue onto the northbound on-ramp must to be checked. 5-6

Pedestrian, Bicycle, and Transit Access

6. The DEIR in the section, "Pedestrian, Bicycle, and Transit Access" recommends bus pull-outs and transit amenities. The Department concurs with this recommendation that these facilities should be provided to help alleviate traffic generation. 5-7

"Caltrans improves mobility across California"

01/17/2007 15:32 12099487164 CALTRANS PAGE 04/04

Mr. Martin
January 17, 2007
Page 3

Park and Ride Facility

7. The DEIR in the section, "Park and Ride" on Page 4.7-53 states that parking spaces be reserved for park and ride usage. However, it does not state how many parking spaces are proposed. 5-8

Surface Transportation Assistance Act (STAA) Requirements

8. The proposed intersections should be checked to verify they accommodate STAA turning radius requirements. 5-9

If you have any questions or would like to discuss our comments in more detail, please contact Dan Brewer at (209) 948-7142 (e-mail: dan.brewer@dot.ca.gov) or me at (209) 941-1921. 5-10

Sincerely,

for

TOM DUMAS, Chief
Office of Intermodal Planning

c: SMorgan CA Office of Planning and Research

"Caltrans improves mobility across California"

01/17/2007 15:32 12099487164 CALTRANS PAGE 01/04

STATE OF CALIFORNIA
FACSIMILE COVER
10-2A-0049 (NEW 10/92)

ATTENTION:	FROM:	
Mark Martin	Dan Brewer Department of Transportation 1976 East Charter Way Stockton, CA 95205	
UNIT/COMPANY: City of Stockton, Community Development Department, Planning Division, 425 North El Dorado Street, Stockton, CA 95202-1997	DATE: January 17, 2007	TOTAL PAGES (Including Cover Page): 4
	FAX # (Include Area Code): (209) 948-7194	ATSS FAX: 8-423-7194
DISTRICT/CITY	PHONE # (& Area Code): (209) 948-7142	ATSS: 8-423-7142
PHONE # (& Area Code): (209) 937-8538	FAX # (& Area Code): (209) 937-8893	ORIGINAL DISPOSITION: Destroy ☐ Return ☐ Call for Pickup ☐

COMMENTS:

10-SJ-5-PM22.5
SCH 2005012056 (DEIR)
Weston Ranch Towne Center (DEIR)

RECEIVED
JAN 17 2007
CITY OF STOCKTON
PERMIT CENTER/PLANNING DIVISION

FEB. 5. 2007 3:44PM BLDG DEPT STKN SC NO. 014 P. 1

Letter 6

PG&E Land Services, 4040 West Lane, Stockton, CA 95204

February 5, 2007

City of Stockton
c/o Community Development Dept.
Planning Division
345 North El Dorado St.
Stockton, CA 95202
Attn: Mark Martin
Fax: 209-937-8893

RE: Draft Environmental Import Report (DEIR)
For: The Weston Ranch Towne Center Project
Loc: French Camp Road, w/o Manthey Rd. and Interstate 5, Stockton
SCH # : 2005012056
PG&E File : WL 605

Dear Mr. Martin,

Thank you for the opportunity to review the Draft Environmental Import Report (DEIR) for the above project at the referenced location. PG&E has the following comments to offer: 6-1

PG&E owns and operates gas and electric facilities which are located within and adjacent to the proposed project. To promote the safe and reliable maintenance and operation of utility facilities, the California Public Utilities Commission (CPUC) has mandated specific clearance requirements between utility facilities and surrounding objects or construction activities. To ensure compliance with these standards, project proponents should coordinate with PG&E early in the development of their project plans. Any proposed development plans should provide for unrestricted utility access and prevent easement encroachments that might impair the safe and reliable maintenance and operation of PG&E's facilities. 6-2

The requesting party will be responsible for the costs associated with the relocation of existing PG&E facilities to accommodate their proposed development. Because facilities relocation's require long lead times and are not always feasible, the requesting party should be encouraged to consult with PG&E as early in their planning stages as possible. 6-3

Relocations of PG&E's electric transmission and substation facilities (50,000 volts and above) could also require formal approval from the California Public Utilities Commission. If required, this approval process could take up to two years to complete. Proponents with development plans which could affect such electric transmission facilities should be referred to PG&E for additional information and assistance in the development of their project schedules. 6-4

FEB. 5. 2007 3:44PM BLDG DEPT STKN SC NO. 014 P. 2

We would also like to note that continued development consistent with the City's General Plans will have a cumulative impact on PG&E's gas and electric systems and may require on-site and off-site additions and improvements to the facilities which supply these services. Because utility facilities are operated as an integrated system, the presence of an existing gas or electric transmission or distribution facility does not necessarily mean the facility has capacity to connect new loads. 6-5

Expansion of distribution and transmission lines and related facilities is a necessary consequence of growth and development. In addition to adding new distribution feeders, the range of electric system improvements needed to accommodate growth may include upgrading existing substation and transmission line equipment, expanding existing substations to their ultimate buildout capacity, and building new substations and interconnecting transmission lines. Comparable upgrades or additions needed to accommodate additional load on the gas system could include facilities such as regulator stations, odorizer stations, valve lots, distribution and transmission lines. 6-6

We would like to recommend that environmental documents for proposed development projects include adequate evaluation of cumulative impacts to utility systems, the utility facilities needed to serve those developments and any potential environmental issues associated with extending utility service to the proposed project. This will assure the project's compliance with CEQA and reduce potential delays to the project schedule.

PG&E remains committed to working with the City to provide timely, reliable and cost effective gas and electric service to the planned area. We would also appreciate being copied on future correspondence regarding this subject as this project develops. 6-7

The California Constitution vests in the California Public Utilities Commission (CPUC) exclusive power and sole authority with respect to the regulation of privately owned or investor owned public utilities such as PG&E. This exclusive power extends to all aspects of the location, design, construction, maintenance and operation of public utility facilities. Nevertheless, the CPUC has provisions for regulated utilities to work closely with local governments and give due consideration to their concerns. PG&E must balance our commitment to provide due consideration to local concerns with our obligation to provide the public with a safe, reliable, cost-effective energy supply in compliance with the rules and tariffs of the CPUC. 6-8

Should you require any additional information or have any questions, please call me at (209) 942-1419. 6-9

Sincerely,

Alfred Poon
Land Agent
Land Rights Protection
Northern Area
External: (209) 942-1419
Fax: (209) 942-1485

Letter 7

THOMAS R. FLINN
DIRECTOR

THOMAS M. GAU
CHIEF DEPUTY DIRECTOR

MANUEL SOLORIO
DEPUTY DIRECTOR

STEVEN WINKLER
DEPUTY DIRECTOR

ROGER JANES
BUSINESS ADMINISTRATOR

Public Works
San Joaquin County
Working for YOU

P. O. BOX 1810 - 1810 E. HAZELTON AVENUE
STOCKTON, CALIFORNIA 95201
(209) 468-3000 FAX (209) 468-2999
www.sjgov.org/pubworks

February 1, 2007

Mr. Mark Martin
City of Stockton
Community Development Department
345 North El Dorado Street
Stockton, California 95202

SUBJECT: WESTON RANCH TOWNE CENTER DRAFT ENVIRONMENTAL IMPACT REPORT

Dear Mr. Martin:

The San Joaquin County Department of Public Works has reviewed the above mentioned document and has the following comments: 7-1

From Flood Management:

1) San Joaquin County Flood Management will need to review the master drainage plan prior to construction. 7-2

From Transportation Planning:

2) The project shall be subject to the recently adopted Regional Transportation Impact Fee (RTIF). The City of Stockton shall collect this fee from the applicants. 7-3

3) The County has determined, from reviewing the impacts to the unincorporated area identified in the DEIR, that the City should either condition the project to fully construct the identified improvements that are needed to mitigate the proposed project's impacts, or collect the project's fair share of the impacts to County facilities, so that it can be applied to the construction of said improvements at the appropriate time. 7-4

From Traffic Engineering:

4) If facilities in the Towne Center will be utilizing STAA trucks, appropriate design measures must be taken to ensure the accommodation of these vehicles. Signs must also be installed per State requirements at the Interstate 5/French Camp Road interchange. 7-5

5) Traffic Control Plans should be coordinated with San Joaquin County concerning construction traffic created by this project. Traffic Control Plans should be submitted a minimum of six weeks prior to commencement of work for County review and approval. 7-6

Thank you for the opportunity to comment. Should you have any questions or need additional information, please contact me at avallejo@sjgov.org or 468-8494. 7-7

Sincerely,

ANDREA VALLEJO
Associate Planner

AV:mk
TP-7A100-M1

c: Roger Churchwell, Senior Civil Engineer
Michael C. Selling, Senior Civil Engineer
Adam Brucker, Senior Transportation Planner
Dwayne B. Sabiniano, Engineering Assistant II

Letter 8

City of Stockton
Economic Development Department
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Mr. Martin,

Living so close to the Town Center, I am concerned that the Wal-Mart Supercenter and Sam's Club's lights from their signs and parking lot lights will have on my home and quality of life. 8-1

How bright will the lights be and what kind of wattage of bulbs will be used in the parking lots? How much light pollution will spill over to the houses behind the shopping center? How will the lights distort my view of Stockton and the landscape from my house?

I am not happy that my landscape will be obscured by a shopping center full of lights. How much energy and power will it take to maintain parking lot lights and to power a Wal-Mart Supercenter 24 hours a day? 8-2

Will the center use solar power parking lamps to conserve energy? Will the center use fluorescent bulbs that use little power?

Regards,

Eugene Erle
631 Riley Ford Lance
Stockton, CA 95206

Letter 9

City of Stockton
Economic Development Department
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Mr. Martin,

The EIR for the Weston Ranch Town Center needs to study the increase in criminal activity that the Wal-Mart Supercenter will bring to the area and the shopping center. It is widely known that Wal-Mart Supercenters generate crime at a higher rate than almost any other retailer, and the EIR does not discuss how it will impact the neighboring community. With 24 hour operations, the Wal-Mart is sure to create more crime than what is currently present in our community. What is the level of crime that will be generated? 9-1

How will our schools be protected from this increase in crime? How will our children be protected when they are at the shopping center from this crime?

These need to be addressed extensively before moving forward on this Town Center.

Thanks,

John S. Cook Jr.

John S. Cook Sr.
4821 McDougald Blvd.
Stockton, CA 95206

Letter 10

City of Stockton
Economic Development Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

RE: Impacts to special-status species

Mr. Martin,

As someone who is deeply concerned about the impacts of sprawl on the environment, I am concerned that the draft EIR states that shopping center (Weston Ranch Town Center) could "result in adverse impacts to special-status species", including the Swainson's hawks, burrowing owls, Greater western mastiff-bat, and many others.

How will the city determine if these species exist on the property? What are the migratory patterns and nesting patterns for each of the animals identified in the EIR? Do they migrate and nest at different times of the year? If so, has this been evaluated in person by a professional in this field? With noise levels and air pollution created by this retail project, what impact will it have on neighboring areas where special-status species nest or use for breeding purposes? 10-1

Thank you, Abelardo Molano Jr.

Abelardo Molano Jr.
4731 McDougald Blvd.
Stockton, CA 95206

Letter 11

City of Stockton
Economic Development Department
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Mr. Mark Martin,

The draft EIR states that there is a high probability of cancer due to diesel trucks at the loading docks of the tenants of the Weston Ranch Town Center. One area where the risk is higher than others, is located directly behind the Wal-Mart Supercenter. The City recently approved housing for this area behind the Wal-Mart Supercenter.

The mitigation measures state that even when applied still do not relieve those behind the Wal-Mart Supercenter. How will the Wal-Mart ensure that they are not contributing to any cancer causing impacts to the new housing behind the store? What is the impacts for idling trucks that is known to be allowed at Wal-Mart parking lots? What is the level of impact from the diesel trucks to the housing directly behind the Sam's Club? 11-1

This is unacceptable if there is any chance that this shopping center will cause or have a chance of causing even one case of cancer.

Thanks,

Gustavo Vera
4402 Sydney Lane
Stockton, CA 95206

Letter 12

City of Stockton
Economic Development Department
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Dear Mr. Martin,

I am concerned that the Weston Ranch Town Center puts us in danger since there is an airport near us in Weston Ranch. The Stockton airport is only 4 miles away.

How will the lighting at the Town Center impact planes and the airport? Will the height of the buildings at the Town Center impact the airport's approach and departure zones? Have the glares from the lights or reflective surfaces of the Town Center been looked into, and how will the Center build so that they do not jeopardize planes approach or take-off? How much light is generated from the Town Center? Does that amount of light impact the airports influence? 12-1

I am concerned that the Town Center has not properly conducted a light study and its impact on the airport operations. Please review this, and how the airport will be affected.

Thank you,

William Oreiro
623 Rileyford Lane
Stockton, CA 95206

Letter 13

City of Stockton
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Traffic is a major concern for those of us who live in Weston Ranch when we heard about the Weston Ranch Town Center. The draft EIR for this project says that highway interchanges, such as I-5 and Manthey Road and Manthey Road and Mathews Road, are "significant and unavoidable".

Who will pay to improve these intersections and interchanges? How much will it cost? I do not believe that the City and its taxpayers should have to pay to improve ANY issues that this shopping center will generate. Therefore, will Wal-Mart or Vestar pay to improve the interchanges that are "significant but unavoidable"? How much will it costs to improve these interchanges and intersections, and does it outweigh that of the benefits of the shopping center? 13-1

Do not let developers create issues that they are not willing to fix!

Regards,

Sandra Hormigas
4522 Janell Lane
Stockton, CA 95206

Letter 14

Economic Development Department
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Mr. Martin,

I am concerned with the impacts that the Weston Ranch Town Center will have on our community in Weston Ranch. Noise is most commonly never talked about when a project is being considered. In this case, I think it is a very important component to the project that needs proper evaluation and review.

As you know, any type of noise that produces over 70 decibels of noise is hazardous to a person's health. This project will have an ample amount of issues that will generate the levels of noise that will damage residents' hearing and health. A diesel truck, for example, like the ones that Wal-Mart uses as delivery trucks, creates over 100 dB and a regular automobile creates over 80 dB. Traffic, such as from a highway or major street creates over 100 dB of noise.

How many decibels will the delivery trucks that Wal-Mart and Sam's uses generate? How many decibels with refrigeration units on top of their trucks create? How many decibels do these trucks make while idling? How many decibels do the vendor trucks that deliver to the stores within this Town Center create when added to the delivery trucks? How many decibels do the A/C units on top of the stores combined with all of the trucks create? How many does all of the delivery trucks, vendor trucks, A/C units, refrigeration units, and customer traffic add to the decibel levels for the Town Center? 14-1

What is the impact of these decibel levels that will be created form all of the traffic, trucks, and A/C units are that will be heard from the houses near the project?

Thanks,

Ron Mediana
738 Brittanyann Lane
Stockton, CA 95206

Letter 15

February 1, 2007

City of Stockton
Economic Development Department
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

To Whom it May Concern:

How will the Weston Ranch Town Center impact other retail projects, such as though in north Stockton? The Wal-Mart Supercenter and Sam's Club will have a huge 50 mile radius impact on other retailers. How much sales tax will be generated by this project compared to the loss of sales tax from competing retailers? Does this tax benefit outweigh the impact to the businesses that will be closed or lose their sales? 15-1

How many jobs will be lost at competitive businesses when they either close or lose enough sales to the Town Center to lay off some of the employees? What is the impact to neighboring jurisdiction's businesses? What is the impact if and when the Wal-Mart Supercenter on Hammer Lane opens? What impact will the Hammer Lane Wal-Mart have on the Weston Ranch Supercenter?

Regards,

Gurpal Srai
702 Brittanyann Lane
Stockton, CA 95206

Letter 16

City of Stockton
Economic Development Department
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Mr. Mark Martin:

I am writing to express my displeasure in the incomplete EIR that was prepared by ESA. Section 4.13: Hazards and Hazardous Materials, page 4.13-4. The asbestos and lead based paint section does not adequately detail the impacts this will have on the surrounding neighborhood. This is unacceptable for a residential area. Our children play in the designated development area. 16-1

The EIR fails to detail the depth that demolition and construction will go on the property. The demolition alone could send thousands of asbestos particles into the air. Will there be security during demolition? Who will prevent neighbors and children from playing on the property? How deep will the new construction do to lay a foundation for the property? We don't know the full extent of the airborne asbestos, the ESA report does not tell us what the impacts are, only that asbestos exists. 16-2

What steps is the developer taking to mitigate the impacts on the residents? What about the lead paint? We do not know the amount of lead paint that exists, nor the effects that it could have on our neighbors. Also, the ESA report says "the presence of asbestos and lead paint in a building does ***not necessarily*** mean that the building poses a health hazard," but the report does not say what the worst-case scenario could be. When you are a parent, you think about worst-case scenarios. This needs to be explored. 16-3

Finally, why was the deed restriction placed on the property? Why are we now allowing it to be removed? I, along with my neighbors, would argue the financial benefit does not outweigh the potential negative impacts it will have on our children. 16-4

This needs to be further researched in the next EIR, the residents deserve it.

Joaquin Acosta
670 Brittanyann Lane
Stockton, CA 95206

Letter 17

Economic Development Department
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Mr. Martin,

With Stockton rating high in asthma rates among major US cities, the Weston Ranch Town Center will only increase the damage to our City's air quality. Stockton rated 51st among other Cities in the U.S. at http://aafa.org/pdfs/Asthma%20Capitals%20Final%20List.pdf 17-1

The EIR states that the impact to the air quality is "significant but unavoidable" but it does not relate what it will do to current asthma rates in Stockton. How will this project impact the residents who already have asthma? What will it do to children and seniors and will it increase the amount of people who get asthma? What is the current rate of those affected by asthma in Stockton, and how many are contributed to poor air quality from carbon emissions like car exhaust? How will the construction on land containing asbestos, such as the Burkett property, impact those with asthma? 17-2

I expect all of these questions to be answered and done thoroughly before this project moves forward.

Regards,

Ruben Modesto
658 Brittanyann Lane
Stockton, CA 92506

Letter 18

City of Stockton
Economic Development Department
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

RE: Traffic Impacts for the Weston Ranch Town Center

Mr. Martin,

The traffic impacts of the Weston Ranch Town Center has not been factored in with the LPG gas trucks that will also operate on French Camp Road. How will the added impacts of these trucks going to be with the shopping center traffic? What will the impact of the neighborhood streets when people start using McCuen Avenue, McDougal Blvd, and Star Way to avoid the increased traffic on French Camp Road and Manthey Road? 18-1

Also, what will happen and what is the expected impact to West Howard Road and I-5 intersection when people start using it to avoid the shopping center traffic? What is the impact at the S. Wofle Road and Howard Road intersection? What is the impact to the Howards Road and Roberts Road intersection when people begin using Roberts Road to come from Highway 4? 18-2

Regards,

Ralph Guzman Jr.
4565 Sydney Lane
Stockton, CA 95206

Letter 19

City of Stockton
Economic Development Department
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Mr. Martin,

I can only imagine the amount of water that will be needed for this huge regional shopping center, Weston Ranch Town Center. How many gallons a day will be used to mist and wash the produce and the houseplants? How many gallons of water a day to utilize the air conditioning system and the urinals in the men's restroom? How many gallons of water a day for the toilets in both the men and women's restrooms? What are all the various uses for water at a 24-hour Wal-Mart Supercenter and the rest of the shopping center of this size? 19-1 What demands from the City can be made to mitigate the huge amount of water consumption used per day? We deserve to know the specific impacts a Supercenter and this shopping center will have on our water supply. How much will it use and what impacts will that have on us now and in twenty years? 19-2

Thanks,

Curtis Johnson
4578 Sydney Lane
Stockton, CA 95206

Letter 20

City of Stockton
Planning Department
M. Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

RE: Weston Ranch Town Center

Mark Martin:

I am alarmed to hear how much energy the Wal-Mart Supercenter and Sam's Club will use to operate, including the amount of fuel from cars and trucks!

With rolling blackouts in recent memory in California, how will this shopping center impact the energy consumption from the Stockton power grid? How will a 24 hour operation impact the amount of energy the Wal-Mart consumes around the clock? Are they using ceiling mounted ventilation? Are all store units using solar power to substitute power? How much energy will be consumed to power the large amount of refrigeration units? 20-1

Thank you,

Maria Rodriguez
4877 McDougald Blvd.
Stockton, CA 95206

Letter 21

City of Stockton
c/o Planning Department
Planner, Mark Martin
345 N. El Dorado Street
Stockton, CA 95202

Mr. Mark Martin:

It is known that Wal-Marts, especially those open 24 hours a day, will generate an excessive amount of crime. How will the center protect the nearby homes from crime spilling over? How will the City pay for more police having to respond to the shopping center?

It is documented from www.walmartcrimereport.com that the Tracy and Manteca Wal-Marts have an excessive amount of crime. How will the police monitor the shopping center and neighborhood at night when crime happens most? 21-1

The report should measure how the crime will impact our community in Weston Ranch before approving the project.

Regards,

Astrid & Miles Watterson
4743 McDougald Blvd.
Stockton, CA 95206

Letter 22

Stockton City
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Mr. Martin,

Knowing that the land that the Weston Ranch Town Center is proposed was a dumping ground for asbestos, what is the impact to the area schools and residents when it is disturbed?

What is the danger of mistakes from the cleanup process when construction begins? Will there be guards to protect the area at night from children and others from getting into the area and breathing the asbestos? 22-1

I think it is dangerous to develop the land with so many residents and childrens' schools nearby. This area should stay untouched!

Thank you,

Vincent Hudson
2207 Lydia Bradley
Stockton, CA 95206

Letter 23

Economic Development
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Mark Martin,

Air quality in the central valley, especially in Stockton, is already horrible. The EIR admits that the impact from this project will be "significant but unavoidable".

How will the increase of traffic because of this project impact the air around the schools, like August Knodt Middle School? A recent study, called *The Effect of Air Pollution on Lung Development from 10 to 18 Years of Age* from the New England Journal of Medicine says that living near high amounts of automobile exhaust can cause increased damage to children's lungs that attend the schools? 23-1

Thank you,

Robin Thornton
4534 Janell Lane
Stockton, CA 95206

Letter 24

City of Stockton
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Mr. Martin,

The Weston Ranch Town Center project, as a regional shopping center, will draw major traffic into the project area, and the EIR even admits that the project will result in "significant and unavoidable impacts" at Mathews Road/Manthey Road and Manthey Road/I-5 Northbound ramp.

How will this impact residents who use these ramps on a daily basis? What impact will backups on these ramps have on I-5 during peak times? Will this route residential traffic to Downey Street/I-5 and increase traffic at these points as well? 24-1

It is erroneous for the City to approve any project that inconveniences the residents of Weston Ranch.

Regards,

Earnest Thompson

Earnest Thompson
741 Brittanyann Lane
Stockton, CA 95206

Letter 25

Community Development Department
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Dear Mr. Martin,

In order to figure out what the best option is for the land, the EIR should study neighborhood commercial zoning for the proposed parcels where the Weston Ranch Town Center as an alternative. This should compare to the regional aspects of the Weston Ranch Town Center that is currently proposed. 25-1

What will the economic impact for neighborhood commercial zoning be compared to general/regional zoning be? What will the air and water impacts be comparably? What is the traffic impacts comparably?

Sincerely,

Jason Kidd
705 Brittanyann Lane
Stockton, CA 95206

Letter 26

Stockton Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Dear Mr. Martin –

The EIR should address the following issues:

- How much more traffic will be pushed through neighborhood streets with Henry Long Blvd taken out? 26-1
- How will the traffic affect the nearby schools? 26-2
- How will the added traffic plus the increase in the LPG plant trucks affect us? 26-3

If the EIR finds that a 24-hour Wal-Mart supercenter and Sam's Club is, among other things, more detrimental to the local traffic patterns than beneficial, the city should then explore its authority of eminent domain. A store of this magnitude should benefit the community and not endanger our children and increase our traffic.

Sincerely,

Lester Bradshaw
4442 Sydney Lane
Stockton, CA 95206

Letter 27

Stockton City
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Re: Noise Pollution

Dear Mark Martin,

The Weston Ranch Town Center will have a 24 hour Wal-Mart Supercenter and Sam's Club and I am concerned that this will impede the quality of life that I and others enjoy. I live directly behind the site, and since I work over night, and sleep during the day, what will the impacts of noise be on me and others during the day and night? 27-1

How will Wal-Mart's trucks, even those with refrigeration units on them that have to run constantly, add to the noise? How will the vendor trucks that deliver to the store add to this noise?

Regards,

Sukhwant K. Bath
4542 Sydney Lane
Stockton, CA 95206

Letter 28

RECEIVED
FEB 07 2007
CITY OF STOCKTON
PERMIT CENTER - PLANNING DIVISION

Community Development Department
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Dear Mark Martin,

Wal-Mart's record of providing healthcare to its employees is outrageous! The EIR for the proposed Wal-Mart Supercenter and Sam's Club for the proposed Weston Ranch Town Center should look into how many Wal-Mart employees will receive healthcare at an affordable rate and how many will rely on state-funded healthcare. 28-1

How many employees will lose their healthcare when Wal-Mart will put other retailers out of business and they lose their jobs?

Sincerely,

Michael Leonard
4566 Sydney Lane
Stockton, CA 95206

Letter 29

RECEIVED
FEB 07 2007
CITY OF STOCKTON
PERMIT CENTER - PLANNING DIVISION

Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

Dear Mr. Martin –

In regards to the Weston Ranch Town shopping center with the Wal-Mart and Sam's Club, how will the center impact the open space around it? Will the run-off water from the parking lot and outdoor storage of garden products impact the surrounding farm lands? 29-1

Wal-Mart has been sued by the EPA for storing fertilizers outdoors and the runoff from it damaged the ground water. This should be addressed in the EIR, especially with so much farmland around us.

Sincerely,

Matab Singh
618 Brittanyann Lane
Stockton, CA 95206

Letter 30

City of Stockton
c/o Community Development Department
Planning Department
Mark Martin, Planner
345 N. El Dorado Street
Stockton, CA 95202

RECEIVED
FEB 0 2007
CITY OF STOCKTON
PERMIT CENTER PLANNING DIVISION

Re: Weston Ranch Town Center Wal-Mart Supercenter

Dear Mr. Martin,

A huge regional shopping center is not what we need here in Weston Ranch. We already have a shopping center that serves our community. What is the impact that this Wal-mart Supercenter and Sam's Club going to have on this shopping center, and the smaller retailers in there? 30-1

If the Food 4 Less goes out of business, what will happen to the other stores there? Would it sit empty for long periods of time?

Sincerely, Charles L. Miller

Charles L. Miller
642 Brittanyann Lane
Stockton, CA 95206

Letter 31

LAW OFFICE OF
J. WILLIAM YEATES
3400 COTTAGE WAY, SUITE K
SACRAMENTO, CALIFORNIA 95825
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www.enviroqualitylaw.com

J. WILLIAM YEATES

RECEIVED
FEB 05 2007
CITY OF STOCKTON
PERMIT CENTER/PLANNING DIVISION

February 5, 2007

Hand Delivered (2-5-07)

City of Stockton
Community Development Department, Planning Division
Attn: Mark Martin, Project Manager
3345 N. El Dorado Street
Stockton, CA 95202-1997

Re: *Protect Weston Ranch Coalition's comments on Weston Ranch Towne Center Project Draft Environmental Impact Report*

Dear Mr. Martin:

On behalf of the Protect Weston Ranch Coalition I am providing the following comments on the draft environmental impact report ("DEIR") prepared for the Weston Ranch Towne Center Project ("Project"). 31-1

Project Description/Baseline Environment Conditions

The DEIR states that the project applicant will be amending the General Plan to change the land use designation from Low/Medium Density Residential and Commercial to Commercial for the entire approximately 60-acre site. 31-2

What is the relationship of the general plan amendment ("GPA") to the 2035 General Plan Update ("2035 GPU") that the City of Stockton is considering? Since the comment period for the 2035 GPU Draft Programmatic EIR closed on January 29, 2007, why wasn't the GPA for this regional commercial center proposal incorporated into the 2035 GPU?

Is a "regional shopping center" located in this area consistent with future land use designations and policies being proposed in the 2035 GPU? 31-3

Is the asbestos disposal site on the 6.1 acre Barkett parcels ("Barkett Property") characterized as part of the baseline environmental conditions? 31-4

Although the project applicant does not own or control the Barkett property, the City has included the land use re-designation and rezone of the Barkett property within the scope of this DEIR. The DEIR claims: 31-5

> This Draft EIR considers the potential environmental impacts (particular hazards) related to the future development of the additional parcels, which are currently used as an asbestos disposal site.

The purpose of the DEIR for the future uses on the Barkett property is unclear. At page, 3-9 the DEIR states: "No site specific entitlements are sought at this time on the Barkett property." Doesn't the City contemplate zoning the Barkett property "CL" (commercial large-scale) district? Does the CL District zoning designation include the right to develop the Barkett site for specified large-scale commercial uses? If large-scale commercial uses are conditional upon the granting of a use permit, is the DEIR a programmatic document for purposes of the Barkett property? 31-5 cont.

In section 4.13 Hazards and Hazardous Materials at page 4.13-4, the DEIR acknowledges the presence of the asbestos disposal area on the Barkett property and further quotes from the Phase I report:

> In May 1992 a deed restriction was placed on the property to preclude future disturbance of the area. The deed restriction requires that the . . . U.S. EPA be notified at least five working days prior to conducting any work on the restricted land. The deed restriction also states that the parcel must be permanently sealed with at least a 24-inch non-asbestos cover, and prohibits any drilling or other subsurface activity or any use of the water contained beneath the land. 31-6

Is the project area subject to high winds? Under Section 4.8 Air Quality in subsection 4.8.1 Setting, the DEIR characterizes the larger region as experiencing light, variable winds, less than 10 miles per hour. The conditions create a climate conducive to high concentrations of certain air pollutants. Isn't it true that at certain seasons and particularly at night that due to the project site's location within the San Joaquin/Sacramento Delta area that the project site can experience high winds? Does CalTrans have signs along I-5 warning motorists, especially trucks, of high wind conditions in this area? What is the erosive force of the wind in this area? 31-7

Can the asbestos materials be safely removed from the Barkett site? If the asbestos material stored on the Barkett site is not being removed in advance of the commercial development adjacent to the Barkett site, why not? Is it infeasible to safely remove this material prior to development of the project applicant's large scale development? Would it be more prudent to remove the material before the large-scale commercial development is developed and in operation? 31-8

Is it appropriate to authorize large scale commercial land uses on the Barkett Property? Should the property be zoned for what it is -- a hazardous waste facility? Does the City have any restrictions within the existing or prospective General Plan or Zoning Code regarding the siting of incompatible uses next to one another? Is large-scale commercial development, which will encourage thousands of people to park and shop immediately adjacent to this capped hazardous waste facility, appropriate next to a hazardous waste disposal site? If the site were zoned a hazardous waste facility would the existing or proposed General Plan allow large scale commercial uses immediately adjacent to this zone? 31-9

City of Stockton Attn: Mark Martin
February 5, 2007
Page 3 of 22

Even though the deed restriction on the Barkett site prohibits any use of the water contained beneath the asbestos disposal site, the DEIR fails to explain whether the groundwater beneath the rest of the 60-acre site has been affected by the asbestos disposal site. What is the depth of the hazardous asbestos waste facility? Were the asbestos materials disposed in sealed containers? Is the groundwater under the hazardous facility separated from the groundwater basin that serves the City of Stockton, including the adjacent proposed large scale development? 31-10

Section 4.10 Hydrology and Water Quality of the DEIR does not discuss the deed restriction regarding the use of water under the hazardous waste facility. It is not clear whether drainage from the proposed large scale commercial development, which surrounds the Barkett site on three sides, will drain onto or underneath the Barkett site. At page 3-4, the DEIR states that the project site elevation is between 10 and 15 feet above mean sea level and slopes gently toward the west-northwest. Does this mean that drainage from the Barkett Property will flow toward the proposed commercial area? Will the parking areas and internal circulation for the proposed commercial be lower than the Barkett Property after site preparation and grading? 31-11

Information about existing baseline drainage conditions is rather sparse, but at page 4.10-1 the DEIR claims that storm water percolates through the existing pervious surface. On this page the DEIR also acknowledges that "French Camp Slough, a tributary of the San Joaquin River, is the closest natural water feature located approximately 1,500 feet north of the project site." The San Joaquin River is located about a mile west of the project site. It is not clear whether surface flow from two irrigation ditches traversing the project site drain into either French Camp Slough or the San Joaquin River. 31-12

Except for the capped hazardous waste facility on the Barkett property most of the rest of the 60-acre site is going to be covered with impervious surfaces to accommodate the parking and buildings associated with a large-scale regional commercial center. (Figure 3-4, p. 3-6; Attachment 1 to this letter provides a comparison of the size of a Wal-Mart Supercenter to other commercial retail uses and a football field.) According to Impact 4.10.2 at page 4.10-12 all the drainage from this site will be "conveyed to the San Joaquin River and downstream waterways." However, there is no discussion of the volume of storm water that may be conveyed to the San Joaquin River and downstream waterways. Impact 4.10.5 states that storm water capacity is based on "assumptions used in the development of the 1988 Master Storm Drain Plan for Weston Ranch." (Page 4.10-18) However, the DEIR concedes that things have changed within the City of Stockton since 1988 and that there is a need to review conveyance capacity. (*Ibid.*) Mitigation Measure 4.10.5 requires the applicant to prepare a Master Drainage Plan after project approval, but prior to site development. What is the capacity of the existing drainage system and what additional capacity must be added to the existing system to accommodate storm water run-off from 50+ acres of impervious surface? 31-13

In considering the baseline environmental conditions, it does not appear that the DEIR has considered the consequence of sea level rise caused by global warming. Scientists now predict a 31-14

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7 to 23-inch rise in sea level by the end of the century.[1] Scientists also predict increased El Niño events due to climate change which will increase water levels in the Delta, especially during the winter months when precipitation and run off into the Delta are maximized.[2] 31-14 cont.

The California Department of Water Resources ("DWR") warns that "[p]rojected increases in air temperature may lead to changes in the timing, amount and form of precipitation - rain or snow, [and] changes in runoff timing and volume . . . ."[3] The DEIR must take these cumulative impacts into account for storm water and flood planning.

Studies show that over the last century, there has been an increased variability in rain intensity, leading to more intense rain events.[4]

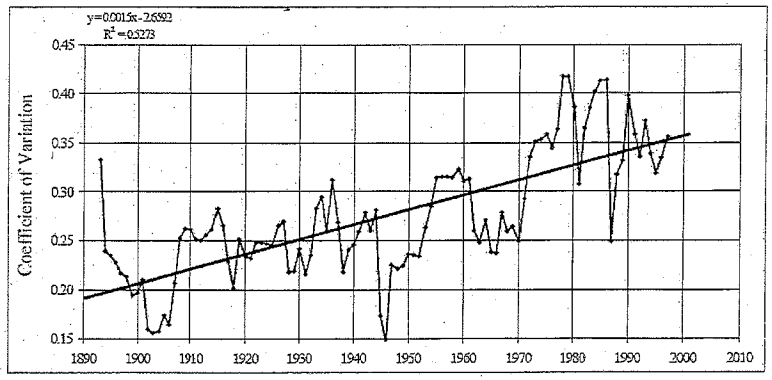

Figure 2-12 Coefficient of Variation for Annual Average Precipitation in California from 1890 to 2001 with Trend Line 31-15

This trend also indicates a pattern of "more extreme wet and dry years."[5] Do the proposed drainage and flood protection measures account for these changes?

What will be the direct effect of increasing run off from the project site during peak storm events? What is the project's cumulative contribution to run off into the Delta based on the

[1] "Global Warming Man-Made, Will Continue" February 1, 2007 Sacramento *Bee* (Attachment 2); Climate Change 2007: The Physical Science Basis – Summary for Policymakers (Contribution of Working Group 1 to the 4th Assessment Report of the Intergovernmental Panel on Climate Growth, February 2007), p. 11 of 21 (Attachment 3).
[2] CA Department of Water Resources, "Progress on Incorporating Climate Change into Planning and Management of California's Water Resources (July 2006), ch. 5, p. 5-1. (Attachment 4)
[3] DWR Climate Change Report, supra, p. 1-2.
[4] DWR Climate Change Report, supra, p. 2-21.
[5] *Ibid.*

growth predictions set forth in the 2035 GPU? Was the 1988 Weston Ranch Master Storm Drain Plan designed to accommodate rising sea level conditions within the Delta? 31-15 cont.

According to the Intergovernmental Plan on Climate Change (Working Group 1) ("IPCC") Fourth Assessment Report, "Carbon dioxide is the most important anthropogenic [human-caused] greenhouse gas."[6] The IPCC report points out, "The primary source of the increased atmospheric concentration of carbon dioxide since the pre-industrial period results from fossil fuel use, with land use change providing another significant but smaller contribution." In California among the sectors of the state's economy contributing to greenhouse gas emissions transportation contributes 41%.[7] As the California Climate Change Center's report, "Our Changing Climate: Assessing Risks to California," points out that rising temperatures associated with greenhouse gas generation, which contributes to global warming threatens our public health, water resources, agriculture, forests and landscapes, and rising sea levels.[8] 31-16

The reduction of greenhouse gas generation is state policy. Although climate is briefly discussed in section 4.8 Air Quality, the DEIR does not discuss the baseline nor the project's contribution to greenhouse gas generation despite the fact that the City is modifying its general plan to accommodate a regional commercial center on what is currently designated residential and is physically "nearly flat agricultural land which is currently fallow."[9]

In order to understand the proposed regional commercial center's contribution to the generation of greenhouse gas emissions, the DEIR needs to establish the baseline conditions at the project site. For example Impact 4.14.2 acknowledges that the proposed project would generate approximately 35,200 new vehicular trips per day, and fuel consumption of approximately 1,214 million gallons of gasoline and 110,750 gallons of diesel per day. (Page 4.14-9) What is not included in the DEIR is a baseline greenhouse gas generation calculation, so the public and the decision-makers can then compare the baseline to the greenhouse gases to be generated by the project.

On June 1,2005, Governor Schwarzenegger, acknowledging California's leadership role in reducing greenhouse gas emissions by implementing motor vehicle greenhouse gas emission reduction regulations, and implementing the most effective building and appliance efficiency standards in the world, issued Executive Order S-3-05.[10] The Governor's Executive Order among other things established the following greenhouse gas emission reduction targets for California: 31-17

(1) by 2010, reduce greenhouse gas ("GHG") emissions to 2000 levels;
(2) by 2020, reduce GHG emissions to 1990 levels; and,
(3) by 2050, reduce GHG emissions to 80 percent below 1990 levels.[11]

[6] Attachment 3, p. 2 of 21.
[7] Attachment 5.
[8] Attachment 6.
[9] DEIR, § 4.2 Land Use and Agricultural Resources, p. 4.2-1.
[10] Executive Order S-3-05, Attachment 7.
[11] Attachment 7.

In 2006 the California Legislature passed and Governor Schwarzenegger signed into law the "California Global Warming Solutions Act of 2006."[12] In enacting this law the California Legislature has determined,

> Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.[13] 31-17 cont.

The Global Warming Solutions Act directs the California Air Resources Board to establish by January 1, 2008, a statewide greenhouse gas (GHG) emission limit that will reduce emissions to 1990 levels by the year 2020.[14]

Local Governments for Sustainability offers software and strategies for quantifying and reducing GHG emissions and is referenced below to help the DEIR preparer incorporate this information.[15]

Why is the Preliminary Site Plan and area of circulation plan in a schematic format? (Page 3-13.) The DEIR says these two plans are subject to revision/modification as part of the Use Permit and design review process. Supposedly the DEIR is intended to cover the "issuance of a use permit(s)" and "design and site plan review and approval." (Page 3-15) So how, when, and where will the revised and modified plans be evaluated? 31-18

Land Use and Agricultural Resources (Section 4.2)

Why isn't the existing hazardous waste disposal site located on the Barkett property not identified as an existing onsite use? 31-19

Did the operation of an asbestos disposal site predate the current low density residential designation? 31-20

Does the current General Plan or the proposed General Plan allow hazardous waste facilities on residential and commercial designated land? 31-21

[12] 2006 Cal. Stats, ch. 488, Attachment 8.
[13] Attachment 8.
[14] Attachment 8.
[15] Local Governments for Sustainability, offering software and strategies for quantifying and reducing GHG emissions, available at http://www.iclei.org/index.php?id=1120; Available in Oakland, CA, through Abbey Young, 436 14th Street, Suite 1520, Oakland, California, USA 94612, Tel +1-510/844-0699, Fax +1-510/844-0698, Email iclei-usa@iclei.org

Should the Barkett property be cleaned up before the General Plan is amended to authorize a large scale commercial use around three sides of an existing hazardous waste disposal site? 31-22

Considering the state policy of reducing greenhouse gases generated in California in order to reduce global warming's effect on California the DEIR should address the positive impact 65.8 acres of prime farmland would have toward the reduction of greenhouse gases. 31-23

Are the Project Objectives listed on page 3-8 consistent with the village concepts proposed in the 2035 GPU? Proposed Policy LU-1.12 of the 2035 GPU states that the City shall strive to minimize commuting distances by encouraging infill development, policy DV-2.2 states that "[t]he City shall encourage high-density residential uses to locate in the downtown area and along transit corridors," and one of the project's objectives is to "maximize infill development."[16] How does the GPA for this proposed project assist in encouraging infill development? 31-24

Table 4.2.1 General Plan Consistency is simply a cursory, if not self-serving, explanation of how the proposed project is purportedly consistent with a list of General Plan policies. (Pages 4.2-10 – 4.2-15.) Although Table 4.2.1 does not say, it is assumed that these policies are from the soon-to-be-updated 1990 General Plan. According to the DEIR, the land use goals of the 2035 GPU "will be to increase infill development and expand the City's growth pattern to accommodate anticipated growth, with future residential growth to occur in the form of villages." (Page 4.2-5) While the DEIR claims the 2035 GPU includes regional commercial centers as part of the planned growth, since the DEIR includes a GPA that will change the current land use designations to large scale commercial, the DEIR needs to evaluate the impact of a large scale regional commercial facility on the ability of the city to encourage infill development. Infill development tends to include mixed residential and commercial uses on a neighborhood scale that reduces reliance on the automobile for shopping, etc. Since 41% of the CO_2 that increases global warming is generated by the transportation sector of California's economy, why does the DEIR ignore the environmental consequences of a land use policy that changes low density residential into a large scale commercial development that will attract long distance automobile traffic? Why not mixed use, commercial and higher density residential uses that serve the community and encourage infill? 31-25

Impact 4.2.3 (The project has the potential to conflict with existing land uses surrounding the project site) fails to even identify or discuss the existing hazardous waste disposal site on the adjacent Barkett property? 31-26

The Land Use Section of the DEIR completely ignores the environmental consequences of the land use policy decision that will change the current land use designation on the Barkett property to allow large scale commercial uses on an existing hazardous waste disposal site. Don't these land uses inherently conflict without significant clean up of the Barkett site? 31-27

[16] City of Stockton DEIR for City of Stockton (ESA/202593 December 2006), p. ES-5.

Aesthetics (Section 4.3)

Regarding Impact 4.3.1 (Degradation of Local Visual Character), the mitigation proposed is so vague as to be meaningless. Without more specificity about the site design and development it is impossible for the public and public decision-makers to determine how the City can reduce the identified significant adverse aesthetic impacts to a less than significant level when looking at the large scale development depicted on Figures 3-4 and 3-5 of the DEIR. According to Figure 3.4, over 60% of the 60-acre site will be paved with parking and access roads to serve the large scale commercial retail operation, which includes two huge retail anchors (a 230,000+ WalMart Supercenter and a 134,000+ Sam's Club) on the western edge of the project site and several other major retail stores that back up to Manthey Road. The major retail stores backing up to Manthey Road create a fortress-like look at the northeast corner of the project site in contrast to the open, nearly level, fallow agricultural field that exists today. 31-28

It is remarkable that the DEIR does not even attempt to develop any graphic simulations that would depict the scale of the large-scale regional commercial uses on the site, so the public and public decision-makers could visualize the change from the existing conditions. The 12-page analysis in section 4.3 of the DEIR contains no illustrations or graphics to give the reader any sense of the size and scale of the proposed project in relation to existing land uses. (See Attachment 1 regarding the relative sizes of the major retail uses proposed on this site.) 31-29

The following statement at page 4.3-10 -

> The proposed commercial development would create visual conditions in the project area similar to existing views in urban settings found in the nearby Stockton area 31-30

- does not mitigate the obvious change from the existing agricultural and open space condition of the existing site.

The DEIR proclaims that the environmental review in the DEIR will be used in the use permit and design review process, and that the project will be constructed in a single phase (with the exception of the Barkett property). Therefore, the design and site plan needs to be much more specific, so that the public and public decision-makers can evaluate the significant adverse environmental consequences of the proposed large scale commercial uses on the existing land. 31-31

Urban Decay (Section 4.4)

According to the Urban Decay Analysis attached as Appendix C to the DEIR, the second major retailer immediately adjacent to the 230,000+ square foot WalMart Supercenter at the proposed project site is a Sam's Club. Why was this not disclosed in the text of the DEIR? Was the business relationship of a WalMart Supercenter adjacent to a WalMart Sam's Club considered in the DEIR's analysis of urban decay? Were these retail operations treated as separate entities? 31-32

How can the urban decay analysis include potential development of the Barkett property, when the DEIR states at page 3-9 that "[n]o site specific entitlements are sought at this time on the 31-33

Barkett property"? Is the lead agency attempting to set up the situation where it can claim later that the DEIR for the Weston Ranch Town Center Project has looked at the environmental effects of future large scale commercial uses despite the fact that no specific uses have been applied for and not even a schematic site plan has been prepared for this hazardous waste disposal site? 31-33 cont.

What other retailers in the Stockton region are most similar to WalMart? Is it fair to compare a Raley's, Albertsons, Gottshalk's and Dillard's to the world's largest retailer?[17] What other retail centers are similar to a WalMart Supercenter than another WalMart Supercenter? 31-34

Why didn't ESA include smaller grocery stores and drugstores in the inventory of competing retailers? Doesn't this decision ignore policies in the 2035 GPU that encourage future "village-type" mixed used infill developments? 31-35

The DEIR claims that "Stockton is a sales attractor for all retail categories" and that "only minor retail sales are leaking out of Stockton." (Page 4.4-19) The DEIR acknowledges that "retail sales may be coming from Sierra foothill residents traveling significant distances westward to shop in Stockton due to the limited retail options locally." (*Ibid.*) Because Stockton's anticipated growth in its 2035 GPU comes from Bay Area workers looking for housing, the DEIR points out that local economic development specialists and commercial realtors suggest that south and central Stockton residents travel to places like Tracy or Livermore to shop.

The market analysis in the DEIR, combined with both the GPA that redesignates the project site from low density residential and commercial to large-scale commercial and the 2035 GPU that anticipates growth in Stockton will continue to be driven by Bay Area families seeking affordable housing opportunities raises the potentially significant effect of increasing the generation of greenhouse gases. (Page 4.4-20) Despite other policies in the 2035 GPU that encourage infill development and village concept development, Stockton's projected growth, Stockton's retail attractiveness, and WalMart's business plan and marketing success all encourage increased vehicle miles traveled to get from home to work to shopping. Yet, nowhere in the DEIR is this analyzed as either a direct effect or a cumulative effect of the proposed project. As note earlier, 41% of the CO_2 generated in California comes from transportation.[18] A regional large scale commercial center that is intended not only to meet Stockton's growth needs but will attract customers from as far away as the Sierra foothills will increase vehicle miles traveled resulting in increased fossil fuel consumption and generation of CO_2 into the atmosphere. 31-36

Based on a 2005 annual real estate report the DEIR states, "Stockton's current retail vacancy rate is less than 1 percent (excluding the former Wal-Mart store on 3701 Hammer Lane). 31-37

At Page 4.4-23 the DEIR states that analysis under this section of the DEIR assesses,

[17] Singh, et al, Impact of Wal-Mart Supercenter on a Traditional Supermarket: An Empirical Investigation, p. 1 (Attachment 9)
[18] Attachment 5.

> whether the proposed project, either in itself or together with other existing and probable future developments, will result in substantial adverse physical impacts, specifically a substantial increase in physical deterioration in retail property in any Stockton shopping center.

Taking the text directly from the Urban Decay Analysis in Appendix C, the DEIR states, "for a power center such as the proposed retail development, the primary market area will be 5 to 10 miles." However, the following text from the Urban Decay Analysis was not included in the DEIR: 31-37 cont.

> Typically, larger stores or stores with attractive additional retail components (such as Superstores) may be expected to have somewhat wider trade areas because they can attract customers to travel somewhat further to their store.

Why was this sentence excluded? In determining the "primary market area" for the proposed large scale commercial project, is the combination of a WalMart Supercenter and a Sam's Club as retail attractors comparable to a traditional "power center"? Please define "power center."

In order to adequately and accurately evaluate the environmental consequences of the proposed project, the DEIR cannot understate, underestimate, or downplay the project's anticipated environmental effects. According to a 2004 study, WalMart is considered the "biggest threat to the supermarket industry."[19] This study points out that WalMart is using the grocery business, which makes up only 30% of the retail space in a Supercenter, "as mainly a traffic driver, with the hope of spillover to high margin general merchandise items (that account for 65-70% of supercenter sales)."[20] This study goes on to point out other factors that lead to WalMart's success:

> Foremost, Wal-Mart's size gives the company several advantages over smaller competitors, including bargaining power with the manufacturer, and economies of scale in distribution systems. . . . Wal-Mart's large size allows the company to bypass the wholesalers with majority of the merchandise at supercenters, including perishables, supplied through its distribution centers. This coupled with an EDLP [Every Day Low Price] strategy (which not only helps create a low-price image in consumer's mind but also offers many operational advantages in demand forecasting) and Wal-Mart's proprietary Retail Link software, gives Wal-Mart a tremendous advantage in logistics and inventory control. . . . Last, but not least, another factor keeping the costs low at Wal-Mart is its nonunionized labor. For the majority of supermarkets, labor, that constitutes approximately 70% of the overhead, is unionized. On the other hand, none of the Wal-Mart employees belong to a union and industry analysts believe that they get paid significantly less than the industry average.[21] 31-38

[19] Attachment 9, Singh, et al, supra, at p. 1
[20] *Id.* at pp. 2 and 7.
[21] *Id.* at pp. 7-8.

Despite WalMart's supremacy in the retail market and its willingness to use groceries as a loss leader in order to increase traffic to its Supercenter stores, the DEIR's analysts determined that the primary market area for the proposed regional, large-scale commercial retail project, which includes both a WalMart Supercenter and a Sam's Club is within a 5-mile radius of the project site:

> ESA staffs' professional judgment is that the primary trade area for the proposed retail development is defined as the City of Stockton and nearby unincorporated areas within a five-mile radius of the site.[22]

This means that despite WalMart's EDLP strategy and industry-acknowledged advantages over its competitors, as listed above, the WalMart Supercenter and companion Sam's Club store has a primary trade area no bigger than that of a traditional supermarket like a Raley's!

What is ESA staffs' professional judgment based upon? The author of Urban Decay analysis is listed in the DEIR as Nik Carlson. His brief staff bio from ESA's website is as follows: 31-38 cont.

> Nik Carlson, senior technical associate, is a resource economist with expertise in cost benefit, financial, economic and social impact analyses for NEPA documentation. His experience includes damage and water rights assessments, operational and regulatory evaluations of recreational development projects, as well as demand forecasts for numerous National Park Service projects, including Yosemite and Grand Canyon national parks.

While there are a list of references cited at the back of the Urban Decay Analysis attached as Appendix C of the DEIR, the determination of the primary trade area in both Appendix C and then carried over to the DEIR appear to be ESA's sole professional opinion.

Why weren't industry analysts consulted on this matter? Why didn't ESA interview the authors of, or even cite to, "Impact of Wal-Mart Supercenter on a Traditional Supermarket: An Empirical Investigation"? It would appear this study addresses the many of the issues that ESA seeks to address in Mr. Carlson's analysis.

At page 4.4-32 through page 4.4-34, the EIR analyst creates the following scenario to come to the conclusion that,

> relatively few businesses would be expected to be affected [by the WalMart Supercenter and Sam's Club combination], especially over the longer term as future demand growth and demographic change would significantly increase Stockton retail demand. 31-39

First the ESA analyst determined that the proposed project would generate $200.9 million in annual sales from Stockton residents only. Then ESA determined that based upon future Stockton growth retail demand would increase by $143.8 million, reducing the overall "pull" of

[22] DEIR, § 4.4 Urban Decay, p. 4.4-26.

the new Weston Ranch Towne Center to $57.1 million, but this would "pull" would be offset entirely in the next year by further retail demand based on population growth. (Pages 4.4-32 – 4.4-33.)

There are a few major things wrong with ESA's analysis. It ignores entirely WalMart's extraordinary success, and its impact in other areas. It assumes a uniform population growth that will seamlessly fill up the additional retail opportunities presented by the Weston Ranch Towne Center project without any change in the existing retail demand picture. Finally, ESA's analysis fails to even evaluate the differences among retailers and the WalMart Supercenter's extraordinarily significant impact on the traditional grocery store.[23]

First of all "items at Wal-Mart cost 8% to 27% less" than items at traditional supermarkets.[24] A study that compared the impact of a WalMart Supercenter entering a market area adjacent to a traditional incumbent supermarket in 2000 found the following results based upon surveys conducted from November 1999 to June 2001:

> . . . the incumbent store lost 17% volume – amounting to a quarter million dollars in monthly revenue – following Wal-Mart's entry. The magnitude of the lost sales is quite alarming considering that supermarkets generally operate on a principle of low margins and high volume, with profit margins only about 1%. Decomposing the lost volume into store visits and in-store expenditures, we find the majority of the loss came due to fewer store visits with little impact on basket size once consumers are in the store. . . . Interestingly, we find that a small proportion of customers account for a large proportion of the losses. For example, 10% of the households account for 45% of the store's lost revenue, while 20% of the customers account for almost 70% of the lost revenue. In terms of consumer characteristics, we find that distance to store while useful, explains little variation in household heterogeneity (dissimilarities among households). Households that respond to Wal-Mart are likely to have an infant and pet in the family, and are more likely to be weekend shoppers. . . . Finally, we find that the households that respond to Wal-Mart are large basket consumers.[25] 31-39 cont.

If WalMart's strategy is to use the grocery as a means to increase traffic into its Supercenter, ESA's analysis fails to even consider this situation. As the study that compared the impact of opening a WalMart Supercenter on a traditional supermarket showed, traditional supermarkets are particularly vulnerable to WalMart's competitive advantages.

> According to the 2002 "Channel Blurring" study by ACNielsen, since 1999 [to 2003], consumer visits per year to supermarkets were down 12 percent while visits to supercenters went up 40 percent. The pressure from Wal-Mart is being felt by national chains and independents alike. In the past decade, 29 chains have

[23] Attachment 9, p. 1: "The biggest threat to the supermarket industry comes from none other than the world's largest retailer."
[24] *Ibid.*
[25] *Id.* at p. 5.

> sought bankruptcy court protection, with Wal-Mart as a catalyst in 25 of those cases.[26]

ESA's analysis has simply missed the mark, because it failed to evaluate the impact of a WalMart Supercenter on the traditional supermarkets in the Stockton area. Assuming traditional supermarkets are the anchor for neighborhood shopping centers, the analysis in the DEIR fails to adequately evaluate the consequences of any substantial increase in physical deterioration in retail property in any Stockton shopping center. As a Bay Area study points out, 31-39 cont.

> . . . supermarkets often anchor neighborhood shopping districts. A loss of a supermarket to big box competition could threaten the economic health of stores that rely on foot traffic generated by a grocery store. In some cases, supercenters . . . could threaten the economic vitality of existing . . . neighborhood shopping centers.[27]

Public Services and Utilities (Section 4.6)

The DEIR fails to adequately consider Wal-Mart's impacts on local law enforcement resources and local citizens' health, safety and welfare. As a general matter, Wal-Marts are known to attract criminal activity that is disproportionately high to that of traditional retail operations, including, but not limited to, disproportionately high demand on local police departments to respond to reports of shoplifting and a host of criminal activities in Wal-Mart's parking lots – including crimes resulting in human injury or death, which trigger CEQA's mandatory findings of significance.[28] Attached to this letter is a fact sheet entitled, "Wal-Mart's Impact on Local Police Costs" and another report entitled, "Crime and Wal-Mart – 'Is Wal-Mart Safe?' An Analysis of Official Police Incidents at Wal-Mart Stores."[29] 31-40

The DEIR needs to gather more information from police departments that have been impacted by incidents at Wal-Mart stores, and present this information for the public and public decision-makers to consider.

Transportation and Circulation (Section 4.7)

Daniel T. Smith, Jr. of Smith Engineering & Management has prepared comments on this section of the DEIR. The Smith Engineering letter is Attachment 12 to this comment letter. 31-41

Hydrology and Water Quality (Section 4.10)

The following comments are based, in significant part, on the professional opinion of Morris L. Allen, consulting civil engineer. Mr. Allen's comments are attached as Attachment 13. Based on the Water Supply Assessment ("WSA") prepared for the proposed project, the DEIR fails to 31-42

[26] *Id.* at p. 7.
[27] "Supercenters and the Transformation of the Bay Area Grocery Industry: Issues, Trends, and Impacts (Bay Area Economic Forum January 2004), p. 2. (Attachment 10.)
[28] CEQA Guidelines, § 15065, subd. (a)(4).
[29] Attachment 11.

adequately and accurately assess the proposed project's impacts on existing and future water supplies. The WSA fails to support its determination that there is a sufficient water supply to meet the demands of the proposed project. 31-42 cont.

The WSA fails to describe the *actual* water demands of this project. Instead, the WSA states that "a uniform water demand is assigned to this area *irregardless* of land use unless there is a special use requiring significant quantities of water."[30] This is not what the law requires. To determine whether existing and future water supplies are sufficient to meet the demands of this project, the law requires the WSA to discuss the actual water demands of the specific project. 31-43

The WSA fails to clearly describe and establish the water sources for this project. The WSA states that "[t]he surface water supplies associated with the COSMA's [City of Stockton Metropolitan Area] conjunctive use program fall into three categories: 1) water supplies derived from the Central Valley Project ('CVP'), 2) interim water supply contracts, and 3) surplus supplies available on an intermittent basis."[31] However, the WSA fails to describe the extent to which the project will be able to rely on any or all of these supplies. The WSA fails to show how any of these sources will provide the project with a *secure* water source. Please identify all the regulatory and contractual approvals necessary to actually deliver water to the Project. 31-44

Further, the WSA fails to describe how the new demand generated by the Project will affect existing customers and users in the COSMA area. Figure 9 of the WSA appears to show that this project, as well as all new development in the City, will rely solely on groundwater. To what extent is this true? Figure 9 shows that, as total demand rises, groundwater demand rises at almost *exactly* the same rate. How will increased groundwater pumping affect the residential groundwater wells in surrounding areas? How will the City ensure that groundwater wells of surrounding residents are not compromised in single-dry or multiple-dry years when groundwater pumping is projected to increase in the COSMA by almost 100%? 31-45

Discussion of the water rights and entitlements of the Stockton East Water District ("SEWD") are totally irrelevant, except for the Second Amended Contract of 1987. This document provides for a firm entitlement of 20,000 acre feet per year of treated water to the COSMA. COSMA **has no other source of surface water**. Furthermore, this WSA claims to rely on the Delta Water Supply Project EIR (DWSPEIR) as its basis for factual information. Despite this claim, the WSA for the proposed large scale commercial uses assumes (unlike the DWSPEIR) that the water transfer agreement between SEWD and the Oakdale Irrigation District and South San Joaquin Irrigation District ("OID" and "SSJID") will continue unchanged until 2019. The DWSPEIR assumes in its water supply projections that SSJID will **not** renew the transfer agreement beyond 2009. 31-46

What are the "various water supplies" claimed at WSA p. 13? This needs a specific clarifying reference so that the claimed water supplies can be identified and quantified. Also, the amount of conservation that will be required needs to be specifically quantified, and the measures that will be employed to achieve this conservation identified. What is the purpose for mentioning 31-47

[30] WSA, 4 (emphasis added).
[31] WSA, 27.

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these speculative sources of water supply (at WSA, pp. 13 and 14), since these water supplies are not available and not included in the analysis? 31-47 cont.

The discussion of the condition of the groundwater basin (at WSA p. 15) is inaccurate. The California Department of Water Resources ("DWR") has classified the Eastern San Joaquin Groundwater Basin as "in a critical condition of overdraft." The actual amount of the overdraft has been estimated by different authorities as 160,000 acre feet/year (San Joaquin County); 200,000 acre feet/year (U. S. Army Corps of Engineers); and 150,000 acre feet/year (U.S. Geological Survey). As a result of the overdraft, the groundwater basin has lost 1,000,000 acre feet of active storage capacity; and, groundwater levels have declined by as much as 100 ft over the last 30 to 40 years (U. S. Army Corps of Engineers). This groundwater basin serves the cities of Ripon, Manteca, Lathrop, Stockton, and Lodi, in addition to agricultural areas generally east of the urbanized areas. According to the *Eastern San Joaquin Groundwater Management Plan,* 31-48

> Current and historical groundwater pumping rates exceed the sustainable yield of the underlying groundwater basin on an average annual basis.

It is misleading and inaccurate to only refer to the portion of the basin that is within the SEWD service area, without mentioning that SEWD serves only a portion of a larger, hydrologically interconnected basin which is in severe overdraft. What cumulative impacts will this project have, given the growth the City of Stockton has predicted in the 2035 GPU, as well as the foreseeable growth the other cities overlying the same groundwater basin have predicted for themselves?

The DEIR states that "[a]n estimated 70,000 AF/year of overdraft occurs in northeastern San Joaquin County and about 35,000 AF/year of overdraft occurs in the Stockton East Water District (SEWD) area."[32] "Currently within the Urban Services Area of the City's General Plan about 44,000 AF/year of groundwater is pumped: 27,000 AF/yr for municipal use and 17,000 AF/yr for agricultural use."[33] Yet, the WSA states that "Table 4 indicates that over the 70-year period average water supplies meet existing water demands without exceeding the sustainable groundwater yield."[34] How does the WSA assert that groundwater extraction has been sustainable, when the DEIR states that the groundwater is, and has been, in a steady state of overdraft, leading to saline intrusion from the west? 31-49

The WSA fails to comply with s subsection (f)(2) of section 10910 of he Water Code, which requires the WSA to provide "information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue." The WSA itself fails to acknowledge that the groundwater basin is in overdraft, and whether the overdraft will continue with present management conditions. However, this information does appear in the DEIR, as described above, and the WSA *must* incorporate this information into its analysis. 31-50

[32] DEIR, 4.10-3.
[33] DEIR, 4.10-15.
[34] WSA, 18.

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The WSA must also go further to describe the steps the City will take to try to avoid overdraft. Currently, the WSA merely states, "[i]n addition to the COSMA's long-term plan for preventing overdraft of the groundwater basin, the objectives of the proposed future DWSP insure systematic, incremental implementation of the conjunctive use program to provide a benefit to the groundwater basin."[35] However, the WSA fails to describe the *details* of "the COSMA's long-term plan," or "the objectives of the proposed future DWSP." Section 10910(f)(2) of the Water Code requires "a *detailed* description . . . of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition." What is COSMA's "long term plan for preventing overdraft of the groundwater basin"? The WSA must specifically identify a long term plan and provide a summary so that the public and public decision makers can understand how this long term plan for preventing overdraft of the ground water basin may mitigate the contribution this project will have on overdrafting this portion of the Eastern San Joaquin Groundwater basin. 31-51

The City's reliance on the DWSP is problematic, since there is no guarantee that the DWSP will become operational. The City has sought water from the DWSP for nearly a decade; yet that project still has not come to fruition. Even as recently as December of 2006, the City was denied funding from the Northeastern San Joaquin Groundwater Banking Authority to implement the DWSP.[36] The WSA must account for all such details of the City's long-term water supply plan. Moreover, if the DWSP does become operational, it will not do so for another three or four years. The DEIR anticipates the large scale commercial uses coming on line in 2008. What impact on groundwater will the proposed project have during that time? 31-52

The WSA does not appear to account for the "Term 91" condition that would prohibit the City's diversions of Delta water when necessary to keep the Delta in balance. How might this limitation affect the availability of water for the proposed project? What is the City's Term 91 priority, and how will that affect water supply availability? 31-53

The WSA fails to consider the impact of the proposed 2035 General Plan. How would this change the projected land uses listed in table 1? How would it change the available water supply? 31-54

The WSA fails to comply with Water Code, section 10910(c)(3).[37] This section applies to a WSA if "the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan." The WSA specifically admits that "[p]rojected annual water demands beyond the year 2020 are not specifically included in the UWMP,"[38] but the WSA attempts to avoid the requirements of subsection (c)(3) by asserting that "new growth and the adequacy of supplies was considered in the UWMP." Since the proposed project requires a general plan amendment it does not appear that the project could have been considered in the UWMP. 31-55

[35] WSA, 28.
[36] Banking Authority Decision on DWSP, Attachment 14.
[37] All statutory references in this comment section are to the Water Code, unless otherwise indicated.
[38] WSA, 7.

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The WSA fails to provide a twenty year projection, as is required by section 10910(c)(3). Also, section 10910(c)(3), specifically requires discussion of "the public water system's existing and planned future uses, including agricultural and manufacturing uses." Yet, table 1 fails to list the future water demands of agricultural/open space land uses in 2015, despite the fact that it states that such uses will comprise 27,585 acres.[39] 31-56

The groundwater discussion in the WSA is inadequate because it fails to acknowledge the "wedge" of salinity that has significantly intruded into this area, as a result of the City's over-reliance on groundwater supplies for existing and future uses, combined with over-pumping of the groundwater supply by other municipal, domestic, and agricultural wells. In the professional judgment of Mr. Allen, full reliance on groundwater to support the proposed development, as documented in this WSA, will seriously adversely affect the quality of groundwater in this area, cause a further eastward migration of salinity, and impair or eliminate the availability of usable groundwater in wells west of I-5. 31-57

How will the Project specifically impact concerns over the saline front and groundwater intrusion? Has the area begun to be served by the South Stockton Aqueduct? If so, this needs to be addressed in the WSA. What impact will this have on surface water availability and groundwater extractions in north areas of the City of Stockton? What will be the effect on wells in the project area of the new arsenic regulations? These issues must also be addressed in the WSA and the DEIR. 31-58

The analysis of groundwater availability at page 21 of the WSA is unsubstantiated. The WSA must explain how the "sustainable yield of groundwater" can be derived when the basin is in a critical condition of overdraft." 31-59

The WSA states that for the 46,300 acres developed as of 2003, the "sustainable yield of groundwater for urban development is calculated to be 34,725 AF/year . . . . At buildout of COSMA's Urban Services Area of 66,000 acres, the sustainable yield based on the 0.75 AF/acre/year factor could potentially increase to approximately 49,500 AF/year of groundwater." How can further development *increase* the sustainable yield of groundwater, when the WSA also states that "[i]t is assumed that every acre of new development that occurs after 2003 will *increase* the [City of Stockton]'s annual demand by 1.6 AF/year, regardless of where the development takes place"?[40] Similarly, figure 9 indicates that "the sustainable yield of the groundwater . . . increases slightly as additional lands are urbanized."[41] The WSA fails to explain or provide any rationale for this counterintuitive effect. Won't urban uses and extensive impermeable surfaces act to reduce groundwater supplies? 31-60

The DWSPEIR states that, in order to mitigate the effect of groundwater overdraft in the COSMA, the "target yield" of the groundwater basin will be reduced to 0.6 acre feet/acre/year, yet the WSA prepared for the proposed project, which is claimed to be based upon the 31-61

[39] WSA, 8.
[40] WSA, 19 (emphasis added).
[41] WSA, 23.

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DWSPEIR, states that a groundwater yield of 0.92 AF/acre/year is acceptable. Why is 0.92 AF/acre/year an acceptable groundwater yield in south Stockton, since this area has experienced a significant intrusion of salinity?[42] 31-61

The WSA goes on to say, that at an extraction rate of 49,500 AF/year, "an equivalent volume would be recharged into the groundwater basin from deep percolation, streams and rivers, and subsurface recharge. Through this natural induced recharge, the groundwater will find an equilibrium that is sustainable over the long-term."[43] What is "natural induced recharge," and how will the groundwater simply "find an equilibrium"? Please describe exactly what recharge projects or impacts are certain to occur, and quantify the recharge rate to show equilibrium. 31-62

The WSA states that, at build out of the current General Plan, "[i]t is assumed that a portion of new development will receive 0.92 AF/ac/year of groundwater with the remaining supplies coming from surface water and other sources, including but not limited to SEWD, water conservation, and reclaimed (or recycled) wastewater."[44] Yet, the WSA does not *prove* how these sources will be available. Also, because the WSA would consider a 0.92 AF/ac/year sustainable in the northeast portions of the City's General Plan, the WSA should not then go on to assume that build-out of the current General Plan will yield 0.75 AF/ac/year.[45] 31-63

How does the build out for the current General Plan used by this WSA compare with the build out used for the WSA prepared for the 2035 GPU? (Since WSA for 2035 GPU was prepared by the same consultant this comparison should be fairly easily made. The WSA prepared for the 2035 GPU is attached as Attachment 15 to this comment letter.) 31-64

Table 3 shows that in critical years, the City will have an estimated water supply of 28,000 AF/year in 2010. The WSA states that "[City of Stockton] will continue to meet dry year deficiencies over the next 20 years with groundwater, conservation, and various other water supplies."[46] But, the WSA fails to explain how the City will accomplish this. Also, the WSA does not explain what it means by "demand reductions" used in Table 4. 31-65

Table 4 seems to show that in year 2003, the total water supply was exactly equivalent to the total water demand.[47] Table 5 makes the same showing. If the water supply exactly meets the demand, then how will new, additional demands, like the proposed project be met? 31-66

What "planning level studies" are referred to at page 18 of the WSA? These need to be specifically identified in this WSA. Mr. Allen was unable to find any of the "planning level studies" that support the "water duties" identified in the WSA. In addition, what "other sources" are referred to at page 18? These need to be specifically referenced in this WSA. The WSA needs to specifically identify how groundwater yield can be "sustainable" in a critically 31-67

[42] WSA, 18.
[43] WSA, 21.
[44] WSA, 18.
[45] WSA, 18.
[46] WSA, 13.
[47] WSA, 20.

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overdrafted groundwater basin. (These planning level studies do not appear in the 2035 GPU WSA, which is found at Attachment 15 to this comment letter.) 31-67 cont.

At page 19, the WSA analysis of water demand cannot be based upon "saturation rate of new demand." This does not comply with Water Code requirements. Water demand estimates must be based upon rationally derived actual estimates of water demand for the specific projects analyzed. Also, this WSA must define "other supplemental sources" as stated at page 19. 31-68

Why is the 1977-1980 dry period used in the drought analysis?[48] Did the WSA look at the extended drought beginning in 1987? Only the Second Amended Contract with SEWD of 1987 can be used in this analysis at page 24, since this is the only entitlement that COSMA has for treated surface water. The other contracts and entitlements mentioned are with other agencies, to which COSMA is at best a third party. 31-69

The DEIR and the WSA fail to take into account the cumulative impacts of global warming. As described by the Department of Water Resources (DWR), a rise in sea level will adversely impact the Delta:

> [P]erhaps the most significant [impact] from the standpoint of the State's water resources are increased sea water intrusion and increased potential for levee failure in the Delta. Increased sea water intrusion into the Delta threatens the operations of the State Water Project and the Central Valley Project, as well as other Delta water supply diversions due to water quality degradation. Water quality degradation in the Delta also potentially threatens the Delta's fragile ecosystem, which supports threatened and endangered species. Finally, increased sea water intrusion into the Delta could threaten some groundwater supplies through the interaction of Delta waters with underlying and adjoining portions of the Central Valley groundwater basin.[49] 31-70

The DEIR and WSA must account for these changes when determining the availability of water for the proposed project.

In addition to sea level rise, the DWR lists several other ways in which global warming will affect water demand and supply: 31-71

[48] WSA, 23.
[49] Attachment 4 at pp. 2-7, 5-1, also available at http://baydeltaoffice.water.ca.gov/climatechange/DWRClimateChangeJuly06.pdf,

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Table 2-7 Summary of the Potential Effects of Climate Change on Future Water Demand

Type of Demand	Potential Effect
Crop Irrigation	Increasing temperatures will increase evapotranspiration rates and related water demand where all other factors remain unchanged. Increasing concentrations of atmospheric carbon dioxide may act to reduce increases in plant transpiration (a component of evapotranspiration) in response to increased temperatures. Other factors related to climate change, such as possible changes in humidity, cloudiness and wind could also affect evapotranspiration rates. Evaporation rates from soil and plant surfaces may rise due to temperature increase, depending on changes in other factors that affect evaporation rates. Increased evaporation rates could increase salt accumulation on plant surfaces, especially where overhead irrigation is used. Salt accumulation in surficial soils could also increase. Additional irrigation water demand may result because of possible increased salt control requirements. Some changes in crop type, planting cycles, time of planting, and crop productivity will likely occur as the result of increased temperatures. Statewide and regional irrigation water demand may increase or decrease as the result of these changes. Use of water for frost protection will likely be reduced with increasing temperatures and projected reductions in the annual number of days when frost occurs. Frost protection is typically an important consideration for orchards and vineyards.
Landscape Irrigation	Increased temperatures, as well other atmospheric/climatic factors related to climate change, will affect landscape irrigation in manner similar to that described for crop irrigation, above.
Domestic Water Uses (excluding landscape irrigation)	Domestic water use typically increases with increasing temperature. Increased water demand can occur due to the use of evaporative cooling, increased laundering of clothing, increased bathing, increased drinking water requirements for humans and pets and recreational uses of water.

31-71 cont.

Table 2-7 Summary of the Potential Effects of Climate Change on Future Water Demand (continued)

Type of Demand	Potential Effect
Commercial and Industrial Water Use (including agro-industrial facilities such as dairies, poultry farms, packing plants, etc.)	Commercial and industrial water use will likely increase as the result of warming due to such factors as increased evaporative cooling demand. Increased consumption of water by concentrated animal feeding facilities, such as dairies and poultry farms, would also likely occur.
Evaporation Losses from Natural Water Bodies and Open Water Storage and Conveyance Facilities	Evaporation losses from water bodies and open conveyances will probably increase as the result of rising temperatures especially in arid portions of the State with low humidity and limited cloud cover.
Environmental Water Requirements	Delta outflow requirements will likely increase to maintain Delta salinity conditions in response to sea level rise; if the Delta's existing configuration, operation of its water supply facilities, and its ecosystem conditions are to remain as they are now. Higher temperatures will likely result in increased environmental water demand for controlling water temperatures for sensitive aquatic species, including anadromous fish. Increased use of reservoir storage and thermal control releases from reservoirs will be required for controlling aquatic habitat temperatures.

31-71 cont.

The DEIR and WSA must specifically discuss each of these factors, highlighted by DWR, as they relate to the water supply and demand created by the proposed project. Do the documents that the DEIR and WSA rely on, such as the DWSPEIR, account for cumulative impacts associated with climate change? How do these cumulative impacts change the proposed project's impact on existing and future water supplies?

Analysis of Alternatives

For the public and public decision-makers the DEIR must provide a comparison of the environmental consequences of amending the general plan to authorize large scale commercial retail uses at this site to a mixed use "infill development" adjacent to the Weston Ranch residential community, the lead agency should prepare a "village-type" alternative, as proposed by 2035 GPU, that would incorporate high and medium density residential and mixed residential-commercial uses that would meet the commercial retail needs of this south Stockton 31-72

residential community without attracting high volume traffic to a regional WalMart Supercenter and Sam's Club. 31-72 cont.

On behalf of the Protect the Weston Ranch Coalition, I appreciate the opportunity to comment on this substantial change in land use policy within the City of Stockton. 31-73

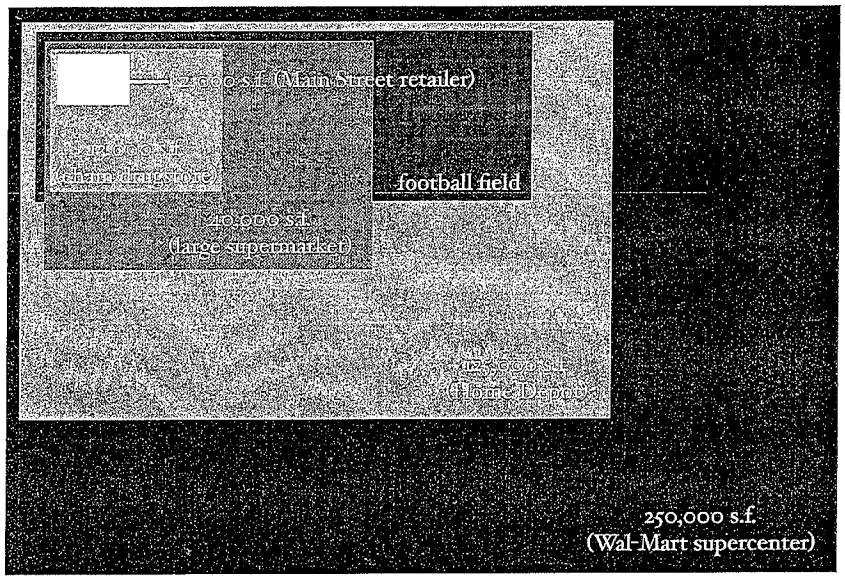
Sincerely,

Bill Yeates

Attachments 1 through 15

ATTACHMENT 1

How Big is Too Big?



Notes on store sizes:
Wal-Mart and Target are currently building "supercenters," which combine their usual array of merchandise with a full supermarket and numerous specialty services from cut flowers to eye glasses. Supercenters typically range from 180,000 to 250,000 square feet, or between 4.1 to 5.7 acres. The parking lots that surround these stores are several times the size of the store itself. Many other big box retail stores—including earlier-generation Wal-Mart outlets, Home Depot, Lowe's, Office Depot, Bed Bath & Beyond, etc.—are in the 60,000 to 140,000 square foot range. Barnes & Noble and Borders Books stores range from 25,000 to 45,000 square feet, or about the size of a very large supermarket. Free-standing chain drugstores operated by Walgreens, Rite Aid, and CVS are generally 11,000-15,000 square feet.

As for independent retailers, there's quite a range. Many Main Street stores are under 1,000 square feet. A full-service neighborhood grocery store might be 10,000 square feet. Locally owned hardware stores generally range from 2,000 to 20,000 square feet. An independent bookstore might be 1,500 square feet.

A growing number of cities and towns are adopting **store size caps** to ensure that new retail development is scaled appropriately for the community and does not overwhelm the local economy or exacerbate sprawl and traffic congestion. Most communities choose an upper limit of between 35,000 and 75,000 square feet.

For more information on store size caps and other measures to control big box development in your community, see:

www.newrules.org/retail

Produced by the New Rules Project, a program of the Minneapolis-based Institute for Local Self-Reliance.

ATTACHMENT 2

The Web Site of The Sacramento Bee

This story is taken from Top Nation/World News at sacbee.com.

Global warming man-made, will continue

By SETH BORENSTEIN, AP Science Writer
Published 7:44 pm PST Thursday, February 1, 2007

PARIS (AP) - A panel of international scientists predicted Friday that global warming will continue for centuries no matter how much people control pollution, in a bleak report that blamed humans for killer heat waves, devastating droughts and stronger storms.

The report said people were "very likely" the cause of global warming - the strongest conclusion to date - and placed the burden on governments to take action.

"It's later than we think," said Susan Solomon, co-chair of Intergovernmental Panel on Climate Change.

Man-made emissions of greenhouse gases are to blame for fewer cold days, hotter nights, heat waves, floods and heavy rains, droughts and stronger storms, particularly in the Atlantic Ocean, the 21-page report said.

It highlighted "increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global mean sea level."

Authors of the report called it conservative: It used only peer-reviewed published science and was edited by representatives of 113 governments who had to agree to every word. It was a snapshot of where the world is with global warming and where it is heading, but does not tell governments what to do.

Yet if nothing is done, the world is looking at billions of dollars in costs adapting to a warmer world over the next century, co-author Kevin Trenberth said in an interview. He also warned of at least 1 million deaths in droughts, floods and hurricanes.

The study said no matter how much civilization slows or reduces its greenhouse gas emissions, global warming and sea-level rise will continue for centuries.

"This is just not something you can stop. We're just going to have to live with it," said Trenberth, the director of climate analysis at the U.S National Center for Atmospheric Research. "We're creating a different planet. If you were to come back in 100 years' time, we'll have a different climate."

Scientists fear world leaders will take that message in the wrong way and throw up their hands, Trenberth said. Instead, the scientists urged leaders to reduce emissions and adapt to a warmer world with wilder weather.

"The point here is to highlight what will happen if we don't do something and what will happen if we do something," said another author, Jonathan Overpeck of the University of Arizona. "I can tell you if you decide not to do something the impacts will be much larger than if we do something."

The next step is up to public officials, scientists said.

"It is critical that we look at this report ... as a moment where the focus of attention will shift from whether climate change is linked to human activity, whether the science is sufficient, to what on earth are we going to do about it," U.N. Environment Program Executive Director Achim Steiner said.

The strongly worded report put pressure on the Bush administration to reduce the United States' growing share of gases that trap heat in the atmosphere.

The White House issued a statement less than four hours after the report's release defending President Bush's six-year record on climate change.

It said Bush and his budget proposals have devoted $29 billion to climate-related science, technology, international assistance and incentive programs - "more money than any other country."

Bush has called for slowing the growth rate of U.S. greenhouse gas emissions, which averages 1 percent a year, but has rejected government-ordered reductions.

Since 1990, U.S. greenhouse gas emissions have gone up 16 percent. The Bush administration has rejected the Kyoto Protocol, which calls for cuts in emissions of greenhouse gases.

Sharon Hays, White House associate science adviser, called the study "a significant report. It will be valuable to policy makers."

Another report by the panel later this year will address the most effective measures for slowing global warming.

If it looks bad now, the harmful effects during the 21st century "would very likely be larger than those observed during the 20th century," the report said.

The panel predicted temperature rises of 2-11.5 degrees Fahrenheit by the year 2100. It said its best estimate was for temperature rises of 3.2-7.1 degrees.

On sea levels, the report projects rises of 7-23 inches by the end of the century. An additional 3.9-7.8 inches are possible if recent, surprising melting of polar ice sheets continues.

The panel, created by the United Nations in 1988, releases its assessments every five or six years, though scientists have been observing aspects of climate change since as far back as the 1960s. The reports are released in phases - this is the first of four this year.

The projected effects of global warming would vary in different parts of the globe. The closer to the poles, the higher the temperature spikes, the study said.

Dramatic temperature spikes are likely to be seen within 22 years in most of the Northern Hemisphere, the report showed. Northern Africa and other places will see dramatically less rainfall.

The United States could see a 10-degree temperature rise by the end of the century and a more arid south and west, Overpeck said.

And that's just average temperature increases and rainfall amounts, something that doesn't affect people much. The harshest consequences of global warming are the heat waves,

droughts, floods, and hurricanes, said study co-author Philip Jones of Britain's University of East Anglia. And those have increased dramatically in the past decade and will get worse in the future, he said.

Global warming could eventually lead to an "ice-free Arctic," warned Gerry Meehl, an official with the U.S National Center for Atmospheric Research.

And when that happened 125,000 years ago, seas rose between 13 and 20 feet. That is looking like a real possibility for the 22nd Century, the report said, though some scientists fear much of it could happen before the end of the century.

Trenberth said the world is paying more attention to scientists now than to previous warnings in 1990, 1995 and 2001. "The tension is more now," he said.

As the IPCC report was being released, environmental activists rappelled off a Paris bridge and draped a banner over a statue used often as a popular gauge of whether the Seine River is running high.

"Alarm bells are ringing. The world must wake up to the threat," said Catherine Pearce of Friends of the Earth.

Associated Press writer Angela Charlton contributed to this report.

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ATTACHMENT 3

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

WMO UNEP

Climate Change 2007: The Physical Science Basis

Summary for Policymakers

Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change

This Summary for Policymakers was formally approved at the 10th Session of Working Group I of the IPCC, Paris, February 2007.

Note:
Text, tables and figures given here are final but subject to checking and copy-editing and editorial adjustments to figures.

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INTRODUCTION

The Working Group I contribution to the IPCC Fourth Assessment Report describes progress in understanding of the human and natural drivers of climate change[1], observed climate change, climate processes and attribution, and estimates of projected future climate change. It builds upon past IPCC assessments and incorporates new findings from the past six years of research. Scientific progress since the TAR is based upon large amounts of new and more comprehensive data, more sophisticated analyses of data, improvements in understanding of processes and their simulation in models, and more extensive exploration of uncertainty ranges.

The basis for substantive paragraphs in this Summary for Policymakers can be found in the chapter sections specified in curly brackets.

HUMAN AND NATURAL DRIVERS OF CLIMATE CHANGE

Changes in the atmospheric abundance of greenhouse gases and aerosols, in solar radiation and in land surface properties alter the energy balance of the climate system. These changes are expressed in terms of radiative forcing[2], which is used to compare how a range of human and natural factors drive warming or cooling influences on global climate. Since the Third Assessment Report (TAR), new observations and related modelling of greenhouse gases, solar activity, land surface properties and some aspects of aerosols have led to improvements in the quantitative estimates of radiative forcing.

Global atmospheric concentrations of carbon dioxide, methane and nitrous oxide have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years (see Figure SPM-1). The global increases in carbon dioxide concentration are due primarily to fossil fuel use and land-use change, while those of methane and nitrous oxide are primarily due to agriculture. {2.3, 6.4, 7.3}

- Carbon dioxide is the most important anthropogenic greenhouse gas (see Figure SPM-2). The global atmospheric concentration of carbon dioxide has increased from a pre-industrial value of about 280 ppm to 379 ppm[3] in 2005. The atmospheric concentration of carbon dioxide in 2005 exceeds by far the natural range over the last 650,000 years (180 to 300 ppm) as determined from ice cores. The annual carbon dioxide concentration growth-rate was larger during the last 10 years (1995 – 2005 average: 1.9 ppm per year), than it has been since the beginning of continuous direct atmospheric measurements (1960–2005 average: 1.4 ppm per year) although there is year-to-year variability in growth rates.
- The primary source of the increased atmospheric concentration of carbon dioxide since the pre-industrial period results from fossil fuel use, with land use change providing another significant but smaller contribution. Annual fossil carbon dioxide emissions[4] increased from an average of 6.4 [6.0 to 6.8][5] GtC (23.5 [22.0 to 25.0] $GtCO_2$) per year in the 1990s, to 7.2 [6.9 to 7.5] GtC (26.4 [25.3 to 27.5] $GtCO_2$) per year in 2000–2005 (2004 and 2005 data are interim estimates). Carbon dioxide emissions associated with land-use change are estimated to be 1.6 [0.5 to 2.7] GtC (5.9 [1.8 to 9.9] $GtCO_2$) per year over the 1990s, although these estimates have a large uncertainty. {2.3, 7.3}
- The global atmospheric concentration of methane has increased from a pre-industrial value of about 715 ppb to 1732 ppb in the early 1990s, and is 1774 ppb in 2005. The atmospheric concentration of methane in 2005 exceeds by far the natural range of the last 650,000 years (320 to 790 ppb) as determined from ice cores. Growth rates have declined since the early 1990s, consistent with total emissions (sum of anthropogenic and natural sources) being nearly constant during this period. It is *very likely*[6] that the observed increase in methane concentration is due to anthropogenic activities, predominantly agriculture and fossil fuel use, but relative contributions from different source types are not well determined. {2.3, 7.4}
- The global atmospheric nitrous oxide concentration increased from a pre-industrial value of about 270 ppb to 319 ppb in 2005. The growth rate has been approximately constant since 1980. More than a third of all nitrous oxide emissions are anthropogenic and are primarily due to agriculture. {2.3,7.4}

The understanding of anthropogenic warming and cooling influences on climate has improved since the Third Assessment Report (TAR), leading to *very high confidence*[7] that the globally averaged net effect of human activities since 1750 has been one of warming, with a radiative forcing of +1.6 [+0.6 to +2.4] W m^{-2}. (see Figure SPM-2). {2.3. 6.5, 2.9}

- The combined radiative forcing due to increases in carbon dioxide, methane, and nitrous oxide is +2.30 [+2.07 to +2.53] W m^{-2}, and its rate of increase during the industrial era is *very likely* to have been unprecedented in more than 10,000 years (see Figures SPM-1 and SPM-2). The carbon dioxide radiative forcing increased by 20% from 1995 to 2005, the largest change for any decade in at least the last 200 years. {2.3, 6.4}
- Anthropogenic contributions to aerosols (primarily sulphate, organic carbon, black carbon, nitrate and dust) together produce a cooling effect, with a total direct radiative forcing of -0.5 [-0.9 to -0.1] W m^{-2} and an indirect cloud albedo forcing of -0.7 [-1.8 to -0.3] W m^{-2}. These forcings are now better understood than at the time of the TAR due to improved *in situ*, satellite and ground-based measurements and more comprehensive modelling, but remain the dominant uncertainty in radiative forcing. Aerosols also influence cloud lifetime and precipitation. {2.4, 2.9, 7.5}
- Significant anthropogenic contributions to radiative forcing come from several other sources. Tropospheric ozone changes due to emissions of ozone-forming chemicals (nitrogen oxides, carbon monoxide, and hydrocarbons) contribute +0.35 [+0.25 to +0.65] W m^{-2}. The direct radiative forcing due to changes in halocarbons[8] is +0.34 [+0.31 to +0.37] W m^{-2}. Changes in surface albedo, due to land-cover changes and deposition of black carbon aerosols on snow, exert respective forcings of -0.2 [-0.4 to 0.0] and +0.1 [0.0 to +0.2] W m^{-2}. Additional terms smaller than ±0.1 W m^{-2} are shown in Figure SPM-2. {2.3, 2.5, 7.2}
- Changes in solar irradiance since 1750 are estimated to cause a radiative forcing of +0.12 [+0.06 to +0.30] W m^{-2}, which is less than half the estimate given in the TAR. {2.7}

[1] *Climate change* in IPCC usage refers to any change in climate over time, whether due to natural variability or as a result of human activity. This usage differs from that in the Framework Convention on Climate Change, where climate change refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods.

[2] *Radiative forcing* is a measure of the influence that a factor has in altering the balance of incoming and outgoing energy in the Earth-atmosphere system and is an index of the importance of the factor as a potential climate change mechanism. Positive forcing tends to warm the surface while negative forcing tends to cool it. In this report radiative forcing values are for 2005 relative to pre-industrial conditions defined at 1750 and are expressed in watts per square metre (W m^{-2}). See Glossary and Section 2.2 for further details.

[3] ppm (parts per million) or ppb (parts per billion, 1 billion = 1,000 million) is the ratio of the number of greenhouse gas molecules to the total number of molecules of dry air. For example: 300 ppm means 300 molecules of a greenhouse gas per million molecules of dry air.

[4] Fossil carbon dioxide emissions include those from the production, distribution and consumption of fossil fuels and as by-product from cement production. An emission of 1 GtC corresponds to 3.67 $GtCO_2$.

[5] In general, uncertainty ranges for results given in this Summary for Policymakers are 90% uncertainty intervals unless stated otherwise, i.e., there is an estimated 5% likelihood that the value could be above the range given in square brackets and 5% likelihood that the value could be below that range. Best estimates are given where available. Assessed uncertainty intervals are not always symmetric about the corresponding best estimate. Note that a number of uncertainty ranges in the Working Group I TAR corresponded to 2-sigma (95%), often using expert judgement.

[6] In this Summary for Policymakers, the following terms have been used to indicate the assessed likelihood, using expert judgement, of an outcome or a result: *Virtually certain* > 99% probability of occurrence, *Extremely likely* > 95%, *Very likely* > 90%, *Likely* > 66%, *More likely than not* > 50%, *Unlikely* < 33%, *Very unlikely* < 10%, *Extremely unlikely* < 5%. (See Box TS 1.1 for more details).

[7] In this Summary for Policymakers the following levels of confidence have been used to express expert judgments on the correctness of the underlying science: *very high confidence* at least a 9 out of 10 chance of being correct; *high confidence* about an 8 out of 10 chance of being correct. (See Box TS-1.1)

[8] Halocarbon radiative forcing has been recently assessed in detail in IPCC's Special Report on Safeguarding the Ozone Layer and the Global Climate System (2005).

Direct Observations of Recent Climate Change

Since the TAR, progress in understanding how climate is changing in space and in time has been gained through improvements and extensions of numerous datasets and data analyses, broader geographical coverage, better understanding of uncertainties, and a wider variety of measurements. Increasingly comprehensive observations are available for glaciers and snow cover since the 1960s, and for sea level and ice sheets since about the past decade. However, data coverage remains limited in some regions.

Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global mean sea level (see Figure SPM-3). {3.2, 4.2, 5.5}

- Eleven of the last twelve years (1995 -2006) rank among the 12 warmest years in the instrumental record of global surface temperature[9] (since 1850). The updated 100-year linear trend (1906–2005) of 0.74 [0.56 to 0.92]°C is therefore larger than the corresponding trend for 1901-2000 given in the TAR of 0.6 [0.4 to 0.8]°C. The linear warming trend over the last 50 years (0.13 [0.10 to 0.16]°C per decade) is nearly twice that for the last 100 years. The total temperature increase from 1850 – 1899 to 2001 – 2005 is 0.76 [0.57 to 0.95]°C. Urban heat island effects are real but local, and have a negligible influence (less than 0.006°C per decade over land and zero over the oceans) on these values. {3.2}
- New analyses of balloon-borne and satellite measurements of lower- and mid-tropospheric temperature show warming rates that are similar to those of the surface temperature record and are consistent within their respective uncertainties, largely reconciling a discrepancy noted in the TAR. {3.2, 3.4}
- The average atmospheric water vapour content has increased since at least the 1980s over land and ocean as well as in the upper troposphere. The increase is broadly consistent with the extra water vapour that warmer air can hold. {3.4}
- Observations since 1961 show that the average temperature of the global ocean has increased to depths of at least 3000 m and that the ocean has been absorbing more than 80% of the heat added to the climate system. Such warming causes seawater to expand, contributing to sea level rise (Table SPM-0). {5.2, 5.5}

[9] The average of near surface air temperature over land, and sea surface temperature.

Table SPM-0. Observed rate of sea level rise and estimated contributions from different sources. {5.5, Table 5.3} [Numbers to be converted to mm per year]

Source of sea level rise	Rate of sea level rise (m per century) 1961 – 2003	1993 – 2003
Thermal expansion	0.042 ± 0.012	0.16 ± 0.05
Glaciers and ice caps	0.050 ± 0.018	0.077 ± 0.022
Greenland ice sheets	0.05 ± 0.12	0.21 ± 0.07
Antarctic ice sheets	0.14 ± 0.41	0.21 ± 0.35
Sum of individual climate contributions to sea level rise	0.11 ± 0.05	0.28 ± 0.07
Observed total sea level rise	0.18 ± 0.05[a]	0.31 ± 0.07[a]
Difference (Observed minus sum of estimated climate contributions)	0.07 ± 0.07	0.03 ± 0.10

Note:
[a] Data prior to 1993 are from tide gauges and after 1993 are from satellite altimetry

- Mountain glaciers and snow cover have declined on average in both hemispheres. Widespread decreases in glaciers and ice caps have contributed to sea level rise (ice caps do not include contributions from the Greenland and Antarctic ice sheets). (see Table SPM-0) {4.6, 4.7, 4.8, 5.5}
- New data since the TAR now show that losses from the ice sheets of Greenland and Antarctica have very likely contributed to sea level rise over 1993 to 2003 (Table SPM-0). Flow speed has increased for some Greenland and Antarctic outlet glaciers, which drain ice from the interior of the ice sheets. The corresponding increased ice sheet mass loss has often followed thinning, reduction or loss of ice shelves or loss of floating glacier tongues. Such dynamical ice loss is sufficient to explain most of the Antarctic net mass loss and approximately half of the Greenland net mass loss. The remainder of the ice loss from Greenland has occurred because losses due to melting have exceeded accumulation due to snowfall. {4.6, 4.8, 5.5}
- Global average sea level rose at an average rate of 1.8 [1.3 to 2.3] mm per year over 1961 to 2003. The rate was faster over 1993 to 2003, about 3.1 [2.4 to 3.8] mm per year. Whether the faster rate for 1993 to 2003 reflects decadal variability or an increase in the longer-term trend is unclear. There is *high confidence* that the rate of observed sea level rise increased from the 19th to the 20th century. The total 20th century rise is estimated to be 0.17 [0.12 to 0.22] m. {5.5}
- For 1993-2003, the sum of the climate contributions is consistent within uncertainties with the total sea level rise that is directly observed (see Table SPM-0). These estimates are based on improved satellite and *in-situ* data now available. For the period of 1961 to 2003, the sum of climate contributions is estimated to be smaller than the observed sea level rise. The TAR reported a similar discrepancy for 1910 to 1990. {5.5}

At continental, regional, and ocean basin scales, numerous long-term changes in climate have been observed. These include changes in Arctic temperatures and ice, widespread changes in precipitation amounts, ocean salinity, wind patterns and aspects of extreme weather including droughts, heavy precipitation, heat waves and the intensity of tropical cyclones[10]. {3.2, 3.3, 3.4, 3.5, 3.6, 5.2}

[10] Tropical cyclones include hurricanes and typhoons.

- Average Arctic temperatures increased at almost twice the global average rate in the past 100 years. Arctic temperatures have high decadal variability, and a warm period was also observed from 1925 to 1945. {3.2}
- Satellite data since 1978 show that annual average Arctic sea ice extent has shrunk by 2.7 [2.1 to 3.3]% per decade, with larger decreases in summer of 7.4 [5.0 to 9.8]% per decade. These values are consistent with those reported in the TAR. {4.4}
- Temperatures at the top of the permafrost layer have generally increased since the 1980s in the Arctic (by up to 3°C). The maximum area covered by seasonally frozen ground has decreased by about 7% in the Northern Hemisphere since 1900, with a decrease in spring of up to 15%. {4.7}
- Long-term trends from 1900 to 2005 have been observed in precipitation amount over many large regions.[11] Significantly increased precipitation has been observed in eastern parts of North and South America, northern Europe and northern and central Asia. Drying has been observed in the Sahel, the Mediterranean, southern Africa and parts of southern Asia. Precipitation is highly variable spatially and temporally, and data are limited in some regions. Long-term trends have not been observed for the other large regions assessed.[11] {3.3, 3.9}
- Changes in precipitation and evaporation over the oceans are suggested by freshening of mid and high latitude waters together with increased salinity in low latitude waters. {5.2}
- Mid-latitude westerly winds have strengthened in both hemispheres since the 1960s. {3.5}
- More intense and longer droughts have been observed over wider areas since the 1970s, particularly in the tropics and subtropics. Increased drying linked with higher temperatures and decreased precipitation have contributed to changes in drought. Changes in sea surface temperatures (SST), wind patterns, and decreased snowpack and snow cover have also been linked to droughts. {3.3}
- The frequency of heavy precipitation events has increased over most land areas, consistent with warming and observed increases of atmospheric water vapour. {3.8, 3.9}
- Widespread changes in extreme temperatures have been observed over the last 50 years. Cold days, cold nights and frost have become less frequent, while hot days, hot nights, and heat waves have become more frequent (see Table SPM-1). {3.8}
- There is observational evidence for an increase of intense tropical cyclone activity in the North Atlantic since about 1970, correlated with increases of tropical sea surface temperatures. There are also suggestions of increased intense tropical cyclone activity in some other regions where concerns over data quality are greater. Multi-decadal variability and the quality of the tropical cyclone records prior to routine satellite observations in about 1970 complicate the detection of long-term trends in tropical cyclone activity. There is no clear trend in the annual numbers of tropical cyclones. {3.8}

Some aspects of climate have not been observed to change. {3.2, 3.8, 4.4, 5.3}

- A decrease in diurnal temperature range (DTR) was reported in the TAR, but the data available then extended only from 1950 to 1993. Updated observations reveal that DTR has not changed from 1979 to 2004 as both day- and night-time temperature have risen at about the same rate. The trends are highly variable from one region to another. {3.2}
- Antarctic sea ice extent continues to show inter-annual variability and localized changes but no statistically significant average trends, consistent with the lack of warming reflected in atmospheric temperatures averaged across the region. {3.2, 4.4}
- There is insufficient evidence to determine whether trends exist in the meridional overturning circulation of the global ocean or in small scale phenomena such as tornadoes, hail, lightning and dust-storms. {3.8, 5.3}

[11] The assessed regions are those considered in the regional projections Chapter of the TAR and in Chapter 11 of this Report.

Table SPM-1. Recent trends, assessment of human influence on the trend, and projections for extreme weather events for which there is an observed late 20th century trend. {Tables 3.7, 3.8, 9.4, Sections 3.8, 5.5, 9.7, 11.2-11.9}

Phenomenon[a] and direction of trend	Likelihood that trend occurred in late 20th century (typically post 1960)	Likelihood of a human contribution to observed trend[b]	Likelihood of future trends based on projections for 21st century using SRES scenarios
Warmer and fewer cold days and nights over most land areas	*Very likely*[c]	*Likely*[e]	*Virtually certain*[e]
Warmer and more frequent hot days and nights over most land areas	*Very likely*[d]	*Likely (nights)*[e]	*Virtually certain*[e]
Warm spells / heat waves. Frequency increases over most land areas	*Likely*	*More likely than not*[f]	*Very likely*
Heavy precipitation events. Frequency (or proportion of total rainfall from heavy falls) increases over most areas	*Likely*	*More likely than not*[f]	*Very likely*
Area affected by droughts increases	*Likely* in many regions since 1970s	*More likely than not*	*Likely*
Intense tropical cyclone activity increases	*Likely* in some regions since 1970	*More likely than not*[f]	*Likely*
Increased incidence of extreme high sea level (excludes tsunamis)[g]	*Likely*	*More likely than not*[f,h]	*Likely*[i]

Notes:
(a) See Table 3.7 for further details regarding definitions
(b) See Table TS-4, Box TS-3.4 and Table 9.4.
(c) Decreased frequency of cold days and nights (coldest 10%)
(d) Increased frequency of hot days and nights (hottest 10%)
(e) Warming of the most extreme days and nights each year
(f) Magnitude of anthropogenic contributions not assessed. Attribution for these phenomena based on expert judgement rather than formal attribution studies.
(g) Extreme high sea level depends on mean sea level and on regional weather systems. It is defined here as the highest 1% of hourly values of observed sea level at a station for a given reference period.
(h) Changes in observed extreme high sea level closely follow the changes in mean sea level {5.5.2.6}. It is *very likely* that anthropogenic activity contributed to a rise in mean sea level. {9.5.2}
(i) In all scenarios, the projected global mean sea level at 2100 is higher than in the reference period. {10.6}. The effect of changes in regional weather systems on sea level extremes has not been assessed.

A Paleoclimatic Perspective

Paleoclimatic studies use changes in climatically sensitive indicators to infer past changes in global climate on time scales ranging from decades to millions of years. Such proxy data (e.g., tree ring width) may be influenced by both local temperature and other factors such as precipitation, and are often representative of particular seasons rather than full years. Studies since the TAR draw increased confidence from additional data showing coherent behaviour across multiple indicators in different parts of the world. However, uncertainties generally increase with time into the past due to increasingly limited spatial coverage.

Paleoclimate information supports the interpretation that the warmth of the last half century is unusual in at least the previous 1300 years. The last time the polar regions were significantly warmer than present for an extended period (about 125,000 years ago), reductions in polar ice volume led to 4 to 6 metres of sea level rise. {6.4, 6.6}

- Average Northern Hemisphere temperatures during the second half of the 20th century were *very likely* higher than during any other 50-year period in the last 500 years and *likely* the highest in at least the past 1300 years. Some recent studies indicate greater variability in Northern Hemisphere temperatures than suggested in the TAR, particularly finding that cooler periods existed in the 12 to 14th, 17th, and 19th centuries. Warmer periods prior to the 20th century are within the uncertainty range given in the TAR. {6.6}
- Global average sea level in the last interglacial period (about 125,000 years ago) was *likely* 4 to 6 m higher than during the 20th century, mainly due to the retreat of polar ice. Ice core data indicate that average polar temperatures at that time were 3 to 5°C higher than present, because of differences in the Earth's orbit. The Greenland ice sheet and other Arctic ice fields *likely* contributed no more than 4 m of the observed sea level rise. There may also have been a contribution from Antarctica. {6.4}

Understanding and Attributing Climate Change

This Assessment considers longer and improved records, an expanded range of observations, and improvements in the simulation of many aspects of climate and its variability based on studies since the TAR. It also considers the results of new attribution studies that have evaluated whether observed changes are quantitatively consistent with the expected response to external forcings and inconsistent with alternative physically plausible explanations.

Most of the observed increase in globally averaged temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse gas concentrations[12]. This is an advance since the TAR's conclusion that "most of the observed warming over the last 50 years is *likely* to have been due to the increase in greenhouse gas concentrations". Discernible human influences now extend to other aspects of climate, including ocean warming, continental-average temperatures, temperature extremes and wind patterns (see Figure SPM-4 and Table SPM-1). {9.4, 9.5}

- It is *likely* that increases in greenhouse gas concentrations alone would have caused more warming than observed because volcanic and anthropogenic aerosols have offset some warming that would otherwise have taken place. {2.9, 7.5, 9.4}
- The observed widespread warming of the atmosphere and ocean, together with ice mass loss, support the conclusion that it is *extremely unlikely* that global climate change of the past fifty years can be explained without external forcing, and very likely that it is not due to known natural causes alone. {4.8, 5.2, 9.4, 9.5, 9.7}

[12] Consideration of remaining uncertainty is based on current methodologies.

- Warming of the climate system has been detected in changes of surface and atmospheric temperatures, temperatures in the upper several hundred metres of the ocean and in contributions to sea level rise. Attribution studies have established anthropogenic contributions to all of these changes. The observed pattern of tropospheric warming and stratospheric cooling is *very likely* due to the combined influences of greenhouse gas increases and stratospheric ozone depletion. {3.2, 3.4, 9.4, 9.5}
- It is *likely* that there has been significant anthropogenic warming over the past 50 years averaged over each continent except Antarctica (see Figure SPM-4). The observed patterns of warming, including greater warming over land than over the ocean, and their changes over time, are only simulated by models that include anthropogenic forcing. The ability of coupled climate models to simulate the observed temperature evolution on each of six continents provides stronger evidence of human influence on climate than was available in the TAR. {3.2, 9.4}
- Difficulties remain in reliably simulating and attributing observed temperature changes at smaller scales. On these scales, natural climate variability is relatively larger making it harder to distinguish changes expected due to external forcings. Uncertainties in local forcings and feedbacks also make it difficult to estimate the contribution of greenhouse gas increases to observed small-scale temperature changes. {8.3, 9.4}
- Anthropogenic forcing is *likely* to have contributed to changes in wind patterns[13], affecting extra-tropical storm tracks and temperature patterns in both hemispheres. However, the observed changes in the Northern Hemisphere circulation are larger than simulated in response to 20th century forcing change. {3.5, 3.6, 9.5, 10.3}
- Temperatures of the most extreme hot nights, cold nights and cold days are *likely* to have increased due to anthropogenic forcing. It is *more likely than not* that anthropogenic forcing has increased the risk of heat waves (see Table SPM-1). {9.4}

Analysis of climate models together with constraints from observations enables an assessed likely range to be given for climate sensitivity for the first time and provides increased confidence in the understanding of the climate system response to radiative forcing. {6.6, 8.6, 9.6, Box 10.2}

- The equilibrium climate sensitivity is a measure of the climate system response to sustained radiative forcing. It is not a projection but is defined as the global average surface warming following a doubling of carbon dioxide concentrations. It is *likely* to be in the range 2 to 4.5°C with a best estimate of about 3°C, and is *very unlikely* to be less than 1.5°C. Values substantially higher than 4.5°C cannot be excluded, but agreement of models with observations is not as good for those values. Water vapour changes represent the largest feedback affecting climate sensitivity and are now better understood than in the TAR. Cloud feedbacks remain the largest source of uncertainty. {8.6, 9.6, Box 10.2}
- It is *very unlikely* that climate changes of at least the seven centuries prior to 1950 were due to variability generated within the climate system alone. A significant fraction of the reconstructed Northern Hemisphere interdecadal temperature variability over those centuries is very likely attributable to volcanic eruptions and changes in solar irradiance, and it is likely that anthropogenic forcing contributed to the early 20th century warming evident in these records. {2.7, 2.8, 6.6, 9.3}

[13] In particular, the Southern and Northern Annular Modes and related changes in the North Atlantic Oscillation {3.6, 9.5, Box TS.3.1}

PROJECTIONS OF FUTURE CHANGES IN CLIMATE

A major advance of this assessment of climate change projections compared with the TAR is the large number of simulations available from a broader range of models. Taken together with additional information from observations, these provide a quantitative basis for estimating likelihoods for many aspects of future climate change. Model simulations cover a range of possible futures including idealised emission or concentration assumptions. These include SRES[14,15] illustrative marker scenarios for the 2000–2100 period and model experiments with greenhouse gases and aerosol concentrations held constant after year 2000 or 2100.

For the next two decades a warming of about 0.2°C per decade is projected for a range of SRES emission scenarios. Even if the concentrations of all greenhouse gases and aerosols had been kept constant at year 2000 levels, a further warming of about 0.1°C per decade would be expected. {10.3, 10.7}

- Since IPCC's first report in 1990, assessed projections have suggested global averaged temperature increases between about 0.15 and 0.3°C per decade for 1990 to 2005. This can now be compared with observed values of about 0.2°C per decade, strengthening confidence in near-term projections. {1.2, 3.2}
- Model experiments show that even if all radiative forcing agents are held constant at year 2000 levels, a further warming trend would occur in the next two decades at a rate of about 0.1°C per decade, due mainly to the slow response of the oceans. About twice as much warming (0.2°C per decade) would be expected if emissions are within the range of the SRES scenarios. Best-estimate projections from models indicate that decadal-average warming over each inhabited continent by 2030 is insensitive to the choice among SRES scenarios and is *very likely* to be at least twice as large as the corresponding model-estimated natural variability during the 20th century. {9.4, 10.3, 10.5, 11.2–11.7, Figure TS-29}

Continued greenhouse gas emissions at or above current rates would cause further warming and induce many changes in the global climate system during the 21st century that would *very likely* be larger than those observed during the 20th century. {10.3}

- Advances in climate change modelling now enable best estimates and *likely* assessed uncertainty ranges to be given for projected warming for different emission scenarios. Results for different emission scenarios are provided explicitly in this report to avoid loss of this policy-relevant information. Projected globally-averaged surface warmings for the end of the 21st century (2090–2099) relative to 1980–1999 are shown in Table SPM-2. These illustrate the differences between lower to higher SRES emission scenarios and the projected warming uncertainty associated with these scenarios. {10.5}
- Best estimates and likely ranges for globally average surface air warming for six SRES emissions marker scenarios are given in this assessment and are shown in Table SPM-2. For example, the best estimate for the low scenario (B1) is 1.8°C (likely range is 1.1°C to 2.9°C), and the best estimate for the high scenario (A1FI) is 4.0°C (likely range is 2.4°C to 6.4°C). Although these projections are broadly consistent with the span quoted in the TAR (1.4 to 5.8°C), they are not directly comparable (See Figure A). The AR4 is more advanced as it provides best estimates and an assessed likelihood range for each of the marker scenarios. The new assessment of the likely ranges now relies on a larger number of climate models of increasing complexity and realism, as well as new information regarding the nature of feedbacks from the carbon cycle and constraints on climate response from observations.

[14] SRES refers to the IPCC Special Report on Emission Scenarios (2000). The SRES scenario families and illustrative cases, which did not include additional climate initiatives, are summarized in a box at the end of this Summary for Policymakers. Approximate CO_2 equivalent concentrations corresponding to the computed radiative forcing due to anthropogenic greenhouse gases and aerosols in 2100 (see p. 823 of the TAR) for the SRES B1, A1T, B2, A1B, A2 and A1FI illustrative marker scenarios are about 600, 700, 800, 850, 1250 and 1550 ppm respectively.

[15] Scenarios B1, A1B, and A2 have been the focus of model inter-comparison studies and many of those results are assessed in this report.

- Warming tends to reduce land and ocean uptake of atmospheric carbon dioxide, increasing the fraction of anthropogenic emissions that remains in the atmosphere. For the A2 scenario, for example, the climate-carbon cycle feedback increases the corresponding global average warming at 2100 by more than 1°C. Assessed upper ranges for temperature projections are larger than in the TAR (see Table SPM-2) mainly because the broader range of models now available suggests stronger climate-carbon cyclefeed backs.. {7.3, 10.5}

Table SPM-2. Projected globally averaged surface warming and sea level rise at the end of the 21st century for different model cases. The sea level projections do not include uncertainties in carbon-cycle feedbacks, because a basis in published literature is lacking. {10.5, 10.6, Table 10.7}

	Temperature Change (°C at 2090-2099 relative to 1980-1999)[a]		Sea Level Rise (m at 2090-2099 relative to 1980-1999)
Case	Best estimate	*Likely* range	Model-based range excluding future rapid dynamical changes in ice flow
Constant Year 2000 concentrations[c]	0.6	0.3 – 0.9	NA
B1 scenario	1.8	1.1 – 2.9	0.18 – 0.38
A1T scenario	2.4	1.4 – 3.8	0.20 – 0.45
B2 scenario	2.4	1.4 – 3.8	0.20 – 0.43
A1B scenario	2.8	1.7 – 4.4	0.21 – 0.48
A2 scenario	3.4	2.0 – 5.4	0.23 – 0.51
A1FI scenario	4.0	2.4 – 6.4	0.26 – 0.59

Notes:

[a] These estimates are assessed from a hierarchy of models that encompass a simple climate model, several EMICs, and a large number of AOGCMs.

[c] Year 2000 constant composition is derived from AOGCMs only

- Model-based projections of global average sea level rise at the end of the 21st century (2090-2099) are shown in Table SPM-2. For each scenario, the midpoint of the range in Table SPM-2 is within 10% of the TAR model average for 2090-2099. The ranges are narrower than in the TAR mainly because of improved information about some uncertainties in the projected contributions.[16] {10.6}
- Models used to date do not include uncertainties in climate-carbon cycle feedback nor do they include the full effects of changes in ice sheet flow, because a basis in published literature is lacking. The projections include a contribution due to increased ice flow from Greenland and Antarctica at the rates observed for 1993-2003, but these flow rates could increase or decrease in the future. For example, if this contribution were to grow linearly with global average temperature change, the upper ranges of sea level rise for SRES scenarios shown in Table SPM-2 would increase by 0.1 m to 0.2 m. Larger values cannot be excluded, but understanding of these effects is too limited to assess their likelihood or provide a best estimate or an upper bound for sea level rise. {10.6}

[16] TAR projections were made for 2100, whereas projections in this Report are for 2090-2099. The TAR would have had similar ranges to those in Table SPM-2 if it had treated the uncertainties in the same way.

- Increasing atmospheric carbon dioxide concentrations lead to increasing acidification of the ocean. Projections based on SRES scenarios give reductions in average global surface ocean pH[17] of between 0.14 and 0.35 units over the 21st century, adding to the present decrease of 0.1 units since pre-industrial times. {5.4, Box 7.3, 10.4}

There is now higher confidence in projected patterns of warming and other regional-scale features, including changes in wind patterns, precipitation, and some aspects of extremes and of ice. {8.2, 8.3, 8.4, 8.5, 9.4, 9.5, 10.3, 11.1}

- Projected warming in the 21st century shows scenario-independent geographical patterns similar to those observed over the past several decades. Warming is expected to be greatest over land and at most high northern latitudes, and least over the Southern Ocean and parts of the North Atlantic ocean (see Figure SPM-5). {10.3}
- Snow cover is projected to contract. Widespread increases in thaw depth are projected over most permafrost regions. {10.3, 10.6}
- Sea ice is projected to shrink in both the Arctic and Antarctic under all SRES scenarios. In some projections, Arctic late-summer sea ice disappears almost entirely by the latter part of the 21st century. {10.3}
- It is *very likely* that hot extremes, heat waves, and heavy precipitation events will continue to become more frequent. {10.3}
- Based on a range of models, it is likely that future tropical cyclones (typhoons and hurricanes) will become more intense, with larger peak wind speeds and more heavy precipitation associated with ongoing increases of tropical SSTs. There is less confidence in projections of a global decrease in numbers of tropical cyclones. The apparent increase in the proportion of very intense storms since 1970 in some regions is much larger than simulated by current models for that period. {9.5, 10.3, 3.8}
- Extra-tropical storm tracks are projected to move poleward, with consequent changes in wind, precipitation, and temperature patterns, continuing the broad pattern of observed trends over the last half-century. {3.6, 10.3}
- Since the TAR there is an improving understanding of projected patterns of precipitation. Increases in the amount of precipitation are *very likely* in high-latitudes, while decreases are likely in most subtropical land regions (by as much as about 20% in the A1B scenario in 2100, see Figure SPM-6), continuing observed patterns in recent trends. {3.3, 8.3, 9.5, 10.3, 11.2 to 11.9}
- Based on current model simulations, it is *very likely* that the meridional overturning circulation (MOC) of the Atlantic Ocean will slow down during the 21st century. The multi-model average reduction by 2100 is 25% (range from zero to about 50%) for SRES emission scenario A1B. Temperatures in the Atlantic region are projected to increase despite such changes due to the much larger warming associated with projected increases of greenhouse gases. It is very unlikely that the MOC will undergo a large abrupt transition during the 21st century. Longer-term changes in the MOC cannot be assessed with confidence. {10.3, 10.7}

Anthropogenic warming and sea level rise would continue for centuries due to the timescales associated with climate processes and feedbacks, even if greenhouse gas concentrations were to be stabilized. {10.4, 10.5, 10.7}

- Climate-carbon cycle coupling is expected to add carbon dioxide to the atmosphere as the climate system warms, but the magnitude of this feedback is uncertain. This increases the uncertainty in the trajectory of carbon dioxide emissions required to achieve a particular stabilisation level of atmospheric carbon dioxide concentration. Based on current understanding of climate carbon cycle feedback, model studies suggest that

[17] Decreases in pH correspond to increases in acidity of a solution. See Glossary for further details.

to stabilise at 450 ppm carbon dioxide, could require that cumulative emissions over the 21st century be reduced from an average of approximately 670 [630 to 710] GtC to approximately 490 [375 to 600] GtC. Similarly, to stabilise at 1000 ppm this feedback could require that cumulative emissions be reduced from a model average of approximately 1415 [1340 to 1490] GtC to approximately 1100 [980 to 1250] GtC. {7.3, 10.4} [Add $GtCO_2$ numbers].

- If radiative forcing were to be stabilized in 2100 at B1 or A1B levels[11] a further increase in global mean temperature of about 0.5°C would still be expected, mostly by 2200. {10.7}
- If radiative forcing were to be stabilized in 2100 at A1B levels[11], thermal expansion alone would lead to 0.3 to 0.8 m of sea level rise by 2300 (relative to 1980–1999). Thermal expansion would continue for many centuries, due to the time required to transport heat into the deep ocean. {10.7}
- Contraction of the Greenland ice sheet is projected to continue to contribute to sea level rise after 2100. Current models suggest ice mass losses increase with temperature more rapidly than gains due to precipitation and that the surface mass balance becomes negative at a global average warming (relative to pre-industrial values) in excess of 1.9 to 4.6°C. If a negative surface mass balance were sustained for millennia, that would lead to virtually complete elimination of the Greenland ice sheet and a resulting contribution to sea level rise of about 7 m. The corresponding future temperatures in Greenland are comparable to those inferred for the last interglacial period 125,000 years ago, when paleoclimatic information suggests reductions of polar land ice extent and 4 to 6 m of sea level rise. {6.4, 10.7}
- Dynamical processes related to ice flow not included in current models but suggested by recent observations could increase the vulnerability of the ice sheets to warming, increasing future sea level rise. Understanding of these processes is limited and there is no consensus on their magnitude. {4.6, 10.7}
- Current global model studies project that the Antarctic ice sheet will remain too cold for widespread surface melting and is expected to gain in mass due to increased snowfall. However, net loss of ice mass could occur if dynamical ice discharge dominates the ice sheet mass balance. {10.7}
- Both past and future anthropogenic carbon dioxide emissions will continue to contribute to warming and sea level rise for more than a millennium, due to the timescales required for removal of this gas from the atmosphere. {7.3, 10.3}

The Emission Scenarios of the IPCC Special Report on Emission Scenarios (SRES)[18]

A1. The A1 storyline and scenario family describes a future world of very rapid economic growth, global population that peaks in mid-century and declines thereafter, and the rapid introduction of new and more efficient technologies. Major underlying themes are convergence among regions, capacity building and increased cultural and social interactions, with a substantial reduction in regional differences in per capita income. The A1 scenario family develops into three groups that describe alternative directions of technological change in the energy system. The three A1 groups are distinguished by their technological emphasis: fossil intensive (A1FI), non-fossil energy sources (A1T), or a balance across all sources (A1B) (where balanced is defined as not relying too heavily on one particular energy source, on the assumption that similar improvement rates apply to all energy supply and end use technologies).

A2. The A2 storyline and scenario family describes a very heterogeneous world. The underlying theme is self reliance and preservation of local identities. Fertility patterns across regions converge very slowly, which results in continuously increasing population. Economic development is primarily regionally oriented and per capita economic growth and technological change more fragmented and slower than other storylines.

B1. The B1 storyline and scenario family describes a convergent world with the same global population, that peaks in mid-century and declines thereafter, as in the A1 storyline, but with rapid change in economic structures toward a service and information economy, with reductions in material intensity and the introduction of clean and resource efficient technologies. The emphasis is on global solutions to economic, social and environmental sustainability, including improved equity, but without additional climate initiatives.

B2. The B2 storyline and scenario family describes a world in which the emphasis is on local solutions to economic, social and environmental sustainability. It is a world with continuously increasing global population, at a rate lower than A2, intermediate levels of economic development, and less rapid and more diverse technological change than in the B1 and A1 storylines. While the scenario is also oriented towards environmental protection and social equity, it focuses on local and regional levels.

An illustrative scenario was chosen for each of the six scenario groups A1B, A1FI, A1T, A2, B1 and B2. All should be considered equally sound.

The SRES scenarios do not include additional climate initiatives, which means that no scenarios are included that explicitly assume implementation of the United Nations Framework Convention on Climate Change or the emissions targets of the Kyoto Protocol.

[18] Emission scenarios are not assessed in this Working Group One report of the IPCC. This box summarizing the SRES scenarios is taken from the TAR and has been subject to prior line by line approval by the Panel.

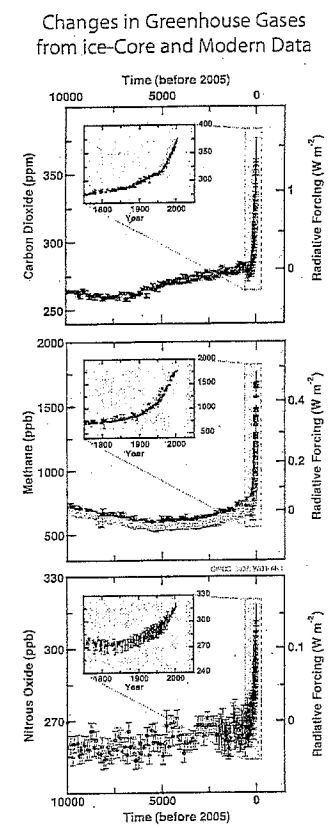

FIGURE SPM-1. Atmospheric concentrations of carbon dioxide, methane and nitrous oxide over the last 10,000 years (large panels) and since 1750 (inset panels). Measurements are shown from ice cores (symbols with different colours for different studies) and atmospheric samples (red lines). The corresponding radiative forcings are shown on the right hand axes of the large panels. {Figure 6.4}

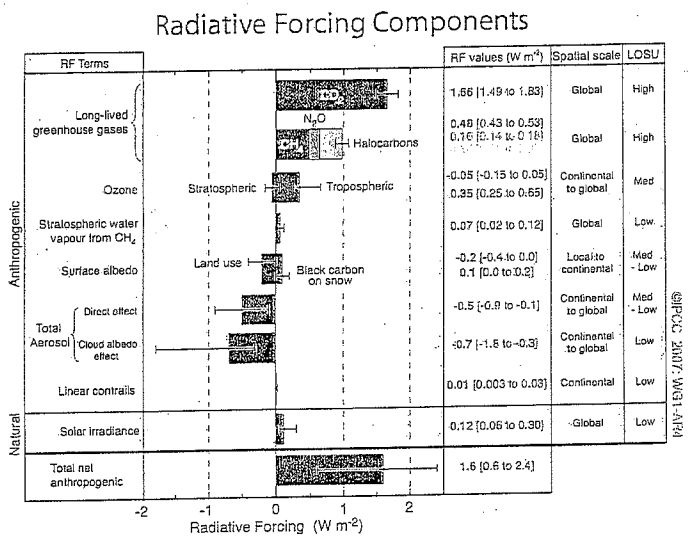

FIGURE SPM-2. Global-average radiative forcing (RF) estimates and ranges in 2005 for anthropogenic carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and other important agents and mechanisms, together with the typical geographical extent (spatial scale) of the forcing and the assessed level of scientific understanding (LOSU). The net anthropogenic radiative forcing and its range are also shown. These require summing asymmetric uncertainty estimates from the component terms, and cannot be obtained by simple addition. Additional forcing factors not included here are considered to have a very low LOSU. Volcanic aerosols contribute an additional natural forcing but are not included in this figure due to their episodic nature. Range for linear contrails does not include other possible effects of aviation on cloudiness. {2.9, Figure 2.20}

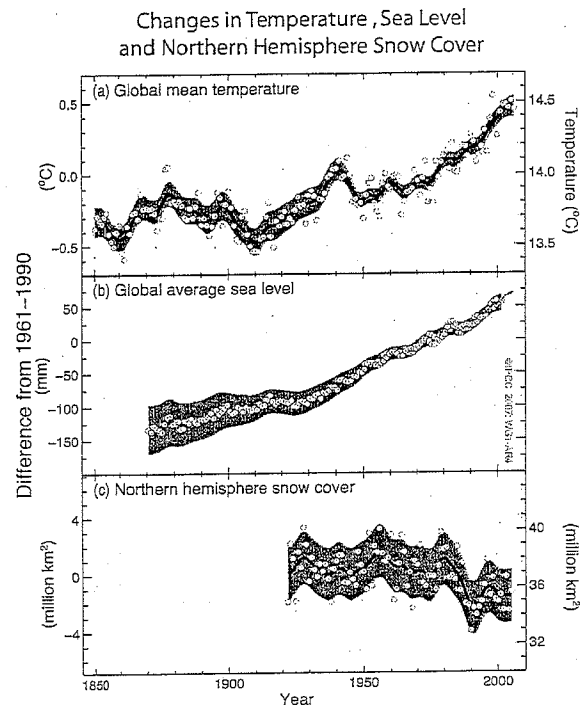

FIGURE SPM-3. Observed changes in (a) global average surface temperature; (b) global average sea level rise from tide gauge (blue) and satellite (red) data and (c) Northern Hemisphere snow cover for March-April. All changes are relative to corresponding averages for the period 1961-1990. Smoothed curves represent decadal averaged values while circles show yearly values. The shaded areas are the uncertainty intervals estimated from a comprehensive analysis of known uncertainties (a and b) and from the time series (c). {FAQ 3.1, Figure 1, Figure 4.2 and Figure 5.13}

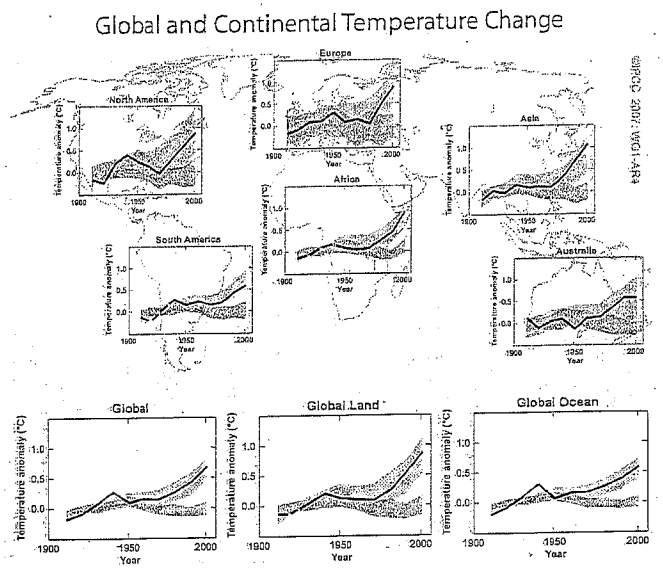

FIGURE SPM-4. Comparison of observed continental- and global-scale changes in surface temperature with results simulated by climate models using natural and anthropogenic forcings. Decadal averages of observations are shown for the period 1906–2005 (black line) plotted against the centre of the decade and relative to the corresponding average for 1901–1950. Lines are dashed where spatial coverage is less than 50%. Blue shaded bands show the 5–95% range for 19 simulations from 5 climate models using only the natural forcings due to solar activity and volcanoes. Red shaded bands show the 5–95% range for 58 simulations from 14 climate models using both natural and anthropogenic forcings. {FAQ 9.2, Figure 1}

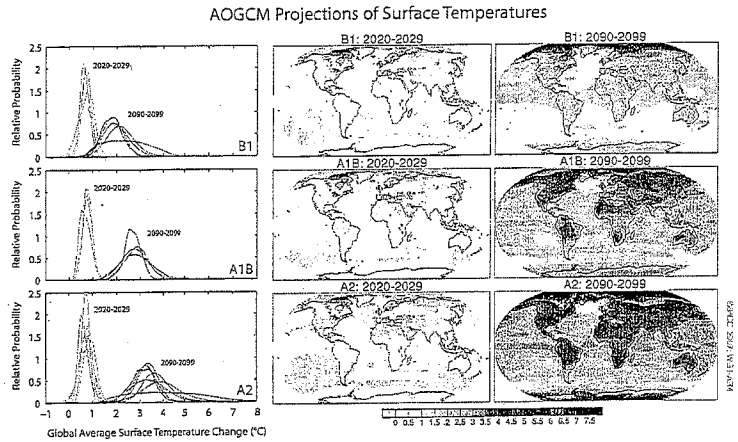

FIGURE SPM-5. Projected surface temperature changes for the early and late 21st century relative to the period 1980–1999. The central and right panels show the Atmosphere-Ocean General Circulation multi-Model average projections for the B1 (top), A1B (middle) and A2 (bottom) SRES scenarios averaged over decades 2020–2029 (center) and 2090–2099 (right). The left panel shows corresponding uncertainties as the relative probabilities of estimated global average warming from several different AOGCM and EMICs studies for the same periods. Some studies present results only for a subset of the SRES scenarios, or for various model versions. Therefore the difference in the number of curves, shown in the left-hand panels, is due only to differences in the availability of results. {Figures 10.8 and 10.28}

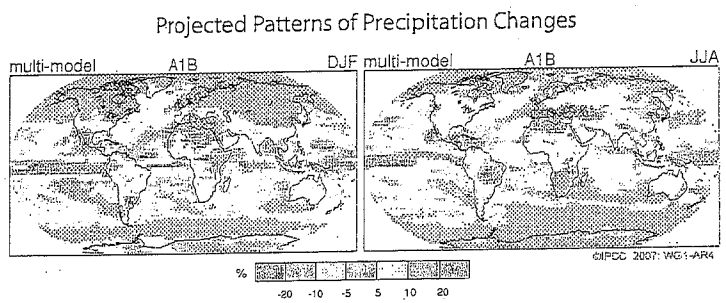

FIGURE SPM-6. Relative changes in precipitation (in percent) for the period 2090–2099, relative to 1980–1999. Values are multi-model averages based on the SRES A1B scenario for December to February (left) and June to August (right). White areas are where less than 66% of the models agree in the sign of the change and stippled areas are where more than 90% of the models agree in the sign of the change. {Figure 10.9}

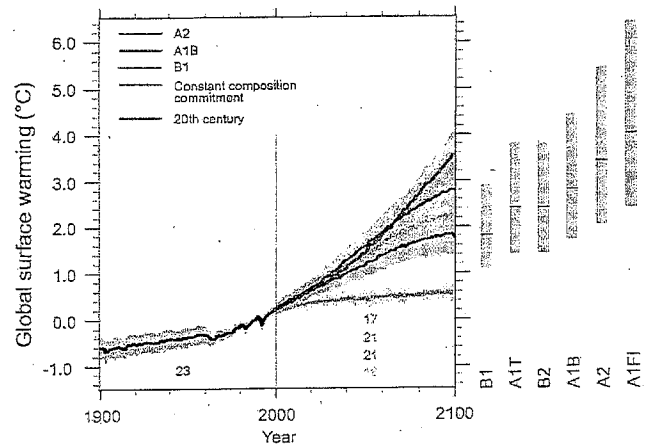

Figure SPM-7. Solid lines are multi-model global averages of surface warming (relative to 1980-99) for the scenarios A2, A1B and B1, shown as continuations of the 20th century simulations. Shading denotes the plus/minus one standard deviation range of individual model annual means. The number of AOGCMs run for a given time period and scenario is indicated by the coloured numbers at the bottom part of the panel. The orange line is for the experiment where concentrations were held constant at year 2000 values. The gray bars at right indicate the best estimate (solid line within each bar) and the likely range assessed for the six SRES marker scenarios. The assessment of the best estimate and likely ranges in the gray bars includes the AOGCMs in the left part of the figure, as well as results from a hierarchy of independent models and observational constraints (Figs. 10.4 and 10.29)

[To be changed:
Change annotation from constant composition to year 2000 constant concentration.
Colour central bar in grey bars and lettering to match A2, A1B, B1 curves as appropriate.
Drop model numbers and move to caption].

ATTACHMENT 4

Progress on Incorporating Climate Change into Planning and Management of California's Water Resources

Technical Memorandum Report

July 2006

Department of Water Resources

State of California
Arnold Schwarzenegger, Governor

The Resources Agency
Mike Chrisman, Secretary for Resources

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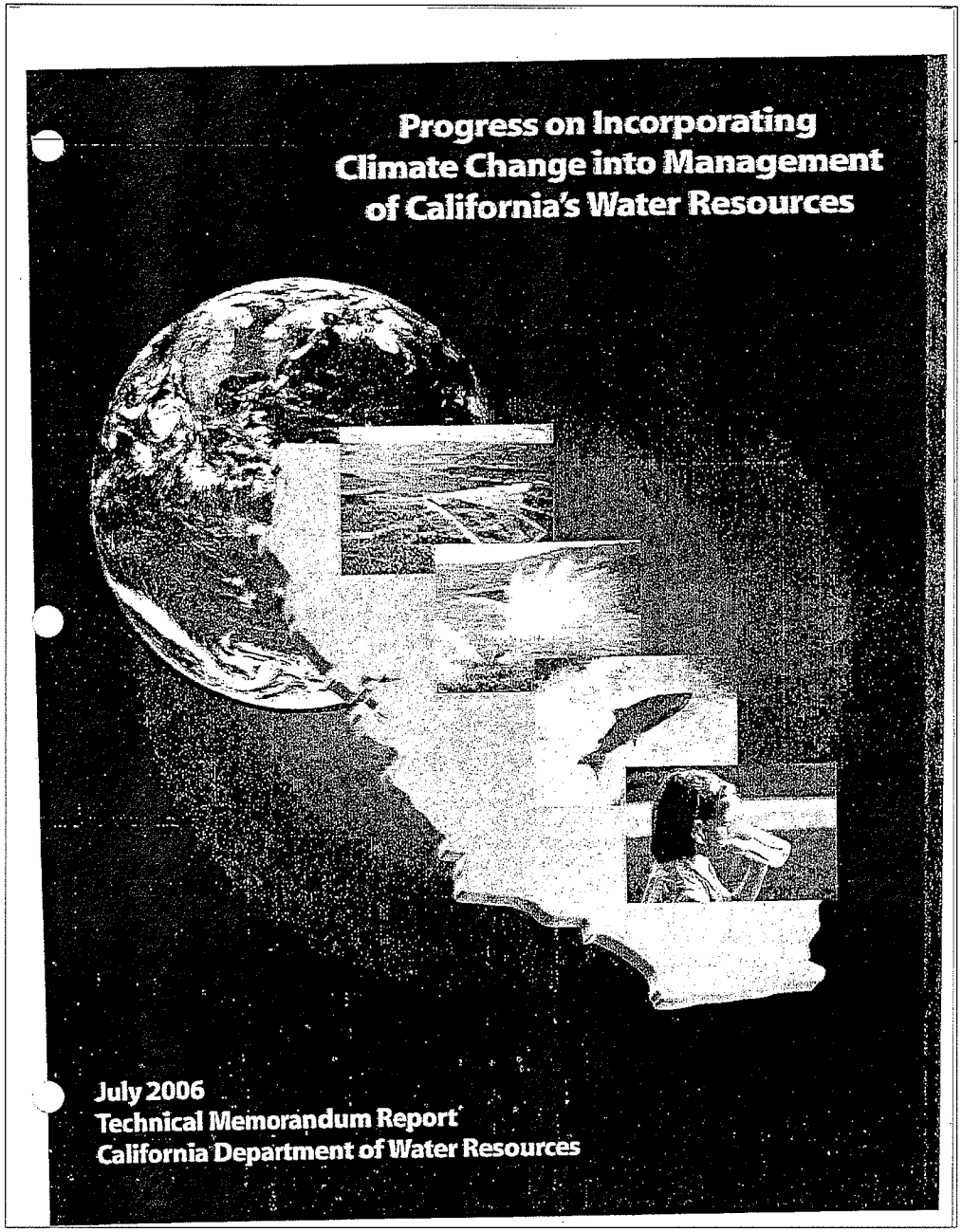

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1.2 Climate Change and California's Water Resources

California water planners are concerned about climate change and its potential effects on our water resources. More than 20 million Californians rely on two massive water projects: the State Water Project (SWP) and federal Central Valley Project (CVP). These complex water storage and conveyance systems are operated by DWR and the Bureau of Reclamation (Reclamation) for water supply, flood management, environmental protection and recreational uses.

The ability of the SWP and the CVP to meet the water demands of its customers and the environment depends heavily on the accumulation of winter mountain snow melting into spring and summer runoff. A warming planet may reduce this natural water storage mechanism. Projected increases in air temperature may lead to changes in the timing, amount and form of precipitation – rain or snow, changes in runoff timing and volume, sea level rise effects on Delta water quality, and changes in the amount of irrigation water needed due to modified evapotranspiration rates.

1.3 DWR-Reclamation Climate Change Work Team

In the past, climate change was typically considered qualitatively in the planning process. Legislative mandates in California including Executive Order S-3-05 and the latest update to the California Water Plan (Bulletin 160) call for more quantitative assessments of climate change effects. To address these concerns, DWR and Reclamation formed a joint Climate Change Work Team to provide qualitative and quantitative information to managers on potential effects and risks of climate change to California's water resources.

The mission of the Climate Change Work Team is to coordinate with other State and federal agencies on the incorporation of climate change science into California's water resources planning and management. The team will provide and regularly update information for decision-makers on potential impacts and risks of climate change, flexibility of existing facilities to cope with climate change, and available mitigation measures.

In water resources planning, climate change studies often focus on what might happen without providing information about how likely it is to happen. A major long-term objective of the Work Team is to extend impacts analysis to include likelihoods associated with each climate change effect. In order to meet this objective, the Work Team set these goals:

- ❑ Build coalitions with experts in climate change and seek their guidance in estimating risk of climate change effects
- ❑ Support mandates on climate change
  - Governor's Executive Order S-3-05, June 1, 2005
  - California Water Plan Bulletin 160
- ❑ Assess impacts to operations of the SWP and CVP for several climate change scenarios
- ❑ Assess risk for the SWP and CVP systems based on impact studies and estimates of impact likelihood
- ❑ Evaluate risk-mitigation options

2.3 The Role of Water Management and Use in Greenhouse Gas Emissions

2.3.1 Executive Order S-03-05

Executive Order S-3-05, signed by Governor Arnold Schwarzenegger June 1, 2005, establishes aggressive greenhouse gas emission reduction goals for California. These goals are:

- by 2010, reduce emissions to 2000 levels
- by 2020, reduce emissions to 1990 levels
- by 2050, reduce emissions to 80 percent below 1990 levels

Since water management and use are a significant part of California's energy matrix, both in terms of energy generation and consumption, they are an important consideration in meeting the emission reduction goals established by the Governor.

2.3.2 Water Supply and Treatment

In the draft "Statewide Assessment of Energy Used to Manage Water," the California Energy Commission estimated that an average of about 44 million tons of carbon dioxide is emitted into the atmosphere each year to provide water in California. Any reductions in energy consumption related to water will help the State meet its greenhouse gas reduction goals.

California's aqueduct systems are one of the larger users of electricity in the State. Other significant uses of electrical power related to water in California include:

- pumping groundwater from wells
- treating drinking water
- delivering of water to consumers through local distribution systems
- treating wastewater and wastewater reclamation.

Diesel, gasoline, and natural gas-powered pumps are used for some water supply and treatment operations. Diesel-powered pumps are most prevalent in agriculture.

End uses of water also result in the consumption of electrical energy and natural gas, such as heating of water for domestic, commercial, and industrial operations. Various industrial processes that use water also result in energy consumption.

2.3.3 Hydroelectric Power

Hydroelectric power is generated at most publicly-owned water supply reservoirs in California and at many privately-owned reservoirs. Hydroelectric power is also generated by run-of-river hydroelectric plants and by power recovery plants along aqueducts and water distribution systems. Most of California's hydroelectric power is produced in the Sierra Nevada and Cascade

California's coastline is about 1,075 miles in length, not including inland bays, estuaries and offshore islands. The State's coastal features include broad coastal plains and wide beaches in much of Southern California. Extensive stretches of mountainous and rugged coastline occur in the central and northern parts of the State, along with more limited coastal plains than those in Southern California. California's coastal topography is shown in Figure 2-18. The State's coastline also includes major inland bays and estuaries, including the San Francisco Bay and the Sacramento-San Joaquin River Delta (Delta), as shown in Figure 2-19.

Future sea level rise, while projected to be a relatively slow and gradual process, presents a somewhat alarming prospect for California, especially in the case of the more extreme projections. The effects of sea level rise will include:

- increased erosion of beaches, bluffs and other coastal features
- inundation of coastal land and marshes
- local flooding near the mouths of rivers and streams due to backwater effects (especially on coastal plains)
- increased potential for sea water intrusion into coastal aquifers
- increased sea water intrusion into estuaries, including the Sacramento-San Joaquin River Delta
- increased potential for levee failure in the Delta
- potential adverse impacts on flow control and diversion facilities in the Delta
- inundation and critical alteration of aquatic ecosystem habitat development projects in the Delta

Of the effects listed above, perhaps the most significant from the standpoint of the State's water resources are increased sea water intrusion and increased potential for levee failure in the Delta. Increased sea water intrusion into the Delta threatens the operations of the State Water Project and the Central Valley Project, as well as other Delta water supply diversions due to water quality degradation. Water quality degradation in the Delta also potentially threatens the Delta's fragile ecosystem, which supports threatened and endangered species. Finally, increased sea water intrusion into the Delta could threaten some groundwater supplies through the interaction of Delta waters with underlying and adjoining portions of the Central Valley groundwater basin.

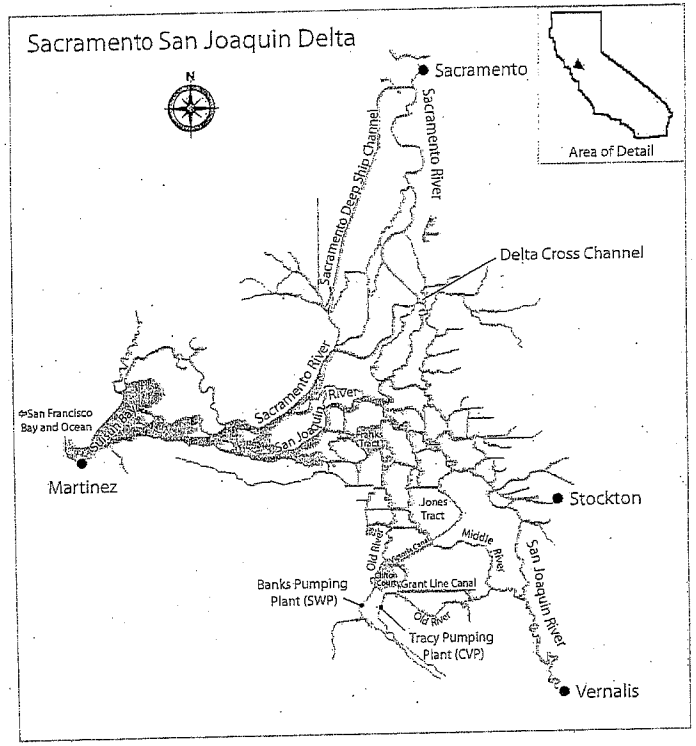


Figure 2-31 Sacramento-San Joaquin River Delta

The islands and tracts of the Delta are protected from the constant threat of inundation by about 1,100 miles of levees. Levee failure can occur due to seepage, piping, slippage, subsidence, sloughing or earthquakes, even during dry weather. Levee failure impacts include potential loss of human life, irreparable harm to the Delta's fragile ecosystem and its listed and endangered species, disruption of utilities and highways and water supply disruption. Water supply disruption can occur when levee failure and island flooding cause salinity levels in the Delta to increase to unacceptable levels due to:

- large amounts of saline ocean water to being drawn into the Delta from the San Francisco Bay, and
- increases in the volume of the Delta's tidal prism and resultant increases in the tidal exchange of saline water in the Delta.

Once a levee fails in the Delta and island flooding occurs, salinity conditions can take weeks or even months to return to normal, depending on the amount and location of levee failures and hydrologic conditions.

2.6.2.3.1 Future Increased Risk of Flooding in the Delta Due to Land Surface Subsidence and Climate Change

Flood risk in the Delta is increasing with time due to land surface subsidence and sea level rise. Land subsidence and sea level rise also increase the consequences of levee failure.

As mentioned earlier, worldwide average sea level rise is projected to be about 0.3 of a foot to 2.9 feet from 1990 to 2100 (IPCC, 2001a). Rising sea levels are likely to have a direct effect on water levels in the Delta because the bottom of essentially all Delta channels and waterways are at or below current mean seal level. Rising sea level will cause backwater effects upstream of the Delta.

Global sea level rise combined with short-term or episodic factors that increase sea level and water levels in the Delta will reduce available levee freeboard unless levees are raised. Short-term and episodic increases in water levels in the Delta include high river flows, ocean/atmosphere phenomena such as El Nino's, storm surge, barometric high tides and high astronomical tides (particularly during perigee, perihelion, and either new or full moon). Figure 2-32 illustrates the relative impact that sea level rise will have on astronomical tides in the Delta. An especially high level of risk would occur if several periodic events were to occur at the same time in the Delta.

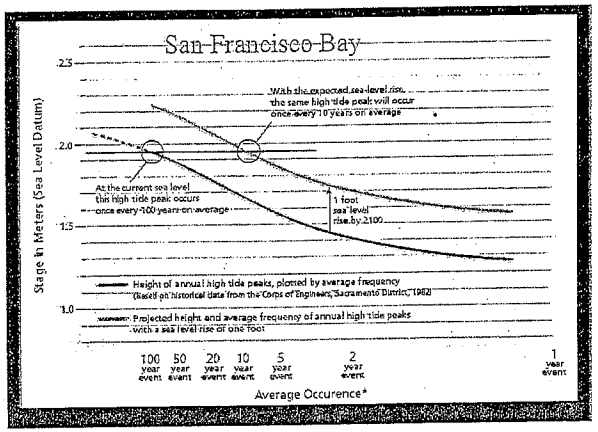


Figure 2-32 Impact of One Foot of Sea Level Rise on the Relative Effect of Astronomical Tides in the Delta

Source: Lawrence Berkeley National Lab (Miller, 1998).

Climate change may affect the magnitude and frequency of flood flows entering the Delta. In their paper on the potential impacts of climate change on California hydrology, Miller and others (2003) present peak river flow data based on climate change simulations. These data show an increased probability of higher annual peak flows for Central Valley rivers. These potential increased flows have yet to be quantified with any confidence. Higher flows will lead to higher water surface elevations in the Delta, especially in its upper reaches.

Ocean temperature anomalies, such as an El Nino, can cause a short-term rise in sea level along California's coast and thus increase water levels in the Delta. For example, the maximum water surface anomaly associated with the 1997-1998 El Nino event increased the level of the ocean along California's coast between about 0.6 to 0.8 of a foot during January 1998 (Bromirski, 2005). This level of rise was due to a combination of steric effects and poleward propagating, coastally-trapped waves. Climate change may increase the frequency or duration of El Nino events (Wara, 2005), although there is a significant amount of uncertainty about possible changes in the nature and occurrence of temperature anomalies in the Pacific as the result of climate change (Kerr, 2005).

Wind driven storm surge can also increase water surface elevations in the Delta. Stronger winds associated with some winter storms would lead to even greater changes in water surface

elevations. Such changes are a function of channel geometry and the distance of open water with respect to wind direction, referred to as "fetch."

Subsidence also must be considered as a risk to Delta levees. The surfaces of many of the Delta's islands and tracts are dominated by soils rich in peat. Peat is a complex organic material that is principally composed of degraded plant matter. Subsidence in the Delta primarily occurs when peat soils are exposed to oxygen and undergo microbial decomposition due to agricultural practices. Subsidence also occurs when peat soils are lost by wind erosion and occasional peat fires. The peat soils of the Sacramento-San Joaquin Delta have subsided at rates of up to about 2 inches per year in the past. Subsidence rates have been the highest in the central Delta islands (Mount, 2004).

Subsidence increases the threat of flooding in the Delta by increasing the differential forces that levees experience. Subsidence also increases the volume of water that can inundate an island or tract when a levee fails. Together, the continued subsidence of Delta islands and rising sea level pose a double-sided threat for Delta levees and flooding. Other factors such as possible increases in peak river flows as the result of climate change further increase the threat to Delta levees.

2.7 Future Water Demand

California's water supply future will be determined by two principal factors, the condition of the State's water resources and water demand. Climate change will likely have a significant effect on California's future water resources, as discussed elsewhere in this report. Climate change will likely also have an effect on future water demand. However, many other factors such as population, land development and economic conditions that are not directly related to climate change will also affect future demand. Table 2-7 provides a summary of some of the potential effects of climate change on future water demand. Table 2-8 lists selected factors that could affect future water demand that will not be directly affected by climate change.

Today there is much uncertainty about future water demand, especially those aspects of future demand that will be directly affected by climate change and warming. While climate change is expected to continue through at least the end of this century, the magnitude and, in some cases, the nature of future changes are uncertain. This uncertainty serves to complicate the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood.

Of the water demand factors that could be directly affected by climate change, potential changes in evapotranspiration, agronomic practices, and environmental water demand might be the most significant for California. Of the changes in demand not directly affected by climate change, changes in demand related to population growth and technological innovation could be the most significant. The following discussion is mostly limited to these aspects of future water demand. Chapter 7 provides additional discussion on evapotranspiration and possible changes in evapotranspiration due to climate change.

5 Preliminary Climate Change Impacts Assessment for the Sacramento-San Joaquin Delta

5.1 Introduction

The Sacramento-San Joaquin Delta is a dynamic network of natural and man-made channels. Freshwater from the southward flowing Sacramento River and from the northward flowing San Joaquin River converge with salty tidal flows from San Francisco Bay (Figure 5.1). Historically the Delta was a vast marsh. After the Gold Rush, farmers began building levees in the Delta to reclaim farmland. After years of farming, many of the Delta islands have subsided and are currently below sea level. Today the Delta consists of 57 leveed islands and more than 700 miles of sloughs and channels. This complex ecosystem is home to more than 500 species, including 20 endangered species such as the Delta smelt and salt harvest Suisun Marsh mouse. The Delta is also part of the migration path of young salmon heading out to the ocean and for adult salmon returning to spawn in their natal streams.

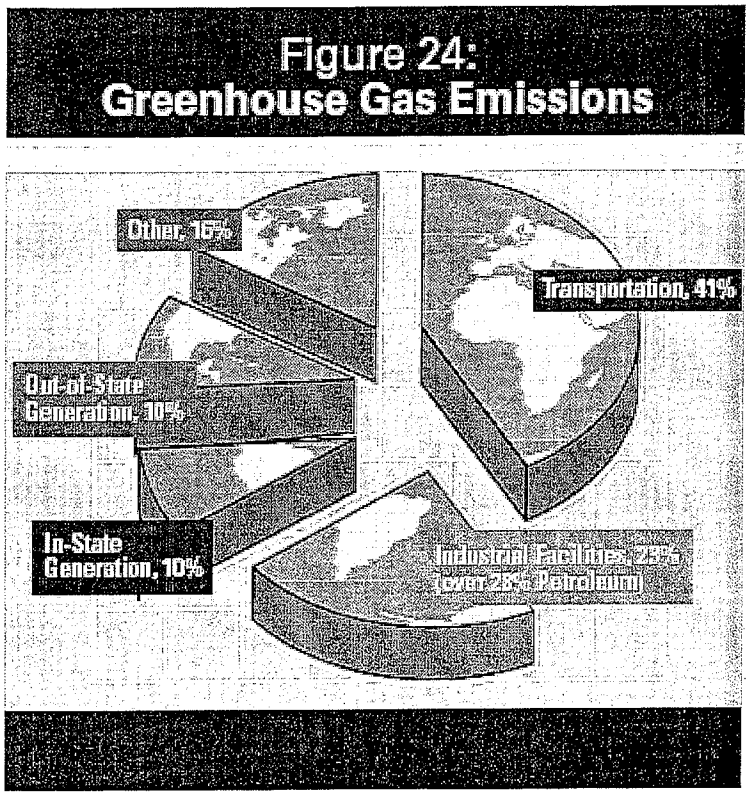
The Sacramento-San Joaquin Delta can be considered the hub of California's water supply system. About two-thirds of Californians and millions of acres of farmland rely on water from the Delta. Pumping plants in the south Delta are integral components for water distribution to central and southern California from the State Water Project (SWP) and the federal Central Valley Project (CVP). The Delta also provides local water supply for municipal and industrial and agricultural uses. The Delta supports more than $500 million in annual crop production (DWR, 2006).

The Sacramento River provides most of the freshwater inflow into the Delta (Figure 5.2). From 1980-1991, on average nearly 25 percent of the freshwater inflows to the Delta were used for municipal, industrial and agricultural water supplies, while the remaining 75 percent flowed to San Francisco Bay as Delta outflow. The actual distribution of Delta inflows varies from year to year depending on factors such as the amount and timing of precipitation and operations of upstream reservoirs.

Climate change could affect the Delta water balance shown in Figure 5.2. Warmer air temperatures are expected to shift the timing and form -- rain or snow -- of winter precipitation (see Chapter 2 and Chapter 6). Less snowpack would lead to less spring runoff. These shifting precipitation and runoff patterns would affect reservoir operations and Delta exports (see Chapter 4). Since the major inflows into the Delta are controlled by reservoir releases, Delta inflow patterns would be affected as well. More changes to reservoir releases and Delta exports might be required for compliance with Delta water quality standards. Changes in crop evapotranspiration rates could affect the amount of water needed for agricultural uses (see Chapter 7).

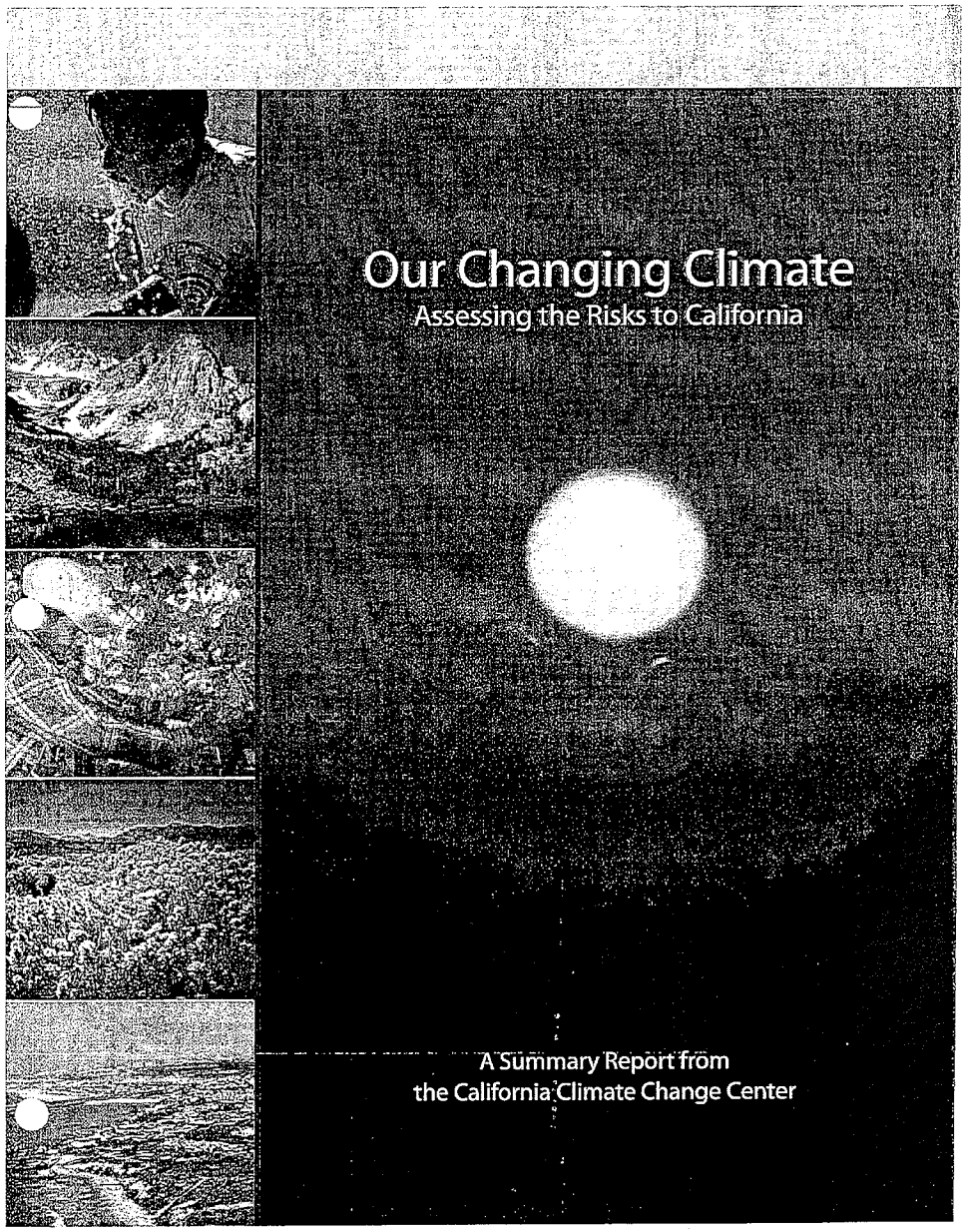
Future projected sea level rise would also affect the Delta. Higher water levels could threaten Delta island levees. Increased saltwater intrusion from the ocean could require increased freshwater releases from upstream reservoirs to maintain compliance with Delta water quality standards.

ATTACHMENT 5



Source: California Energy Commission *Inventory of California Greenhouse Emissions and Sinks: 1990 to 2002 Update*

ATTACHMENT 6



Because most global warming emissions remain in the atmosphere for decades or centuries, the choices we make today greatly influence the climate our children and grandchildren inherit. The quality of life they experience will depend on if and how rapidly California and the rest of the world reduce these emissions.

In California and throughout western North America, signs of a changing climate are evident. During the last 50 years, winter and spring temperatures have been warmer, spring snow levels in lower- and mid-elevation mountains have dropped, snowpack has been melting one to four weeks earlier, and flowers are blooming one to two weeks earlier.

These regional changes are consistent with global trends. During the past 100 years, average temperatures have risen more than one degree Fahrenheit worldwide. Research indicates that much of this warming is due to human activities, primarily burning fossil fuels and clearing forests, that release carbon dioxide (CO_2) and other gases into the atmosphere, trapping in heat that would otherwise escape into space. Once in the atmosphere, these heat-trapping emissions remain there for many years—CO_2, for example, lasts about 100 years. As a result, atmospheric concentration of CO_2 has increased more than 30 percent above pre-industrial levels. If left unchecked, by the end of the century CO_2 concentrations could reach levels three times higher than pre-industrial times, leading to dangerous global warming that threatens our public health, economy, and environment.

The latest projections, based on state-of-the-art climate models, indicate that if global heat-trapping emissions proceed at a medium to high rate, temperatures in California are expected to rise 4.7 to 10.5°F by the end of the century. In contrast, a lower emissions rate would keep the projected warming to 3 to 5.6°F. These temperature increases would have widespread consequences including substantial loss of snowpack, increased risk of large wildfires, and reductions in the quality and quantity of certain agricultural products. The state's vital resources and natural landscapes are already under increasing stress due to California's rapidly growing population, which is expected to grow from 35 million today to 55 million by 2050.

This document summarizes the recent findings of the California Climate Change Center's "Climate Scenarios" project, which analyzed a range of impacts that projected rising temperatures would likely have on California. The growing severity of the consequences as temperature rises underscores the importance of reducing emissions to minimize further warming. At the same time, it is essential to identify those consequences that may be unavoidable, for which we will need to develop coping and adaptation strategies.

In 2003, the California Energy Commission's Public Interest Energy Research (PIER) program established the California Climate Change Center to conduct climate change research relevant to the state. This Center is a virtual organization with core research activities at Scripps Institution of Oceanography and the University of California, Berkeley, complemented by efforts at other research institutions. Priority research areas defined in PIER's five-year Climate Change Research Plan are: monitoring, analysis, and modeling of climate; analysis of options to reduce greenhouse gas emissions; assessment of physical impacts and of adaptation strategies; and analysis of the economic consequences of both climate change impacts as well as the efforts designed to reduce emissions.

Executive Order #S-3-05, signed by Governor Arnold Schwarzenegger on June 1, 2005, called for the California Environmental Protection Agency (CalEPA) to prepare biennial science reports on the potential impact of continued global warming on certain sectors of the California economy. CalEPA entrusted PIER and its California Climate Change Center to lead this effort. The "Climate Scenarios" analysis summarized here is the first of these biennial science reports, and is the product of a multi-institution collaboration among the California Air Resources Board, California Department of Water Resources, California Energy Commission, CalEPA, and the Union of Concerned Scientists.

Cover photos: (sunset) Photos.com (from top to bottom) AP Photo/Paul Sakuma, iStockphoto, IndexStock, Picturequest, iStockphoto. Above: Bureau of Land Management. Background: IndexStock

California's Future Climate

California's climate is expected to become considerably warmer during this century. How much warmer depends on the rate at which human activities, such as the burning of fossil fuels, continue. The projections presented here illustrate the climatic changes that are likely from three different heat-trapping emissions scenarios (see figure below).

Projected Warming

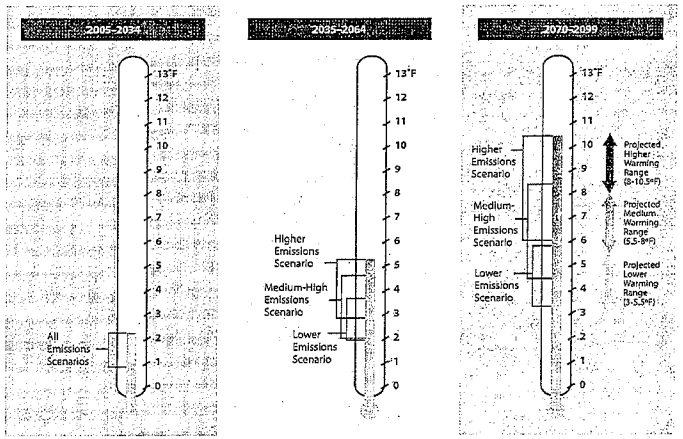
Temperatures are expected to rise substantially in all three emissions scenarios. During the next few decades, the three scenarios project average temperatures to rise between 1 and 2.3°F; however, the projected temperature increases begin to diverge at mid-century so that, by the end of the century, the temperature increases projected in the higher emissions scenario are approximately twice as high as those projected in the lower emissions scenario. Some climate models indicate that warming would be greater in summer than in winter, which would have widespread effects on ecosystem health, agricultural production, water use and availability, and energy demand.

Toward the end of the century, depending on future heat-trapping emissions, statewide average temperatures are expected to rise between 3 and 10.5°F. The analysis presented here examines the future climate under three projected warming ranges:[1]

- **Lower warming range:** projected temperature rises between 3 and 5.5°F
- **Medium warming range:** projected temperature rises between 5.5 and 8°F
- **Higher warming range:** projected temperature rises between 8 and 10.5°F

Precipitation

On average, the projections show little change in total annual precipitation in California. Furthermore, among several models, precipitation projections do not show a consistent trend during the next century. The Mediterranean seasonal precipitation pattern is expected to continue, with most precipitation falling during winter from North Pacific storms. One of the three climate models projects slightly wetter winters, and another projects slightly drier winters with a 10 to 20 percent decrease in total annual precipitation. However, even modest changes would have a significant impact because California ecosystems are conditioned to historical precipitation levels and water resources are nearly fully utilized.



California is expected to experience dramatically warmer temperatures during the 21st century. This figure shows projected increases in statewide annual temperatures for three 30-year periods. Ranges for each emissions scenario represent results from state-of-the-art climate models.

1 These warming ranges are for illustrative purposes only. These ranges were defined in the original Climate Scenarios analysis to capture the full range of projected temperature rise. The exact values for the warming ranges as presented in the original summary report are: lower warming range (3 to 5.4°F); medium warming range (5.5 to 7.9°F); and higher warming range (8 to 10.4°F).

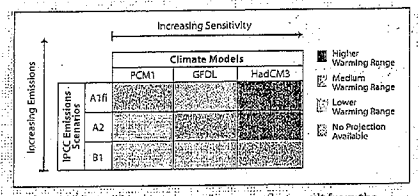
Projecting Future Climate

How much temperatures rise depends in large part on how much and how quickly heat-trapping emissions accumulate in the atmosphere and how the climate responds to these emissions. The projections presented in this report are based on three different heat-trapping emissions scenarios and three climate models.

Emissions Scenarios

The three global emissions scenarios used in this analysis were selected from a set of scenarios developed by the Intergovernmental Panel on Climate Change's (IPCC) *Special Report on Emissions Scenarios*, based on different assumptions about population growth and economic development (measured in gross domestic product).

- The **lower emissions scenario** (B1) characterizes a world with high economic growth and a global population that peaks by mid-century and then declines. There is a rapid shift toward less fossil fuel-intensive industries and introduction of clean and resource-efficient technologies. Heat-trapping emissions peak about mid-century and then decline; CO_2 concentration approximately doubles, relative to pre-industrial levels, by 2100.
- The **medium-high emissions scenario** (A2) projects continuous population growth and uneven economic and technological growth. The income gap between now-industrialized and developing parts of the world does not narrow. Heat-trapping emissions increase through the 21st century; atmospheric CO_2 concentration approximately triples, relative to pre-industrial levels, by 2100.
- The **higher emissions scenario** (A1fi) represents a world with high fossil fuel-intensive economic growth and a global population that peaks mid-century then declines. New and more efficient technologies are introduced toward the end of the century. Heat-trapping emissions increase through the 21st century; CO_2 concentration more than triples, relative to pre-industrial levels, by 2100.



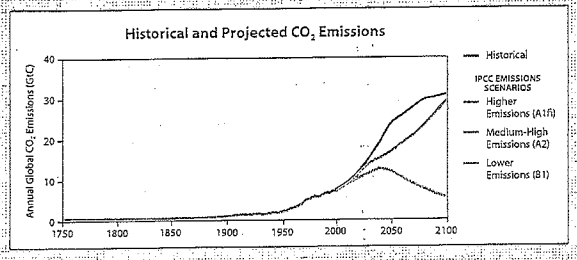
This matrix shows the temperature increases that result from the three climate models, assuming emission inputs indicated in the IPCC emissions scenarios. The resulting temperatures are grouped into three warming ranges defined in the "Climate Scenarios" analysis.

Climate Sensitivity

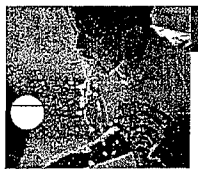
The three models used in this analysis represent different climate sensitivities, or the extent to which temperatures will rise as a result of increasing atmospheric concentrations of heat-trapping gases. Climate sensitivity depends on Earth's response to certain physical processes, including a number of "feedbacks" that might amplify or lessen warming. For example, as heat-trapping emissions cause temperatures to rise, the atmosphere can hold more water vapor, which traps heat and raises temperatures further—a positive feedback. Clouds created by this water vapor could absorb and re-radiate outgoing infrared radiation from Earth's surface (another positive feedback) or reflect more incoming shortwave radiation from the sun before it reaches Earth's surface (a negative feedback).

Because many of these processes and their feedbacks are not yet fully understood, they are represented somewhat differently in different global climate models. The three global climate models used in this analysis are:

- **National Center for Atmospheric Research Parallel Climate Model (PCM1):** low climate sensitivity
- **Geophysical Fluids Dynamic Laboratory (GFDL) CM2.1:** medium climate sensitivity
- **United Kingdom Met Office Hadley Centre Climate Model, version 3 (HadCM3):** medium-high climate sensitivity



As this figure shows, CO_2 emissions from human activities (such as the burning of fossil fuels) were negligible until around the so-called industrial age starting in the 1850s.



Public Health

Continued global warming will affect Californians' health by exacerbating air pollution, intensifying heat waves, and expanding the range of infectious diseases. The primary concern is not so much the change in *average* climate but the projected increase in *extreme* conditions, which pose the most serious health risks.

Poor Air Quality Made Worse

Californians currently experience the worst air quality in the nation, with more than 90 percent of the population living in areas that violate the state's air quality standard for either ground-level ozone or airborne particulate matter. These pollutants can cause or aggravate a wide range of health problems including asthma and other acute respiratory and cardiovascular diseases, and can decrease lung function in children. Combined, ozone and particulate matter contribute to 8,800 deaths and $71 billion in healthcare costs every year. If global background ozone levels increase as projected in some scenarios, it may become impossible to meet local air quality standards.

Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, if temperatures rise to the medium warming range, there will be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if temperature rises are kept in the lower warming range.

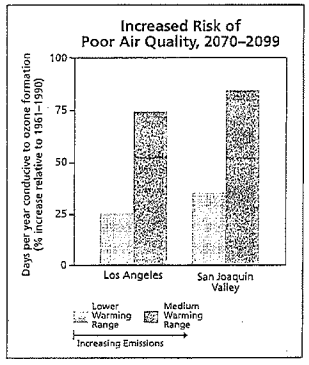
Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances depending on wind conditions. The most recent analysis suggests that if heat-trapping gas emissions are not significantly reduced, large wildfires could become up to 55 percent more frequent toward the end of the century.

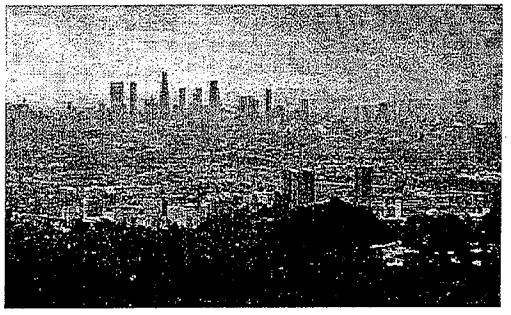
More Severe Heat

By 2100, if temperatures rise to the higher warming range, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and above 95°F in Sacramento. This is a striking increase over historical patterns (see chart on p. 6), and almost twice the increase projected if temperatures remain within or below the lower warming range.

As temperatures rise, Californians will face greater risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat. By mid century, extreme heat events in urban centers such as Sacramento, Los Angeles, and San Bernardino could cause two to three times more heat-related deaths than occur today. The members of the population most vulnerable to the effects of extreme heat include people who are already ill; children; the elderly;

As temperatures rise, Californians will face greater risk of death from dehydration, heat stroke, heart attack, and other heat-related illnesses.



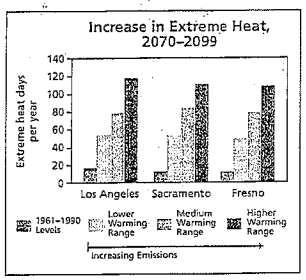


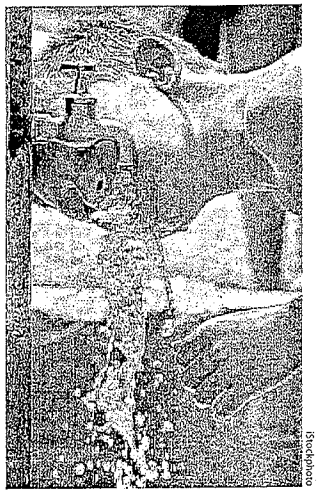
Cars and power plants emit pollutants that contribute to global warming and poor air quality. As temperatures increase, it will be increasingly difficult to meet air quality standards throughout the state.

Public Health

and the poor, who may lack access to air conditioning and medical assistance.

More research is needed to better understand the potential effects of higher temperatures and the role that adaptation can play in minimizing these effects. For example, expanding air conditioner use can help people cope with extreme heat; however, it also increases energy consumption, which, using today's fossil fuel-heavy energy sources, would contribute to further global warming and air pollution.





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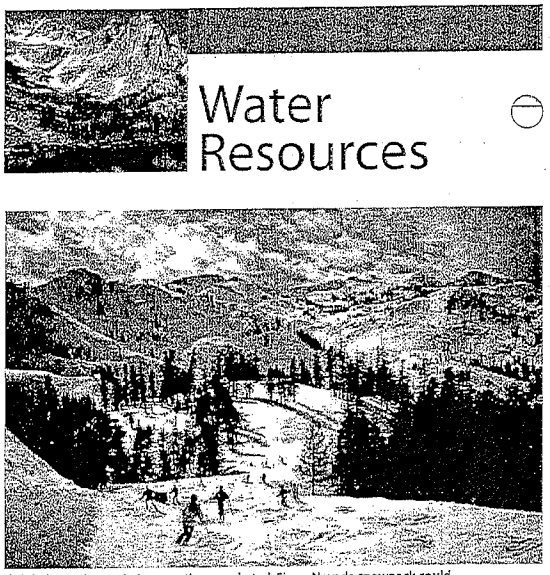


Water Resources

If global warming emissions continue unabated, Sierra Nevada snowpack could decline 70 to 90 percent, with cascading effects on winter recreation, water supply, and natural ecosystems.

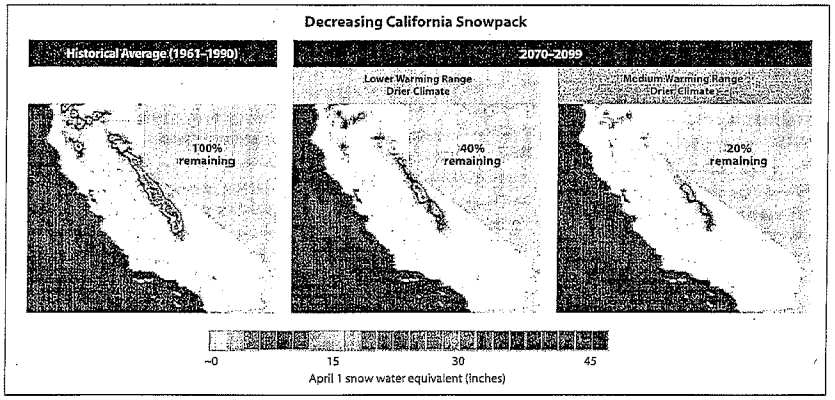
Most of California's precipitation falls in the northern part of the state during the winter while the greatest demand for water comes from users in the southern part of the state during the spring and summer. A vast network of man-made reservoirs and aqueducts capture and transport water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada mountain snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

Decreasing Sierra Nevada Snowpack

If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. How much snowpack will be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under wetter climate projections, the loss of snowpack would pose challenges to water managers, hamper hydropower generation, and nearly eliminate skiing and other snow-related recreational activities. If global warming emissions are significantly curbed and temperature increases are kept in the lower warming range, snowpack losses are expected to be only half as large as those expected if temperatures were to rise to the higher warming range.

Challenges in Securing Adequate Water Supplies

Continued global warming will increase pressure on California's water resources, which are already over-stretched by the demands of a growing



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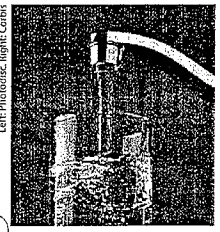
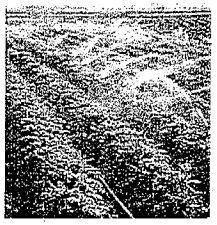
economy and population. Decreasing snowmelt and spring stream flows coupled with increasing demand for water resulting from both a growing population and hotter climate could lead to increasing water shortages. By the end of the century, if temperatures rise to the medium warming range and precipitation decreases, late spring stream flow could decline by up to 30 percent. Agricultural areas could be hard hit, with California farmers losing as much as 25 percent of the water supply they need.

Water supplies are also at risk from rising sea levels. An influx of saltwater would degrade California's estuaries, wetlands, and groundwater aquifers. In particular, saltwater intrusion would threaten the quality and reliability of the major state fresh water supply that is pumped from the southern edge of the Sacramento/San Joaquin River Delta.

Coping with the most severe consequences of global warming would require major changes in water management and allocation systems. As more winter precipitation falls as rain instead of snow, water managers will have to balance the need to fill constructed reservoirs for water supply and the need to maintain reservoir space for winter flood control. Some additional storage could be developed; however, the economic and environmental costs would be high.

Left: Photodisc; Right: Corbis





Rising temperatures, potentially exacerbated by decreasing precipitation, could increase the risk of water shortages in urban and agricultural sectors.

Potential Reduction in Hydropower

Higher temperatures will likely increase electricity demand due to higher air conditioning use. Even if the population remained unchanged, toward the end of the century annual electricity demand could increase by as much as 20 percent if temperatures rise into the higher warming range. (Implementing aggressive efficiency measures could lower this estimate.)

At the same time, diminished snow melt flowing through dams will decrease the potential for hydropower production, which now comprises about 15 percent of California's in-state electricity production. If temperatures rise to the medium warming range and precipitation decreases by 10 to 20 percent, hydropower production may be reduced by up to 30 percent. However, future precipitation projections are quite uncertain so it is possible that precipitation may increase and expand hydropower generation.

Loss of Winter Recreation

Continued global warming will have widespread implications for winter tourism. Declines in Sierra Nevada snowpack would lead to later starting and earlier closing dates of the ski season. Toward the end of the century, if temperatures rise to the lower warming range, the ski season at lower and middle elevations could shorten by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

Agriculture

California is home to a $30 billion agriculture industry that employs more than one million workers. It is the largest and most diverse agriculture industry in the nation, producing more than 300 commodities including half the country's fruits and vegetables. Increased heat-trapping emissions are expected to cause widespread changes to this industry, reducing the quantity and quality of agricultural products statewide.

Although higher carbon dioxide levels can stimulate plant production and increase plant water-use efficiency, California farmers will face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development will change, as will the intensity and frequency of pest and disease outbreaks. Rising temperatures will likely aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

To prepare for these changes, and to adapt to changes already under way, major efforts will be needed to move crops to new locations, respond to climate variability, and develop new cultivars and agricultural technologies. With adequate research and advance preparation, some of the consequences could be reduced.

Increasing Temperature

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures are likely to worsen the quantity and quality of yield for a number of California's agricultural products. Crops that are likely to be hard hit include:

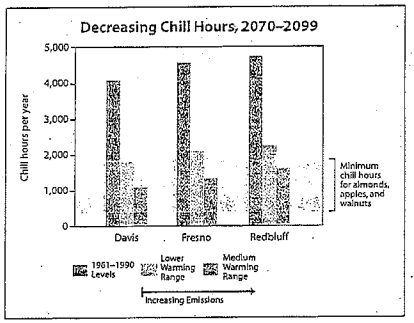
Wine Grapes

California is the nation's largest wine producer and the fourth-largest wine producer worldwide. High-quality wines produced throughout the Napa and Sonoma Valleys and along the northern and central coasts generate $3.2 billion in revenue each year. High temperatures during the growing season can cause premature ripening and reduce grape quality. Temperature increases are expected to have only modest effect on grape quality in most regions over the next few decades. However, toward the end of the century, wine grapes could ripen as much as one to two months earlier, which will affect grape quality in all but the coolest coastal locations (Mendocino and Monterey Counties).

IndexOpen

Fruits and Nuts

Many fruit and nut trees are particularly sensitive to temperature changes because of heat-accumulation limits and chill-hour requirements. Heat accumulation, which refers to the total hours during which temperatures reach between 45 and 95°F, is critical for fruit development. Rising temperatures could increase fruit development rates and decrease fruit size.



For example, peaches and nectarines developed and were harvested early in 2004 because of warm spring temperatures. The fruits were smaller than normal, which placed them in a lower quality category.

A minimum number of chill hours (hours during which temperatures drop below 45°F) is required for proper bud setting; too few hours can cause late or irregular bloom, decreasing fruit quality and subsequent marketable yield. California is currently classified as a moderate to high chill-hour region, but chill hours are diminishing in many areas of the state. If temperatures rise to the medium warming range, the number of chill hours in the entire Central Valley is expected to approach a critical threshold for some fruit trees.

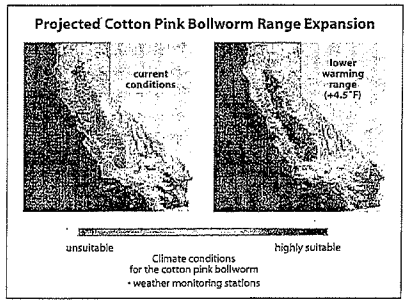
Milk

California's $3 billion dairy industry supplies nearly one-fifth of the nation's milk products. High temperatures can stress dairy cows, reducing milk production. Production begins to decline at temperatures as low as 77°F and can drop substantially as temperatures climb above 90°F. Toward the end of the century, if temperatures rise to the higher warming range, milk production is expected to decrease by up to 20 percent. This is more than twice the reduction expected if temperatures stay within or below the lower warming range.

Increasing temperatures will likely decrease the quantity and quality of some agricultural commodities, such as certain varieties of fruit trees, wine grapes, and dairy products.

Expanding Ranges of Agricultural Weeds

Noxious and invasive weeds currently infest more than 20 million acres of California farmland, costing hundreds of millions of dollars annually in control measures and lost productivity. Continued climate change will likely shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion is expected in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Should range contractions occur, it is likely that new or different weed species will fill the emerging gaps.



As temperatures rise, the climate is expected to become more favorable for the pink bollworm (above), a major cotton pest in southern California. The pink bollworm's geographic range is limited by winter frosts that kill over-wintering dormant larvae. As temperatures rise, winter frosts will decrease, greatly increasing the winter survival and subsequent spread of the pest throughout the state.

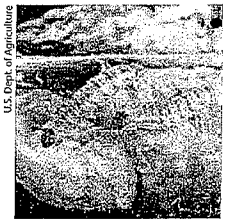
Increasing Threats from Pests and Pathogens

California farmers contend with a wide range of crop-damaging pests and pathogens. Continued climate change is likely to alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates. For example, the pink bollworm, a common pest of cotton crops, is currently a problem only in southern desert valleys because it cannot survive winter frosts elsewhere in the state. However, if winter temperatures rise 3 to 4.5°F, the pink bollworm's range would likely expand northward, which could lead to substantial economic and ecological consequences for the state.

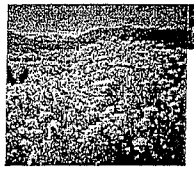
Temperature is not the only climatic influence on pests. For example, some insects are unable to cope in extreme drought, while others cannot survive in extremely wet conditions. Furthermore, while warming speeds up the lifecycles of many insects, suggesting that pest problems could increase, some insects may grow more slowly as elevated CO_2 levels decrease the protein content of the leaves on which they feed.

Multiple and Interacting Stresses

Although the effects on specific crops of individual factors (e.g., temperatures, pests, water supply) are increasingly well understood, trying to quantify interactions among these and other environmental factors is challenging. For example, the quality of certain grape varieties is expected to decline as temperatures rise. But the wine-grape industry also faces increasing risks from pests such as the glassy-winged sharpshooter, which transmits Pierce's disease. In 2002, this bacterial disease caused damage worth $13 million in Riverside County alone. The optimum temperature for growth of Pierce's disease is 82°F, so this disease is currently uncommon in the cooler northern and coastal regions of the state. However, with continued warming, these regions may face increased risk of the glassy-winged sharpshooter feeding on leaves and transmitting Pierce's disease.

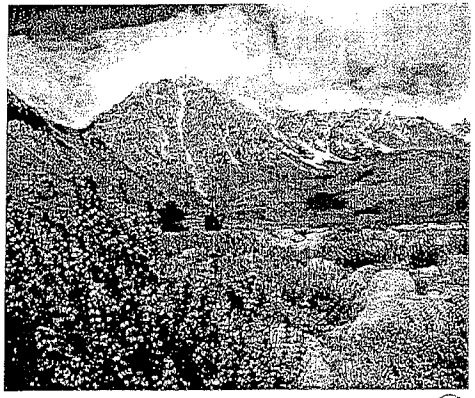


U.S. Dept. of Agriculture



Forests and Landscapes

California is one of the most climatically and biologically diverse areas in the world, supporting thousands of plant and animal species. The state's burgeoning population and consequent impact on local landscapes is threatening much of this biological wealth. Global warming is expected to intensify this threat by increasing the risk of wildfire and altering the distribution and character of natural vegetation.



Global warming threatens alpine and subalpine ecosystems, which have no place to move as temperatures rise.

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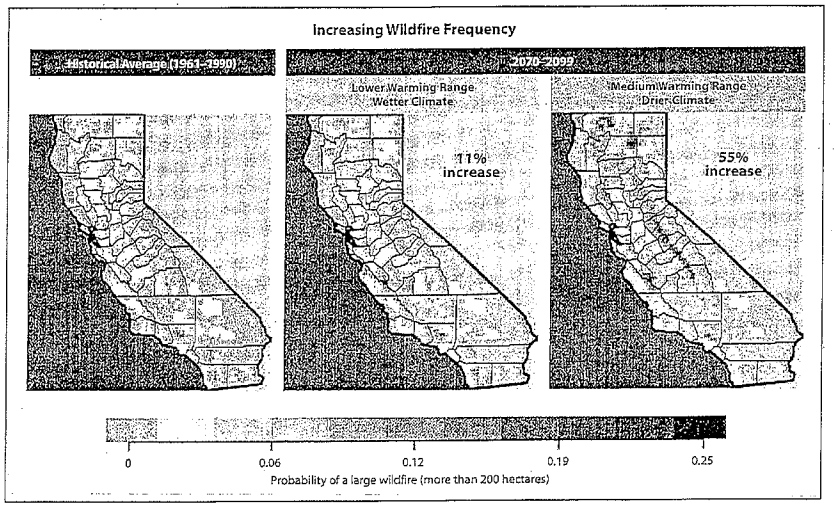
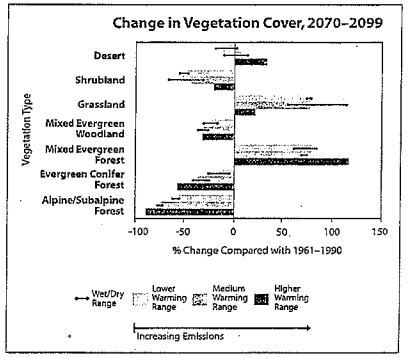
Increasing Wildfires

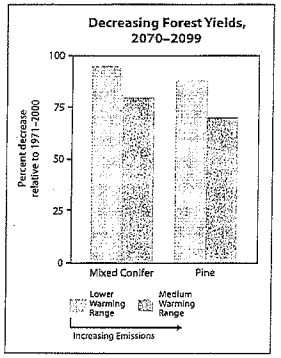
Fire is an important ecosystem disturbance. It promotes vegetation and wildlife diversity, releases nutrients into the soil, and eliminates heavy accumulation of underbrush that can fuel catastrophic fires. However, if temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range.

Because wildfire risk is determined by a combination of factors including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. In many regions, wildfire activity will depend critically on future precipitation patterns. For example, if precipitation increases as temperatures rise, wildfires in the grasslands and chaparral ecosystems of southern California are expected to increase by approximately 30 percent toward the end of the century because more winter rain will stimulate the growth of more plant "fuel" available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.



Vegetation cover over the 21st century will depend on both temperature and precipitation. The lower and medium warming range bars reflect vegetation cover under a wetter climate (blue) and a drier climate (brown) projected in the different climate models. For the higher warming range, only a drier climate was considered.





Shifting Vegetation

Land use and other changes resulting from economic development are altering natural habitats throughout the state. Continued global warming will intensify these pressures on the state's natural ecosystems and biological diversity. For example, in northern California, warmer temperatures are expected to shift dominant forest species from Douglas and White Fir to madrone and oaks. In inland regions, increases in fire frequency are expected to promote expansion of grasslands into current shrub and woodland areas. Alpine and subalpine ecosystems are among the most threatened in the state; plants suited to these regions have limited opportunity to migrate "up slope" and are expected to decline by as much as 60 to 80 percent by the end of the century as a result of increasing temperatures.

Declining Forest Productivity

Forestlands cover 45 percent of the state; 35 percent of this is commercial forests such as pine plantations. Recent projections suggest that continued global warming could adversely affect the health and productivity of California's forests. If average statewide temperatures rise to the medium warming range, the productivity of mixed conifer forests is expected to diminish by as much as 18 percent by the end of the century. Yield reductions from pine plantations are expected to be even more severe, with up to a 30 percent decrease by the end of the century.

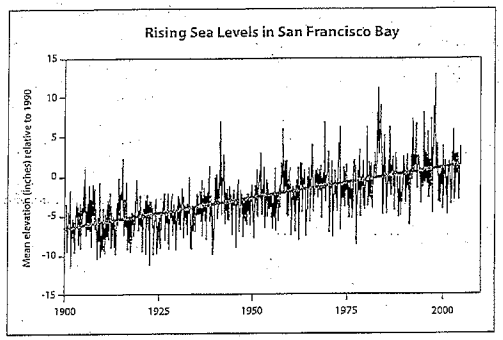
The risk of large wildfires in California could increase by as much as 55 percent.

iStockphoto

Rising Sea Levels

California's 1,100 miles of coastline are a major attraction for tourism, recreation, and other economic activity. The coast is also home to unique ecosystems that are among the world's most imperiled. As global warming continues, California's coastal regions will be increasingly threatened by rising sea levels, more intense coastal storms, and warmer water temperatures.

During the past century, sea levels along California's coast have risen about seven inches. If heat-trapping emissions continue unabated and temperatures rise into the higher warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.

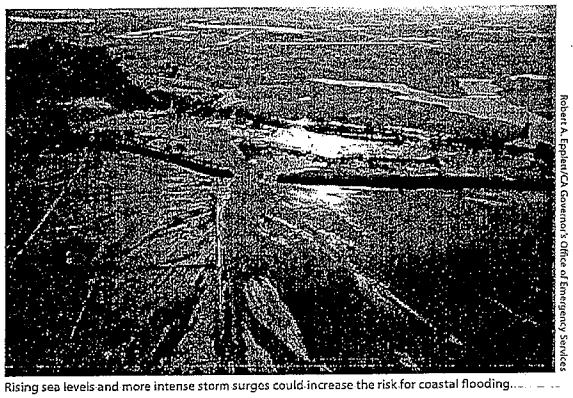


Increasing Coastal Floods

The combination of increasingly severe winter storms, rising mean sea levels, and high tides is expected to cause more frequent and severe flooding, erosion, and damage to coastal structures. Many California coastal areas are at significant risk for flood damage. For example, the city of Santa Cruz is built on the 100-year floodplain and is only 20 feet above sea level. Although levees have been built to contain the 100-year flood, a 12-inch increase in sea levels (projected for the medium warming range of temperatures) would mean storm-surge-induced flood events at the 100-year level would likely occur once every 10 years.

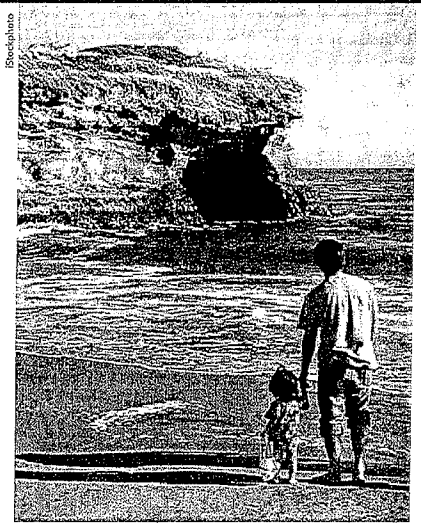
Flooding can create significant damage and enormous financial losses. Despite extensive engineering efforts, major floods have repeatedly breached levees that protect freshwater supplies and islands in the San Francisco Bay Delta as well as fragile marine estuaries and wetlands throughout the state. Continued sea level rise will further increase vulnerability to levee failures. Some of the most extreme flooding during the past few decades has occurred during El Niño winters, when warmer waters fuel more intense storms. During the winters of 1982–1983 and 1997–1998, for example, abnormally high seas and storm surges caused millions of dollars' worth of damage in the San Francisco Bay area. Highways were flooded as six-foot waves crashed over waterfront bulkheads, and valuable coastal real estate was destroyed.

Continued global warming will require major changes in flood management. In many regions such as the Central Valley, where urbanization and limited river channel capacity already exacerbate rising flood risks, flood damage and flood control costs could amount to several billion dollars.


Robert A. Eplett/CA Governor's Office of Emergency Services

Rising sea levels and more intense storm surges could increase the risk for coastal flooding.

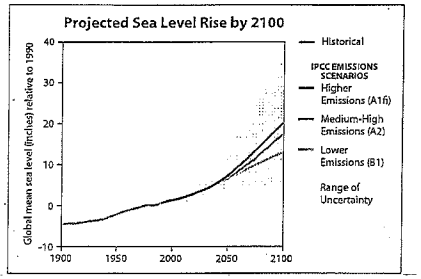
Sea levels could rise up to three feet by the end of the century, accelerating coastal erosion, threating vital levees, and disrupting wetlands.


iStockphoto

Many California beaches are threatened from rising sea levels and increased erosion, an expected consequence of continued global warming.

Shrinking Beaches

Many of California's beaches may shrink in the future because of rising seas and increased erosion from winter storms. Currently, many beaches are protected from erosion through manmade sand replenishment (or "nourishment") programs, which bring in sand from outside sources to replace the diminishing supply of natural sand. In fact, many of the wide sandy beaches in southern California around Santa Monica, Venice, and Newport Beach were created and are maintained entirely by sand nourishment programs. As sea levels rise, increasing volumes of replacement sand will be needed to maintain current beach width and quality. California beach nourishment programs currently cost millions of dollars each year. As global warming continues, the costs of beach nourishment programs will rise, and in some regions beach replenishment may no longer be viable.



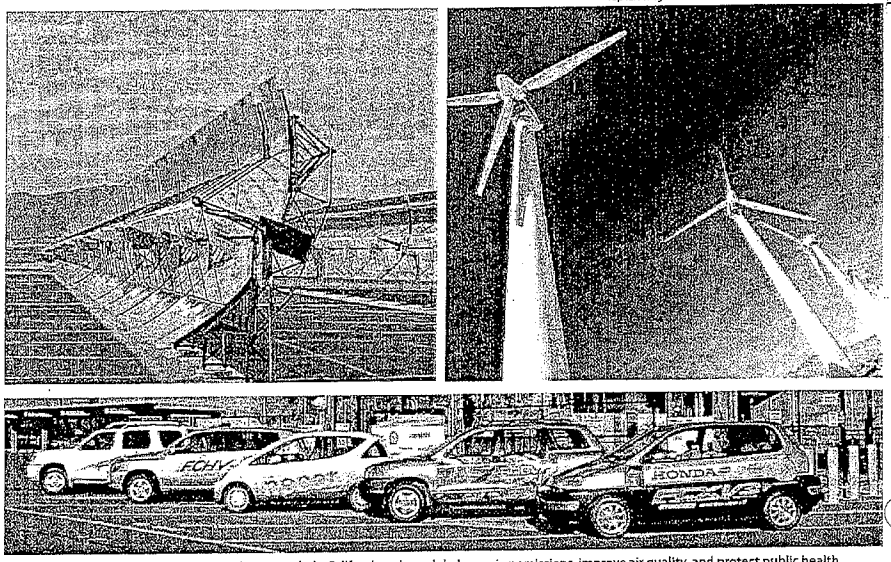
Multiple Causes of Coastal Flooding

Several factors play a role in sea level and coastal flooding, including tides, waves temperature, and storm activity. Sea levels fluctuate daily, monthly, and seasonally; the highest tides occur in winter and in summer, during new and full moons. Sea levels often rise even higher during El Niño winters, when the Eastern Pacific Ocean is warmer than usual and westerly wind patterns are strengthened.

Coastal flooding usually occurs during winter storms, which bring strong winds and high waves. Storm winds tend to raise water levels along the coast and produce high waves at the same time, compounding the risk of damaging waves—a doubling of wave height is equivalent to a four-fold increase in wave energy. When these factors coincide with high tides, the chances for coastal damage are greatly heightened.

As sea levels rise, flood stages in the Sacramento/San Joaquin Delta of the San Francisco Bay estuary may also rise, putting increasing pressure on Delta levees. This threat may be particularly significant because recent estimates indicate the additional force exerted upon the levees is equivalent to the square of the water level rise. Estimates using historical observations and climate model projections suggest that extreme high water levels in the Bay and Delta will increase markedly if sea level rises above its historical rate. These extremes are most likely to occur during storm events, leading to more severe damage from waves and floods.

Top left & right: Photos.com. Bottom: CA Fuel Cell Partnership



Cleaner energy and vehicle technologies can help California reduce global warming emissions, improve air quality, and protect public health.

Managing Global Warming

Continued global warming will have widespread and significant impacts on the Golden State. Solutions are available today to reduce emissions and minimize these impacts.

The projections presented in this analysis suggest that many of the most severe consequences that are expected from the medium and higher warming ranges could be avoided if heat-trapping emissions can be reduced to levels that will hold temperature increases at or below the lower warming range (i.e., an increase of no more than 5.5°F). However, even if emissions are substantially reduced, research indicates that some climatic changes are unavoidable. Although not the solution to global warming, plans to cope with these changes are essential.

California's actions can drive global progress to address global warming.

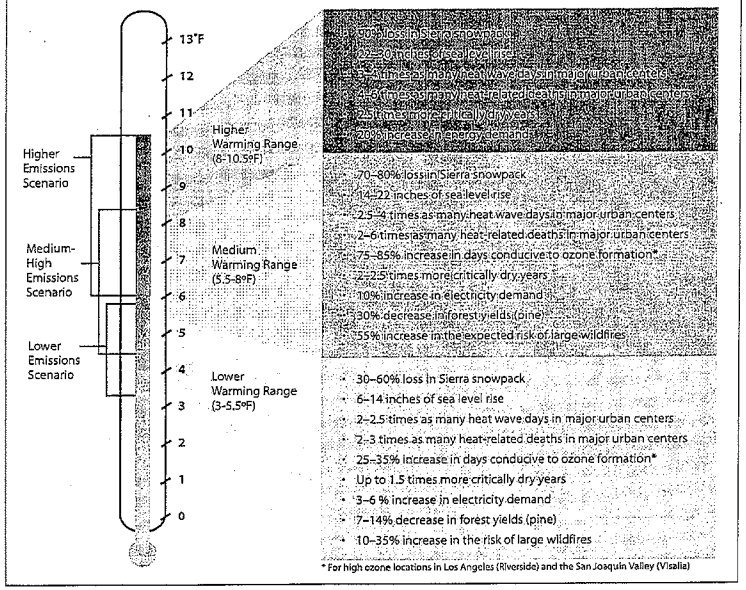
Reducing Heat-Trapping Emissions

Reducing heat-trapping emissions is the most important way to slow the rate of global warming. On June 1, 2005, Governor Arnold Schwarzenegger signed an executive order (#S-3-05) that sets goals for significantly lowering the state's share of global warming pollution. The executive order calls for a reduction in heat-trapping emissions to 1990 levels by 2020 and for an 80 percent emissions reduction below 1990 levels by 2050. These emission reduction targets will help stimulate technological innovation needed to help transition to more efficient and renewable transportation and energy systems.

Coping with Unavoidable Climatic Changes

Because global warming is already upon us, and some amount of additional warming is inevitable, we must prepare for the changes that are already under way.

Summary of Projected Global Warming Impact, 2070–2099
(as compared with 1961–1990)



* For high ozone locations in Los Angeles (Riverside) and the San Joaquin Valley (Visalia)

Preparing for these unavoidable changes will require minimizing further stresses on sensitive ecosystems and implementing management practices that integrate climate risks into long-term planning strategies.

By reducing heat-trapping emissions, severe consequences can be avoided.

California's Leadership

California has been a leader in both the science of climate change and in identifying solutions. The California Climate Change Center is one of the first—and perhaps the only—state-sponsored research institution in the nation dedicated to climate change research, and other state agencies such as the Air Resources Board support similar research. Continuing this strong research agenda is critical for developing effective strategies for addressing global warming in California.

The state has also been at the forefront of efforts to reduce heat-trapping emissions, passing precedent-setting policies such as aggressive standards for tailpipe emissions, renewable energy, and energy efficiency. However, existing policies are not likely to be sufficient to meet the ambitious emission reduction goals set by the governor. To meet these ambitious goals California will need to build on its legacy of environmental leadership and develop new strategies and technologies to reduce emissions.

California alone cannot stabilize the climate. However, the state's actions can drive global progress. If the industrialized world were to follow the emission reduction targets established in California's executive order, and industrializing nations reduced emissions according to the lower emissions path (B1) presented in this analysis, we would be on track to keep temperatures from rising to the medium or higher (and possibly even the lower) warming ranges and thus avoid the most severe consequences of global warming.

The full text of the Climate Scenarios analysis, overview report, and the core scientific papers that comprise this analysis are online at *www.climatechange.ca.gov*. The scientists that participated in this effort are:

July 2006
CEC-500-2006-077

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The material contained in this document does not necessarily represent the views of the funding agencies or the State of California.

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ATTACHMENT 7

Office of the Governor

ARNOLD SCHWARZENEGGER
THE PEOPLE'S GOVERNOR

EXECUTIVE ORDER EXECUTIVE ORDER S-3-05

06/01/2005

WHEREAS, California is particularly vulnerable to the impacts of climate change; and

WHEREAS, increased temperatures threaten to greatly reduce the Sierra snowpack, one of the State's primary sources of w and

WHEREAS, increased temperatures also threaten to further exacerbate California's air quality problems and adversely impa human health by increasing heat stress and related deaths, the incidence of infectious disease, and the risk of asthma, respira and other health problems; and

WHEREAS, rising sea levels threaten California's 1,100 miles of valuable coastal real estate and natural habitats; and

WHEREAS, the combined effects of an increase in temperatures and diminished water supply and quality threaten to alter micro-climates within the state, affect the abundance and distribution of pests and pathogens, and result in variations in crop quality and yield; and

WHEREAS, mitigation efforts will be necessary to reduce greenhouse gas emissions and adaptation efforts will be necessar prepare Californians for the consequences of global warming; and

WHEREAS, California has taken a leadership role in reducing greenhouse gas emissions by: implementing the California A Resources Board motor vehicle greenhouse gas emission reduction regulations; implementing the Renewable Portfolio Stan that the Governor accelerated; and implementing the most effective building and appliance efficiency standards in the world

WHEREAS, California-based companies and companies with significant activities in California have taken leadership roles reducing greenhouse gas (GHG) emissions, including carbon dioxide, methane, nitrous oxide and hydrofluorocarbons, relate their operations and developing products that will reduce GHG emissions; and

WHEREAS, companies that have reduced GHG emissions by 25 percent to 70 percent have lowered operating costs and increased profits by billions of dollars; and

WHEREAS, technologies that reduce greenhouse gas emissions are increasingly in demand in the worldwide marketplace, a California companies investing in these technologies are well-positioned to profit from this demand, thereby boosting California's economy, creating more jobs and providing increased tax revenue; and

WHEREAS, many of the technologies that reduce greenhouse gas emissions also generate operating cost savings to consum who spend a portion of the savings across a variety of sectors of the economy; this increased spending creates jobs and an o benefit to the statewide economy.

NOW, THEREFORE, I, ARNOLD SCHWARZENEGGER, Governor of the State of California, by virtue of the power inve in me by the Constitution and statutes of the State of California, do hereby order effective immediately:

1. That the following greenhouse gas emission reduction targets are hereby established for California: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050, reduce GHG emissions to 80 percent below 1990 levels; and

2. That the Secretary of the California Environmental Protection Agency ("Secretary") shall coordina oversight of the efforts made to meet the targets with: the Secretary of the Business, Transportation a Housing Agency, Secretary of the Department of Food and Agriculture, Secretary of the Resources Agency, Chairperson of the Air Resources Board, Chairperson of the Energy Commission, and the President of the Public Utilities Commission; and

3. That the Secretary shall report to the Governor and the State Legislature by January 2006 and biannually thereafter on progress made toward meeting the greenhouse gas emission targets established herein; and

4. That the Secretary shall also report to the Governor and the State Legislature by January 2006 and biannually thereafter o impacts to California of global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry, and shall prepare and report on mitigation and adaptation plans to combat these impacts; and

5. That as soon as hereafter possible, this Order shall be filed with the Office of the Secretary of State and that widespread publicity and notice be given to this Order.

IN WITNESS WHEREOF I have here unto set my hand and caused the Great Seal of the State of California to be affixed th the first day of June 2005.

/s/ Arnold Schwarzenegger

Governor of California

ATTACHMENT 8

BILL NUMBER: AB 32 CHAPTERED
BILL TEXT

CHAPTER 488
FILED WITH SECRETARY OF STATE SEPTEMBER 27, 2006
APPROVED BY GOVERNOR SEPTEMBER 27, 2006
PASSED THE ASSEMBLY AUGUST 31, 2006
PASSED THE SENATE AUGUST 30, 2006
AMENDED IN SENATE AUGUST 30, 2006
AMENDED IN SENATE AUGUST 23, 2006
AMENDED IN SENATE AUGUST 9, 2006
AMENDED IN SENATE AUGUST 7, 2006
AMENDED IN SENATE JUNE 22, 2006
AMENDED IN SENATE APRIL 18, 2006
AMENDED IN SENATE AUGUST 15, 2005
AMENDED IN ASSEMBLY MARCH 31, 2005

INTRODUCED BY Assembly Members Nunez and Pavley
(Principal coauthor: Assembly Member Nation)
(Coauthors: Assembly Members Arambula, Baca, Bass, Berg, Bermudez, Calderon, Chan, Chavez, Chu, Cohn, Coto, De La Torre, Dymally, Evans, Frommer, Goldberg, Hancock, Jerome Horton, Jones, Karnette, Klehs, Koretz, Laird, Leno, Levine, Lieber, Lieu, Montanez, Mullin, Nava, Oropeza, Ridley-Thomas, Ruskin, Saldana, Salinas, Torrico, Vargas, Wolk, and Yee)
(Coauthors: Senators Alarcon, Bowen, Chesbro, Escutia, Figueroa, Kehoe, Kuehl, Lowenthal, Migden, Romero, Simitian, Soto, Speier, Torlakson, and Vincent)

DECEMBER 6, 2004

An act to add Division 25.5 (commencing with Section 38500) to the Health and Safety Code, relating to air pollution.

LEGISLATIVE COUNSEL'S DIGEST

AB 32, Nunez Air pollution: greenhouse gases: California Global Warming Solutions Act of 2006.

Under existing law, the State Air Resources Board (state board), the State Energy Resources Conservation and Development Commission (Energy Commission), and the California Climate Action Registry all have responsibilities with respect to the control of emissions of greenhouse gases, as defined, and the Secretary for Environmental Protection is required to coordinate emission reductions of greenhouse gases and climate change activity in state government.

This bill would require the state board to adopt regulations to require the reporting and verification of statewide greenhouse gas emissions and to monitor and enforce compliance with this program, as specified. The bill would require the state board to adopt a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions levels in 1990 to be achieved by 2020, as specified. The bill would require the state board to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective greenhouse gas emission reductions, as specified. The bill would authorize the state board to adopt market-based compliance mechanisms, as defined, meeting specified requirements. The bill would require the state board to monitor compliance with and enforce any rule, regulation, order, emission limitation, emissions reduction measure, or market-based compliance mechanism adopted by the state board, pursuant to specified provisions of existing law. The bill would authorize the state board to adopt a schedule of fees to be paid by regulated sources of greenhouse gas emissions, as specified.

Because the bill would require the state board to establish emissions limits and other requirements, the violation of which would be a crime, this bill would create a state-mandated local program.

The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. Division 25.5 (commencing with Section 38500) is added to the Health and Safety Code, to read:

DIVISION 25.5. CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006

PART 1. GENERAL PROVISIONS

CHAPTER 1. Title of Division

38500. This division shall be known, and may be cited, as the California Global Warming Solutions Act of 2006.

CHAPTER 2. Findings and Declarations

38501. The Legislature finds and declares all of the following:

(a) Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

(b) Global warming will have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry. It will also increase the strain on electricity supplies necessary to meet the demand for summer air-conditioning in the hottest parts of the state.

(c) California has long been a national and international leader on energy conservation and environmental stewardship efforts, including the areas of air quality protections, energy efficiency requirements, renewable energy standards, natural resource conservation, and greenhouse gas emission standards for passenger vehicles. The program established by this division will continue this tradition of environmental leadership by placing California at the forefront of national and international efforts to reduce emissions of greenhouse gases.

(d) National and international actions are necessary to fully address the issue of global warming. However, action taken by California to reduce emissions of greenhouse gases will have far-reaching effects by encouraging other states, the federal government, and other countries to act.

(e) By exercising a global leadership role, California will also position its economy, technology centers, financial institutions, and businesses to benefit from national and international efforts to reduce emissions of greenhouse gases. More importantly, investing in the development of innovative and pioneering technologies will assist California in achieving the 2020 statewide limit on emissions of greenhouse gases established by this division and will provide an opportunity for the state to take a global economic and technological leadership role in reducing emissions of greenhouse gases.

(f) It is the intent of the Legislature that the State Air Resources Board coordinate with state agencies, as well as consult with the environmental justice community, industry sectors, business groups, academic institutions, environmental organizations, and other stakeholders in implementing this division.

(g) It is the intent of the Legislature that the State Air Resources Board consult with the Public Utilities Commission in the development of emissions reduction measures, including limits on

emissions of greenhouse gases applied to electricity and natural gas providers regulated by the Public Utilities Commission in order to ensure that electricity and natural gas providers are not required to meet duplicative or inconsistent regulatory requirements.

(h) It is the intent of the Legislature that the State Air Resources Board design emissions reduction measures to meet the statewide emissions limits for greenhouse gases established pursuant to this division in a manner that minimizes costs and maximizes benefits for California's economy, improves and modernizes California's energy infrastructure and maintains electric system reliability, maximizes additional environmental and economic co-benefits for California, and complements the state's efforts to improve air quality.

(i) It is the intent of the Legislature that the Climate Action Team established by the Governor to coordinate the efforts set forth under Executive Order S-3-05 continue its role in coordinating overall climate policy.

CHAPTER 3. Definitions

38505. For the purposes of this division, the following terms have the following meanings:

(a) "Allowance" means an authorization to emit, during a specified year, up to one ton of carbon dioxide equivalent.

(b) "Alternative compliance mechanism" means an action undertaken by a greenhouse gas emission source that achieves the equivalent reduction of greenhouse gas emissions over the same time period as a direct emission reduction, and that is approved by the state board. "Alternative compliance mechanism" includes, but is not limited to, a flexible compliance schedule, alternative control technology, a process change, or a product substitution.

(c) "Carbon dioxide equivalent" means the amount of carbon dioxide by weight that would produce the same global warming impact as a given weight of another greenhouse gas, based on the best available science, including from the Intergovernmental Panel on Climate Change.

(d) "Cost-effective" or "cost-effectiveness" means the cost per unit of reduced emissions of greenhouse gases adjusted for its global warming potential.

(e) "Direct emission reduction" means a greenhouse gas emission reduction action made by a greenhouse gas emission source at that source.

(f) "Emissions reduction measure" means programs, measures, standards, and alternative compliance mechanisms authorized pursuant to this division, applicable to sources or categories of sources, that are designed to reduce emissions of greenhouse gases.

(g) "Greenhouse gas" or "greenhouse gases" includes all of the following gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexaflouride.

(h) "Greenhouse gas emissions limit" means an authorization, during a specified year, to emit up to a level of greenhouse gases specified by the state board, expressed in tons of carbon dioxide equivalents.

(i) "Greenhouse gas emission source" or "source" means any source, or category of sources, of greenhouse gas emissions whose emissions are at a level of significance, as determined by the state board, that its participation in the program established under this division will enable the state board to effectively reduce greenhouse gas emissions and monitor compliance with the statewide greenhouse gas emissions limit.

(j) "Leakage" means a reduction in emissions of greenhouse gases within the state that is offset by an increase in emissions of greenhouse gases outside the state.

(k) "Market-based compliance mechanism" means either of the following:

(1) A system of market-based declining annual aggregate emissions limitations for sources or categories of sources that emit greenhouse gases.

(2) Greenhouse gas emissions exchanges, banking, credits, and other transactions, governed by rules and protocols established by the state board, that result in the same greenhouse gas emission reduction, over the same time period, as direct compliance with a greenhouse gas emission limit or emission reduction measure adopted by the state board pursuant to this division.

(l) "State board" means the State Air Resources Board.

(m) "Statewide greenhouse gas emissions" means the total annual emissions of greenhouse gases in the state, including all emissions of greenhouse gases from the generation of electricity delivered to and consumed in California, accounting for transmission and distribution line losses, whether the electricity is generated in state or imported. Statewide emissions shall be expressed in tons of carbon dioxide equivalents.

(n) "Statewide greenhouse gas emissions limit" or "statewide emissions limit" means the maximum allowable level of statewide greenhouse gas emissions in 2020, as determined by the state board pursuant to Part 3 (commencing with Section 38850).

CHAPTER 4. Role of State Board

38510. The State Air Resources Board is the state agency charged with monitoring and regulating sources of emissions of greenhouse gases that cause global warming in order to reduce emissions of greenhouse gases.

PART 2. MANDATORY GREENHOUSE GAS EMISSIONS REPORTING

38530. (a) On or before January 1, 2008, the state board shall adopt regulations to require the reporting and verification of statewide greenhouse gas emissions and to monitor and enforce compliance with this program.

(b) The regulations shall do all of the following:

(1) Require the monitoring and annual reporting of greenhouse gas emissions from greenhouse gas emission sources beginning with the sources or categories of sources that contribute the most to statewide emissions.

(2) Account for greenhouse gas emissions from all electricity consumed in the state, including transmission and distribution line losses from electricity generated within the state or imported from outside the state. This requirement applies to all retail sellers of electricity, including load-serving entities as defined in subdivision (j) of Section 380 of the Public Utilities Code and local publicly owned electric utilities as defined in Section 9604 of the Public Utilities Code.

(3) Where appropriate and to the maximum extent feasible, incorporate the standards and protocols developed by the California Climate Action Registry, established pursuant to Chapter 6 (commencing with Section 42800) of Part 4 of Division 26. Entities that voluntarily participated in the California Climate Action Registry prior to December 31, 2006, and have developed a greenhouse gas emission reporting program, shall not be required to significantly alter their reporting or verification program except as necessary to ensure that reporting is complete and verifiable for the purposes of compliance with this division as determined by the state board.

(4) Ensure rigorous and consistent accounting of emissions, and provide reporting tools and formats to ensure collection of necessary data.

(5) Ensure that greenhouse gas emission sources maintain comprehensive records of all reported greenhouse gas emissions.

(c) The state board shall do both of the following:

(1) Periodically review and update its emission reporting requirements, as necessary.

(2) Review existing and proposed international, federal, and state greenhouse gas emission reporting programs and make reasonable efforts to promote consistency among the programs established pursuant to this part and other programs, and to streamline reporting requirements on greenhouse gas emission sources.

PART 3. STATEWIDE GREENHOUSE GAS EMISSIONS LIMIT

38550. By January 1, 2008, the state board shall, after one or more public workshops, with public notice, and an opportunity for all interested parties to comment, determine what the statewide greenhouse gas emissions level was in 1990, and approve in a public hearing, a statewide greenhouse gas emissions limit that is equivalent to that level, to be achieved by 2020. In order to ensure the most accurate determination feasible, the state board shall evaluate the best available scientific, technological, and economic information on greenhouse gas emissions to determine the 1990 level of greenhouse gas emissions.

38551. (a) The statewide greenhouse gas emissions limit shall remain in effect unless otherwise amended or repealed.

(b) It is the intent of the Legislature that the statewide greenhouse gas emissions limit continue in existence and be used to maintain and continue reductions in emissions of greenhouse gases beyond 2020.

(c) The state board shall make recommendations to the Governor and the Legislature on how to continue reductions of greenhouse gas emissions beyond 2020.

PART 4. GREENHOUSE GAS EMISSIONS REDUCTIONS

38560. The state board shall adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective greenhouse gas emission reductions from sources or categories of sources, subject to the criteria and schedules set forth in this part.

38560.5. (a) On or before June 30, 2007, the state board shall publish and make available to the public a list of discrete early action greenhouse gas emission reduction measures that can be implemented prior to the measures and limits adopted pursuant to Section 38562.

(b) On or before January 1, 2010, the state board shall adopt regulations to implement the measures identified on the list published pursuant to subdivision (a).

(c) The regulations adopted by the state board pursuant to this section shall achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions from those sources or categories of sources, in furtherance of achieving the statewide greenhouse gas emissions limit.

(d) The regulations adopted pursuant to this section shall be enforceable no later than January 1, 2010.

38561. (a) On or before January 1, 2009, the state board shall prepare and approve a scoping plan, as that term is understood by the state board, for achieving the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions from sources or

categories of sources of greenhouse gases by 2020 under this division. The state board shall consult with all state agencies with jurisdiction over sources of greenhouse gases, including the Public Utilities Commission and the State Energy Resources Conservation and Development Commission, on all elements of its plan that pertain to energy related matters including, but not limited to, electrical generation, load based-standards or requirements, the provision of reliable and affordable electrical service, petroleum refining, and statewide fuel supplies to ensure the greenhouse gas emissions reduction activities to be adopted and implemented by the state board are complementary, nonduplicative, and can be implemented in an efficient and cost-effective manner.

(b) The plan shall identify and make recommendations on direct emission reduction measures, alternative compliance mechanisms, market-based compliance mechanisms, and potential monetary and nonmonetary incentives for sources and categories of sources that the state board finds are necessary or desirable to facilitate the achievement of the maximum feasible and cost-effective reductions of greenhouse gas emissions by 2020.

(c) In making the determinations required by subdivision (b), the state board shall consider all relevant information pertaining to greenhouse gas emissions reduction programs in other states, localities, and nations, including the northeastern states of the United States, Canada, and the European Union.

(d) The state board shall evaluate the total potential costs and total potential economic and noneconomic benefits of the plan for reducing greenhouse gases to California's economy, environment, and public health, using the best available economic models, emission estimation techniques, and other scientific methods.

(e) In developing its plan, the state board shall take into account the relative contribution of each source or source category to statewide greenhouse gas emissions, and the potential for adverse effects on small businesses, and shall recommend a de minimis threshold of greenhouse gas emissions below which emission reduction requirements will not apply.

(f) In developing its plan, the state board shall identify opportunities for emission reductions measures from all verifiable and enforceable voluntary actions, including, but not limited to, carbon sequestration projects and best management practices.

(g) The state board shall conduct a series of public workshops to give interested parties an opportunity to comment on the plan. The state board shall conduct a portion of these workshops in regions of the state that have the most significant exposure to air pollutants, including, but not limited to, communities with minority populations, communities with low-income populations, or both.

(h) The state board shall update its plan for achieving the maximum technologically feasible and cost-effective reductions of greenhouse gas emissions at least once every five years.

38562. (a) On or before January 1, 2011, the state board shall adopt greenhouse gas emission limits and emission reduction measures by regulation to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions in furtherance of achieving the statewide greenhouse gas emissions limit, to become operative beginning on January 1, 2012.

(b) In adopting regulations pursuant to this section and Part 5 (commencing with Section 38570), to the extent feasible and in furtherance of achieving the statewide greenhouse gas emissions limit, the state board shall do all of the following:

(1) Design the regulations, including distribution of emissions allowances where appropriate, in a manner that is equitable, seeks to minimize costs and maximize the total benefits to California, and encourages early action to reduce greenhouse gas emissions.

(2) Ensure that activities undertaken to comply with the regulations do not disproportionately impact low-income communities.

(3) Ensure that entities that have voluntarily reduced their greenhouse gas emissions prior to the implementation of this section receive appropriate credit for early voluntary reductions.

(4) Ensure that activities undertaken pursuant to the regulations complement, and do not interfere with, efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminant emissions.

(5) Consider cost-effectiveness of these regulations.

(6) Consider overall societal benefits, including reductions in other air pollutants, diversification of energy sources, and other benefits to the economy, environment, and public health.

(7) Minimize the administrative burden of implementing and complying with these regulations.

(8) Minimize leakage.

(9) Consider the significance of the contribution of each source or category of sources to statewide emissions of greenhouse gases.

(c) In furtherance of achieving the statewide greenhouse gas emissions limit, by January 1, 2011, the state board may adopt a regulation that establishes a system of market-based declining annual aggregate emission limits for sources or categories of sources that emit greenhouse gas emissions, applicable from January 1, 2012, to December 31, 2020, inclusive, that the state board determines will achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions, in the aggregate, from those sources or categories of sources.

(d) Any regulation adopted by the state board pursuant to this part or Part 5 (commencing with Section 38570) shall ensure all of

the following:
(1) The greenhouse gas emission reductions achieved are real, permanent, quantifiable, verifiable, and enforceable by the state board.
(2) For regulations pursuant to Part 5 (commencing with Section 38570), the reduction is in addition to any greenhouse gas emission reduction otherwise required by law or regulation, and any other greenhouse gas emission reduction that otherwise would occur.
(3) If applicable, the greenhouse gas emission reduction occurs over the same time period and is equivalent in amount to any direct emission reduction required pursuant to this division.
(e) The state board shall rely upon the best available economic and scientific information and its assessment of existing and projected technological capabilities when adopting the regulations required by this section.
(f) The state board shall consult with the Public Utilities Commission in the development of the regulations as they affect electricity and natural gas providers in order to minimize duplicative or inconsistent regulatory requirements.
(g) After January 1, 2011, the state board may revise regulations adopted pursuant to this section and adopt additional regulations to further the provisions of this division.
38563. Nothing in this division restricts the state board from adopting greenhouse gas emission limits or emission reduction measures prior to January 1, 2011, imposing those limits or measures prior to January 1, 2012, or providing early reduction credit where appropriate.
38564. The state board shall consult with other states, and the federal government, and other nations to identify the most effective strategies and methods to reduce greenhouse gases, manage greenhouse gas control programs, and to facilitate the development of integrated and cost-effective regional, national, and international greenhouse gas reduction programs.
38565. The state board shall ensure that the greenhouse gas emission reduction rules, regulations, programs, mechanisms, and incentives under its jurisdiction, where applicable and to the extent feasible, direct public and private investment toward the most disadvantaged communities in California and provide an opportunity for small businesses, schools, affordable housing associations, and other community institutions to participate in and benefit from statewide efforts to reduce greenhouse gas emissions.

PART 5. MARKET-BASED COMPLIANCE MECHANISMS

38570. (a) The state board may include in the regulations adopted pursuant to Section 38562 the use of market-based compliance mechanisms to comply with the regulations.
(b) Prior to the inclusion of any market-based compliance mechanism in the regulations, to the extent feasible and in furtherance of achieving the statewide greenhouse gas emissions limit, the state board shall do all of the following:
(1) Consider the potential for direct, indirect, and cumulative emission impacts from these mechanisms, including localized impacts in communities that are already adversely impacted by air pollution.

(2) Design any market-based compliance mechanism to prevent any increase in the emissions of toxic air contaminants or criteria air pollutants.
(3) Maximize additional environmental and economic benefits for California, as appropriate.
(c) The state board shall adopt regulations governing how market-based compliance mechanisms may be used by regulated entities subject to greenhouse gas emission limits and mandatory emission reporting requirements to achieve compliance with their greenhouse gas emissions limits.
38571. The state board shall adopt methodologies for the quantification of voluntary greenhouse gas emission reductions. The state board shall adopt regulations to verify and enforce any voluntary greenhouse gas emission reductions that are authorized by the state board for use to comply with greenhouse gas emission limits established by the state board. The adoption of methodologies is exempt from the rulemaking provisions of the Administrative Procedure Act (Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code).
38574. Nothing in this part or Part 4 (commencing with Section 38560) confers any authority on the state board to alter any programs administered by other state agencies for the reduction of greenhouse gas emissions.

PART 6. ENFORCEMENT

38580. (a) The state board shall monitor compliance with and enforce any rule, regulation, order, emission limitation, emissions reduction measure, or market-based compliance mechanism adopted by the state board pursuant to this division.
(b) (1) Any violation of any rule, regulation, order, emission limitation, emissions reduction measure, or other measure adopted by the state board pursuant to this division may be enjoined pursuant to Section 41513, and the violation is subject to those penalties set forth in Article 3 (commencing with Section 42400) of Chapter 4 of Part 4 of, and Chapter 1.5 (commencing with Section 43025) of Part 5 of, Division 26.

(2) Any violation of any rule, regulation, order, emission limitation, emissions reduction measure, or other measure adopted by the state board pursuant to this division shall be deemed to result in an emission of an air contaminant for the purposes of the penalty provisions of Article 3 (commencing with Section 42400) of Chapter 4 of Part 4 of, and Chapter 1.5 (commencing with Section 43025) of Part 5 of, Division 26.

(3) The state board may develop a method to convert a violation of any rule, regulation, order, emission limitation, or other emissions reduction measure adopted by the state board pursuant to this division into the number of days in violation, where appropriate, for the purposes of the penalty provisions of Article 3 (commencing with Section 42400) of Chapter 4 of Part 4 of, and Chapter 1.5 (commencing with Section 43025) of Part 5 of, Division 26.

(c) Section 42407 and subdivision (i) of Section 42410 shall not apply to this part.

PART 7. Miscellaneous Provisions

38590. If the regulations adopted pursuant to Section 43018.5 do not remain in effect, the state board shall implement alternative regulations to control mobile sources of greenhouse gas emissions to achieve equivalent or greater reductions.

38591. (a) The state board, by July 1, 2007, shall convene an environmental justice advisory committee, of at least three members, to advise it in developing the scoping plan pursuant to Section 38561 and any other pertinent matter in implementing this division. The advisory committee shall be comprised of representatives from communities in the state with the most significant exposure to air pollution, including, but not limited to, communities with minority populations or low-income populations, or both.

(b) The state board shall appoint the advisory committee members from nominations received from environmental justice organizations and community groups.

(c) The state board shall provide reasonable per diem for attendance at advisory committee meetings by advisory committee members from nonprofit organizations.

(d) The state board shall appoint an Economic and Technology Advancement Advisory Committee to advise the state board on activities that will facilitate investment in and implementation of technological research and development opportunities, including, but not limited to, identifying new technologies, research, demonstration projects, funding opportunities, developing state, national, and international partnerships and technology transfer opportunities, and identifying and assessing research and advanced technology investment and incentive opportunities that will assist in the reduction of greenhouse gas emissions. The committee may also advise the state board on state, regional, national, and international economic and technological developments related to greenhouse gas emission reductions.

38592. (a) All state agencies shall consider and implement strategies to reduce their greenhouse gas emissions.

(b) Nothing in this division shall relieve any person, entity, or public agency of compliance with other applicable federal, state, or local laws or regulations, including state air and water quality requirements, and other requirements for protecting public health or the environment.

38593. (a) Nothing in this division affects the authority of the Public Utilities Commission.

(b) Nothing in this division affects the obligation of an electrical corporation to provide customers with safe and reliable electric service.

38594. Nothing in this division shall limit or expand the existing authority of any district, as defined in Section 39025.

38595. Nothing in this division shall preclude, prohibit, or restrict the construction of any new facility or the expansion of an existing facility subject to regulation under this division, if all applicable requirements are met and the facility is in compliance with regulations adopted pursuant to this division.

38596. The provisions of this division are severable. If any provision of this division or its application is held invalid, that invalidity shall not affect other provisions or applications that can be given effect without the invalid provision or application.

38597. The state board may adopt by regulation, after a public workshop, a schedule of fees to be paid by the sources of greenhouse gas emissions regulated pursuant to this division, consistent with Section 57001. The revenues collected pursuant to this section, shall be deposited into the Air Pollution Control Fund and are available upon appropriation, by the Legislature, for purposes of carrying out this division.

38598. (a) Nothing in this division shall limit the existing authority of a state entity to adopt and implement greenhouse gas emissions reduction measures.

(b) Nothing in this division shall relieve any state entity of its legal obligations to comply with existing law or regulation.

38599. (a) In the event of extraordinary circumstances, catastrophic events, or threat of significant economic harm, the Governor may adjust the applicable deadlines for individual regulations, or for the state in the aggregate, to the earliest feasible date after that deadline.

(b) The adjustment period may not exceed one year unless the

Governor makes an additional adjustment pursuant to subdivision (a).

(c) Nothing in this section affects the powers and duties established in the California Emergency Services Act (Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code).

(d) The Governor shall, within 10 days of invoking subdivision (a), provide written notification to the Legislature of the action undertaken.

SEC. 2 No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because the only costs that may be incurred by a local agency or school district will be incurred because this act creates a new crime or infraction, eliminates a crime or infraction, or changes the penalty for a crime or infraction, within the meaning of Section 17556 of the Government Code, or changes the definition of a crime within the meaning of Section 6 of Article XIII B of the California Constitution.

ATTACHMENT 9

Impact of Wal-Mart Supercenter on a Traditional Supermarket: An Empirical Investigation

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Abstract

Supermarkets operate in an increasingly competitive environment. The rapid growth of alternative retail formats has transformed not only the competitive structure of the industry, but also the way in which consumers shop. The biggest challenge to the industry is coming from none other than the world's largest retailer: Wal-Mart. Although a relatively new player, Wal-Mart through its supercenter format has become the nation's largest grocer and is cited by supermarket managers as their biggest concern in the coming years. Despite the dramatic proliferation of supercenters, relatively little is known about the impact it has on the performance of a traditional grocery store or how it changes consumer buying behavior. This paper provides an empirical study of entry by a Wal-Mart supercenter into a local market. Using a unique frequent shopper database from a supermarket, we study the impact of Wal-Mart's entry on household purchase behavior. The database records purchases for over 10,000 households before and after Wal-Mart's entry. We develop a joint model of inter-purchase time and basket size and allow for a structural break at the time of competitive entry. The model allows us to evaluate the impact of Wal-Mart on household store visit frequency and basket size, while allowing for consumer heterogeneity. We investigate the shopping and demographic characteristics of the consumers that are most likely to shift purchases to Wal-Mart.

Our results show that the incumbent store lost 17% volume–amounting to a quarter million dollars in monthly revenue–following Wal-Mart's entry. Decomposing the lost sales into components attributed to store visits and in-store expenditures, we find that the majority of these losses were due to fewer store visits with a much smaller impact on basket sizes. This in turn suggests that strategies designed to increase store traffic could be quite effective in mitigating losses to Wal-Mart. Interestingly, we find that a small proportion of customers account for a large proportion of the losses. For example, 10% of the households account for 45% of the store's lost revenue, while 20% of the customers account for almost 70% of the lost revenue. In terms of consumer characteristics, we find that distance to store while useful, explains little of the variation in household heterogeneity. Households that respond to Wal-Mart are likely to have an infant and pet in the family, and are more likely to be weekend shoppers. Furthermore, we find that these households are large basket consumers, confirming the findings in Bell and Lattin (1998) that large basket buyers are more likely to choose an EDLP operator. On the other hand, households that spend a large proportion of their grocery expenditures on fresh produce, seafood, and home meal replacement items are less likely to defect to Wal-Mart. Implications and strategies for supermarket managers to compete with Wal-Mart are discussed.

Keywords: Entry, Retail Competition, Wal-Mart Supercenter, Frequent Shopper Data

"The time has come, as everyone knew it would. Wal-Mart, which through its four formats had already been selling more groceries than anyone in America, is now the country's biggest supermarket operator.....racking up $4 billion more in annual sales than former top dog Kroger" (Progressive Grocer, May 2003)

1 Introduction

The role of supermarkets in the grocery retailing industry has undergone dramatic changes over the last decade. Rapid growth of alternative retail formats, in the form of mass discounters, price clubs, and supercenters, has transformed not only the competitive structure of the industry, but also the way in which consumers shop. The biggest threat to the supermarket industry comes from none other than the world's largest retailer: Wal-Mart. In spite of being a relatively new player, Wal-Mart through its supercenter format has already become the number one player in the grocery industry. Patterned after the European hypermarket, supercenter combines a full-line discount store with a full-line supermarket under one roof. These stores carry both general merchandise and food, including groceries and perishables. They also offer a variety of ancillary services such as pharmacy, dry cleaning, hair salon, photo development, and gas stations providing consumers with a true "one-stop shopping" experience. While Meijer and Fred Meyer initiated the supercenter concept as early as 1960, it was only with the arrival of Wal-Mart in the 1990's that this format experienced a systematic growth. For example, in 1993 Wal-Mart operated only 10 supercenters, while in the current counting it has close to 1,400 supercenters. Wal-Mart has also chosen the supercenter format as the vehicle for growth with plans to add up to 200 new supercenters every year for the next five years (Company Website).

For an industry already crowded with many players, there are various reasons why Wal-Mart supercenter poses an extraordinary challenge. As discussed in Section 2 below, Wal-Mart has been able to keep its cost below the industry level, which in turn translates into lower prices for the consumers. Given the razor thin margins in the grocery industry, these everyday low prices are difficult, if not impossible, to match. Indeed, as quoted in a recent Wall Street Journal (27 May, 2003), items at Wal-Mart cost 8% to 27% less than Kroger, Albertsons or Safeway, including discounts from these competitors' loyalty cards and specials. Besides costs, another factor driving the grocery prices down at the supercenter has to do with the main motivation for why Wal-Mart and other discount

stores got into the grocery business in the first place: store traffic. A typical supercenter has only 30% of the area devoted to grocery. According to industry analysts, Wal-Mart offers lower prices on food to bring traffic into the supercenters with the hope of selling higher margin general merchandise, and even has the potential of treating the entire food business as a loss leader. Not surprisingly, Wal-Mart supercenter is seen as a serious menace to the traditional grocery industry with 80% of supermarket managers citing competition from supercenter as their biggest concern in the coming year (National Grocers Association, 2003 Point of Impact Survey).

Despite their unprecedented growth and the threat they pose to traditional grocery industry, relatively little is known how entry of a supercenter in a market changes consumer purchase behavior or what it does to the bottom-line of an incumbent supermarket. While there have been a number business press articles covering this new retail format, they provide little information on the issue. Instead, the commentary has ranged from predictions on extinction of traditional grocery, to general guidelines on how to compete with this new format. Academic research on the other hand, has primarily focused on stores that are similar in terms of their product offerings, and cost structures (Lal and Matutes 1994, Pesendorfer 2000), or on stores that differ only in terms of their pricing formats, i.e., EDLP vs. Hi-Lo (Bell and Lattin 1998, Lal and Rao 1997, Messinger and Narasimhan 1997). With minor exceptions (Fox et al. 2002, Singh 2003), there is limited attention given to alternate retail formats like mass merchandisers or supercenters.

This paper provides an empirical study on the impact of a Wal-Mart supercenter entry on sales of a traditional supermarket. We utilize a unique frequent shopper database that records purchases for over 10,000 households before and after Wal-Mart's entry. Our primary focus in this paper is on changes in consumer purchase behavior following the competitor entry. At the household level, entry of a discount store in the market can influence their buying behavior in several ways. At the two extremes, some consumers may not change their purchase behavior at all, while others may completely abandon the incumbent and defect to Wal-Mart. Yet another group of customers may shift part of their purchases to Wal-Mart while continuing to patronize the incumbent store. For this group, the lost volume can come from three sources: fewer store visits, smaller baskets, or a combination of the two. In this paper, we decompose the total observed losses in sales into components attributed to customer attrition, reduction in store visit frequency, and reduction in basket size. From a managerial perspective, such a decomposition can be quite useful in understanding the source of lost volume, and in developing store level marketing policies. For instance, suppose we find that the lost sales are primarily

because households do not visit the store as frequently as they did prior to Wal-Mart's entry but once in the store, their basket size remains constant. In this case, households split their shopping trips between the incumbent and Wal-Mart. This in turn suggests developing strategies primarily geared towards generating store traffic, for example via feature advertisements. On the other hand, suppose we find that the frequency of store visits remains constant but the basket size is smaller. In this case, the focus should be on in-store merchandising to increase expenditure once the customers are in the store.

A second objective of this paper to explore the heterogeneity in consumer response to Wal-Mart and determine the characteristics of the households that are most likely to respond to Wal-Mart. This heterogeneity in response could be driven by household specific unobserved factors such as a like or dislike of shopping at a discount store. At the same time, it is conceivable that household behavior is also driven by their observed characteristics. For instance, a general finding in the retail site selection literature (Huff 1964, Brown 1989, Craig et. al. 1989, etc.) as well as business press (Progressive Grocer 69th Annual Report, 2002) is that location is one of the most important factor in determining store choice. Similarly, Fox et al. (2003) find that larger households are more likely to frequent mass merchandisers. In this paper, we explore a large set of household specific variables such as distance to the store and demographics, and other variables related to their shopping behavior (for example weekend shopper) and product purchase behavior (for example, proportion of expenditures on fresh seafood, proportion of expenditures on store brands etc.). Note that from a managerial perspective, identifying households based on their observed characteristics can be quite important. For instance, it can allow the retailer to not only target customers with similar characteristics at this store, but also transfer the findings to other store locations where it comes in competition from Wal-Mart (or other stores). Since store opening information is generally available well in advance, preemptive actions can be taken for the households who are at high risk of defection.

The data for this study comes from a store located in a small town in the East Coast region of the US. The sub-urban nature of the store location provides us with an opportunity to measure the impact of Wal-Mart's entry in a relatively controlled environment[1]. The store in question has a well developed frequent shopper program with over 85% of the sales captured on shopper card. The database records all transactions made in the store, and captures information such as time and date of the transaction,

[1]Over 70% of the households in our database own a house and on average, have lived at their current residence for 14 years.

price, promotion, and quantity for every UPC sold. This information is recorded at the individual level for all the customers in the store, provided they use their shopper card. Data are available for a period of 20 months from November 1999 to June 2001. In August of 2000, a Wal-Mart Supercenter entered 2.1 miles from the store. Thus, we observe reasonably long purchase history both before and after Wal-Mart's entry. Another useful information in the database is the mailing addresses for the card holders. These addresses were geo-coded to compute travel distance for each household to the incumbent store, and to Wal-Mart. In addition, we also created a number shopping related variables such as weekday versus weekend shopper, store-brand buyer, etc. that could potentially be useful in characterizing the households. Finally, we supplement the data with block level demographic variables.

To evaluate Wal-Mart's impact on consumer purchase behavior, we develop a joint model of inter-purchase time and basket size. While a popular approach to model inter-purchase time used in the marketing literature is the proportional hazard model in continuous time (for example, Jain and Vilcassim 1991), it has the limitation of only accounting for marketing mix and other covariates when an event occurs (for example, a purchase is made). On the other hand, a discrete-time approach (Gupta 1991, Wedel et. al. 1995) can explicitly account for the covariates in periods where households do not make a purchase. We take a discrete-time approach and model household store visit decision using a discrete choice framework with time-varying coefficients. These time-varying coefficients capture the duration dependence embodied in consumers' choice process. The model, based on an underlying utility maximizing framework, can be interpreted as a hazard model (Seetharaman et al. 2003). Besides accounting for the full time path of the covariates, this modeling approach has the advantage of allowing for non-proportional hazards – a feature which, as shown in section 5, is empirically relevant for our data.

Consumer's in-store expenditures are modeled using a semi-log specification which has been used extensively in marketing (See for example, Blattberg and Neslin 1989). Both these household decisions (store visit and in-store expenditure) are modelled jointly and Wal-Mart's impact on these decisions are captured by allowing for a structural break at the time of competitor entry. The model also allows for consumer heterogeneity, which is captured by using a hierarchical structure. In particular, the full set of model parameters are allowed to vary across consumers due to both observed (e.g. demographics) and unobserved factors.

For inference, we use a hierarchical Bayesian approach. In particular, we use a Markov Chain Monte Carlo procedure to simulate the posterior distribution of the model param-

eters and to compute household level estimates of preferences. As discussed in Allenby in Rossi (1999), Bayesian procedures are well suited when one is interested in making inference at the individual level.

Our results show that the incumbent store lost 17% volume–amounting to a quarter million dollars in monthly revenue–following Wal-Mart's entry. The magnitude of the lost sales is quite alarming considering that supermarkets generally operate on a principle of low margins and high volume, with profit margins of only about 1%. Decomposing the lost volume into store visits and in-store expenditures, we find that the majority of the losses came due to fewer store visits with little impact on the basket size once consumers are in the store. This is an important finding as it suggests that strategies designed to drive store traffic could be an effective way for recovering some of the lost volume. Interestingly, we find that a small proportion of customers account for a large proportion of the losses. For example, 10% of the households account for 45% of the store's lost revenue, while 20% of the customers account for almost 70% of the lost revenue. In terms of consumer characteristics, we find that distance to store while useful, explains little variation in household heterogeneity. Households that respond to Wal-Mart are likely to have an infant and pet in the family, and are more likely to be weekend shoppers. Similarly, store-brand buyers have a higher likelihood of moving purchases to Wal-Mart, while households that spend a large proportion of their grocery expenditures on fresh produce, seafood, and home meal replacement items are less likely to so. Finally, we find that the households that respond to Wal-Mart are large basket consumers, confirming the findings in Bell and Lattin (1998) that large basket buyers are more likely to choose an EDLP operator. Using a holdout sample, we find that these shopper characteristics can be quite useful in identifying potential defectors to Wal-Mart.

This research makes several contributions to marketing theory and practice. Foremost among these is that the we provide an empirical analysis of the impact of Wal-Mart supercenter entry on a traditional retailer. Given the dramatic changes taking place in the retail industry, results from the study should be of interest to both academics and practitioners. The research is also salient to the growing body of literature focusing on customer management. For instance, our findings that small proportion of customers account for a large proportion of store losses give credence to the contention in the CRM literature on the importance of customer retention. Similarly, our analysis demonstrates how a retailer can exploit the information contained in their frequent shopper database to understand and respond to their most valuable customers. This is a vital topic because although the information contained in frequent shopper databases is commonly assumed

to be valuable, many retailers are struggling to leverage this information. The potential difficulty of converting data into valuable marketing strategies is illustrated by the case of Safeway PLC (UK) which abandoned its customer card program citing a potential saving of $80 million per year in administrative costs. Thus, a secondary objective of this study is to shed some light on the potential uses of the purchase history information, especially in the face of competition.

The rest of the paper is organized as follows. The next section provides a brief overview of the supercenter format, including suggestions made in the business press to counter Wal-Mart. The data used in the study is presented in Sections 3. Section 4 develops a joint model of interpurchase time and basket size and the empirical results from the model are presented in Section 5. In section 6 we explore various household characteristics that can be useful in identifying potential defectors to Wal-Mart. We conclude in section 7 with a discussion on limitations of the current study and directions for future research in this area.

2 The Supercenter Format[2]

In this section we provide a brief overview of the supercenter format. We discuss the motivation of discount stores to get into the grocery business, the challenges this format presents to supermarkets, and solutions suggested by some industry analysts. Since this format has received limited attention in the academic literature, our discussion is primarily drawn from the business press.

Supercenters, which average 180,000 square-feet, are retail stores that combine a discount department store with a full service supermarket. They offer a wide variety of general merchandise and food items, including meat, produce, deli and other perishables. In addition, many include ancillary services such as pharmacy, dry cleaning, vision center, Tire and Lube Express, hair salon, income tax preparation (in season) and so forth, providing consumers with a true "one-stop shopping" experience. While Meijer and Fred Meyer started this format as early as 1960's, it is only with the arrival of Wal-Mart that this format has shown a dramatic growth. The first Wal-Mart supercenter was opened in 1988 and in 1993, the company operated only 10 such stores. With 192 supercenters added in 2002, the company has close to 1,400 supercenters in the current counting. This unprecedented march by Wal-Mart into the grocery business is taking

[2]We shall limit our discussion primarily to Wal-Mart. Both Target and K-Mart have their own version of supercenter, but Wal-Mart is by far the biggest player in the industry.

its toll along the way. According to the 2002 "Channel Blurring " study by ACNielsen, since 1999, consumer visits per year to supermarkets were down 12 percent while visits to supercenters went up 40 percent. The pressure from Wal-Mart is being felt by national chains and independents alike. In the past decade, 29 chains have sought bankruptcy-court protection, with Wal-Mart as a catalyst in 25 of those cases (The Wall Street Journal, May 27, 2003).

Transition to Grocery:

What motivated Wal-Mart to enter the grocery business? There are a number of reasons cited for the move including change in the top management and arrival of David Glass as the CEO (who had a background in grocery business). Furthermore, by the late 80's, the discount retail industry was close to saturation, and was highly concentrated with three major players: Wal-Mart, K-Mart, and Target. Supermarket industry on the other hand, was highly fragmented with small to medium sized regional chains. While this industry structure facilitated the transition to grocery, the main motivation for Wal-Mart's venture into the industry was store traffic. Indeed, industry experts believe that Wal-Mart is using food as mainly a traffic driver, with the hope of spillover to higher margin general merchandise items (that account for 65-70% of supercenter sales). The strategy seems to be working, with some reports suggesting that the general merchandise sales are 25%-50% higher at a supercenter than that of discount stores in the same area (or after conversion of a discount store to supercenter)[3]. The supercenter format has been so successful that Wal-Mart has chosen this path for expansion with plans of adding 200 supercenters every year for the next five years (Company Website). According to Trade Dimensions, with the current growth rate, over three-fourth of Kroger and Albertsons stores would be within 10 miles of a Wal-Mart supercenter within this decade.

Pricing at Wal-Mart:

A general consensus in industry reports is that the prices at Wal-Mart supercenter are about 15% lower[4]. Besides the store traffic considerations discussed above, there are several other cost related factors driving the prices down at Wal-Mart. Foremost, Wal-Mart's size gives the company several advantages over smaller competitors, including bargaining power with the manufacturer, and economies of scale in distribution systems. Furthermore, Wal-Mart's large size allows the company to bypass the wholesalers with majority of the merchandise at the supercenters, including perishables, supplied through

[3]"The U.S. Market for Supermerchants: Warehouse Clubs and Supercenters", 1997, report by Packaged Facts

[4]The WSJ article cited above quotes 8% to 27% lower prices at supercenters. A Time Magazine article "Can Wal-Mart get any bigger" (Vol. 161, issue 2, 2003) reports 15% lower prices.

store. The location of the focal store is shown by the large star while the location of Wal-Mart is shown by the large square. On average, consumers live about 3.5 miles from the focal store and 4.8 miles from Wal-Mart[10]. As is evident from Figure 1, a large number of the customers are clustered around the focal store. However, despite the apparent proximity, over one-third of the 10,000 best customers considered in our analysis live outside the 3 mile radius (considered as the trading area of a typical grocery store).[11] In our empirical application, we tried several specifications for incorporating distance including defining census tract neighborhoods, and linear and quadratic distance terms as suggested in the Hotelling type theoretical models.

The addresses were also used to collect a variety of census block-group demographic data. In general, we find significant variation in household demographics. For instance, the median income level in the block-group ranges from a low of $8,700 to a high of over $105,000. Similarly, certain block-groups are characterized by very young customers (median age of 19) while other have a median age of over 66. Details on the demographic data as well as their usefulness in determining the likely reaction to Wal-Mart entry are discussed in section 6 below.

3.2 Pricing Environment

As discussed above, the database records the price and promotion information for every UPC sold in the store. We expect these marketing mix variables to influence various household decisions such as decision to visit the store and basket size once in the store. However, creating variables to capture the overall store-pricing environment is a non-trivial task. The store carries over 50,000 unique UPCs that are classified into several hundred categories. Furthermore, unlike the packaged goods typically used in marketing, several of these products (for example in produce and meat departments) do not carry a fixed UPC bar code that remains constant over time. Instead, these products are assigned a temporary code that changes from week to week. This makes the task of creating a price series for these products very difficult, if not impossible. The matter is further complicated by different price reactions by the incumbent to Wal-Mart's entry in

[10]These numbers are based on a straight line distance. While one would prefer to use travel times rather than distance, there is some evidence that straight line distance is a good proxy for actual travel time. For example, Phibbs and Luft (1995) find a correlation of .987 between straight line distance and travel time, although this correlation drops to .826 for distances below 15 miles. Note also that our distance variable is more accurate than that used in previous research that have used the centroid of the zip code in which the household is located to compute distances (e.g. Bell, Ho and Tang 1998).

[11]66% of the households live within the 3 mile radius of the focal store and 78% live within a 5 mile radius.

various product categories. In Figure 2 we plot the pricing series three products: Banana, Gallon of store brand spring water, and loaf of Italian bread. It is evident that the initial reaction in the Banana is to match the 39 cents/lb price of Wal-Mart with occasional 25 cent/lb promotions[12]. Over time the prices went back to 59 cents/lb. The strategy followed in the other two products is quite different. In spring water, the store seems to have moved from a Hi-Lo pricing to an EDLP pricing strategy, while the situation is reversed in Italian bread[13].

Given the above mentioned complexities, any measure to capture the overall store price environment in any given week would be an approximation at best. Our strategy is therefore to rely on aggregate measures that are designed to proxy the overall price environment of the store on a given week. In particular, we constructed promotion indexes for the 5 major departments– Grocery, Health and Beauty (HBC), General Merchandize (GM), Produce, and Meat. These measures were constructed as follows: for each department and each price cycle (prices are set every Sunday on a weekly basis) we aggregated the dollars off the regular price for every product falling in that department. For instance, suppose the produce department consists of the following 3 products with regular and promoted price as: Banana ($0.55/lb, $0.45/lb), Broccoli ($1.39/lb, $1.39/lb) and Red grapes ($1.00/lb, $0.90/lb). The promotion index for produce in that week would be $0.20. We take this as a proxy for the department level promotions. In addition, we also experimented with various measures of basket price (for instance, a sum of the price for the top 100 products). However, these measures revealed little variation over time. Table 2 shows that the average promotions in every department increased after Wal-Mart's entry. Not surprisingly the department with the largest promotional volume is Grocery. Note also that the promotional indices exhibit a good amount of variation over the sample period, ranging from 20 percent of the mean value for groceries to about 75 percent of the mean value for meat.

3.3 Store Sales

Figure 3 shows the daily store sales, store traffic (i.e., number of transactions per day), and the average basket size over the sample period. The entry of Wal-Mart is indicated

[12]Price of .39 cents/lb of banana is a heavily advertised item at Wal-Mart supercenter in their advertisements as well as in-store special displays.

[13]Our discussions with the store manager did not reveal any particular insight in the matter. It seemed that the store was experimenting with different pricing schemes. However, the store manager did indicate that the focus post-Wal-Mart entry had shifted on emphasizing the fresh produce, seafood, meat, and deli items–a point that we return to in section 6 below.

by the vertical line. The two spikes early on in the data and around day number 400 are the Thanksgiving and Christmas weeks. Two key observations from the figures must be highlighted. First, there seems a significant fall in the baseline volume for the incumbent store. This is particularly troubling considering that supermarkets generally operate on a principle of low margins and high volume, with profit margins of only about 1%. Second, looking at the graphs for the store visits and basket size, it seems that a large proportion of the lost revenues at the store level are due to fewer store visits, with little change in the average basket size. To formalize and test this at the household level, we next describe a model that captures the two fundamental household decisions: decision to visit the store and basket size once at the store. The model also allows for heterogeneity across households due to both observed and unobserved factors.

4 Model

In this section we develop a model to evaluate the impact of Wal-Mart's entry on household purchase behavior. As discussed above, entry by a competing store is likely to result in lost volume for the incumbent store. Suppose we define volume as total expenditure for all households shopping at the store over a period of a certain length, e.g., T days. Let V be store volume for this period before Wal-Mart's entry and V^W store volume after entry. A casual method to evaluate the overall impact of Wal-Mart's entry is then to estimate the expected value of quantities like $\Delta_1 \equiv V^W - V$, $\Delta_2 \equiv (V^W - V)/V$ or $\Delta_3 = \log V^W - \log V$. These quantities can be estimated by simply comparing before-after averages of observed store volume. However, there are (at least) three shortcomings of this approach. First, it is important for the incumbent to understand the source of these lost sales in terms of longer interpurchase times and smaller baskets. Second, the impact of Wal-Mart's entry is likely to be different across consumers due to both observed (such as demographics) as well as unobserved factors. It is crucial for the store to understand what "types" of consumers/households display the biggest change in store expenditure and what the causes are. In other words, if a given household reduces its store expenditure over a certain period after Wal-Mart's entry, is this due to longer interpurchase times (i.e., fewer trips per period) or smaller basket size per trip, or a combination of the two? Finally, if the store environment changes after Wal-Mart's entry, e.g., pricing and promotion strategies change, then it is important to control for these changes. For example, if the store promotes more aggressively after Wal-Mart's entry, the promotion effect will be confounded with the pure Wal-Mart effect. Table 2 shows that this is indeed

the case in the sample.

To overcome the shortcomings described above, we start by decomposing overall store volume as

$$V = \sum_{h=1}^{H} e_h, \tag{1}$$

where e_h is household h's store expenditure over a period of length T. This can in turn be decomposed as

$$e_h = \sum_{t=1}^{T} d_{ht} b_{ht}, \tag{2}$$

where d_{ht} is equal to one if the store is visited on day t of the period and b_{ht} is the basket size of the trip. The total number of trips over the period for household h is

$$nt_h = \sum_{t=1}^{T} d_{ht}. \tag{3}$$

Letting a superscript "W" denote quantities post Wal-Mart entry, and letting x_t denote variables describing store environment we can now define "pure" Wal-Mart effects at the individual and aggregate level by holding x_t fixed. For example,

$$\mathrm{E}[nt_h^W|x_t] - \mathrm{E}[nt_h|x_t], \quad \text{and} \quad \mathrm{E}[\log b_{ht}^W|x_t] - \mathrm{E}[\log b_{ht}|x_t], \tag{4}$$

is the expected change in number of trips per period and expected change in log basket size per trip for household h, holding x_t fixed.

4.1 Interpurchase Time and Basket Size

We model the two consumer decisions jointly using a flexible model of inter-purchase time (to capture when to visit the store) and semi-log regression (to capture basket size once at the store) and allow for a structural break at the time of competitor entry. Heterogeneity across households is captured by using a hierarchical structure where the parameters are allowed to vary across consumers due to both observed and unobserved factors.

Over the past two decades, a number of models have been proposed to capture the purchase-timing decisions of households (see Seetharaman and Chintagunta 2002 for a recent review). A majority of the empirical studies in marketing have used the proportional hazard model (proposed by Cox 1972) to characterize the purchase timing behavior of households either in continuous time (Jain and Vilcassim 1991, Chintagunta and Halder 1998 etc.) or discrete time (Gupta 1991, Helsen and Schmittlein 1993, Wedel et. al. 1995). An advantage of the discrete time approach is that it explicitly accounts

for marketing mix and other covariates in periods where household do not make a visit. For instance, in the current application, it may be important to take into account the marketing mix variables on not only the purchase occasions but also the periods where households decide not to visit the store.

Our approach in this paper is to employ a discrete choice framework with time-varying coefficients to capture the duration dependence embodied in consumers' choice process. An advantage of using this approach is that we can use a very flexible specification for duration dependence that allows us to approximate any shape of the household specific hazard function. In proportional hazard models, like those typically used in the literature, the impact of any covariate is to shift the baseline hazard up or down proportionately. Our specification is more flexible and allows for non-proportional hazard funtions.

We take a discrete-time approach and use "days" as the basic time unit[14]. In each time period the individual decides on whether or not to visit the store and make a purchase.[15] Let $U_i(t)$ be (indirect) net utility for individual i of making a purchase from the store in period t. Assume that

$$U_{it} = \beta_{i0}' f(\tau_{it}) + \beta_{ip}' p_t + \varepsilon_{it}, \qquad t < T_W \tag{5}$$

where T_W refers to the time periods before Wal-Mart's entry, τ_{it} is time since last purchase, ε_{it} is iid standard normal, and $f(\cdot)$ is some known vector function which can be made as as flexible as desired. For instance, we could have $f(\tau_{it}) = \left(1,\ \tau_{it},\ \tau_{it}^2, \ln \tau_{it}, \ldots\ldots\right)'$. p_t is a vector of time-varying covariates affecting utilities and includes time varying marketing mix variables such as price and promotion for the incumbent store.[16]

Define D_{it} as one when $U_{it} > 0$ and zero otherwise. The probability of purchase at time t conditional on last purchase τ_t days ago is

$$\Pr(D_{it} = 1|\beta_i, \tau_{it}, p_t) = \Phi\left(\beta_{i0}' f(\tau_{it}) + \beta_{ip}' p_t\right). \tag{6}$$

This is the hazard rate induced by (5) and captures the notion of individual specific hazard. The model in (5) implies a model for purchase times. Suppose we observe a purchase duration of length t_1, followed by a purchase duration of t_2. Stacking all the

[14] Most marketing applications using discrete hazard models have assumed *week* as the unit of analysis. The primary motivation for the assumption is that the marketing mix variables change on a weekly basis. However, in our sample, over one-third of the households visit the store more than once a week.

[15] Like most other marketing data sets, we observe a store visit only if a purchase is made.

[16] Note that by interacting τ_{it} with P_t we can allow for more general duration dependence, e.g., capture the notion that promotions' effectiveness depends on time since last purchase.

right hand side parameters and variables as (X_{it}, β_i),these durations then have likelihood

$$\Pr(T_{i1} = t_1, T_{i2} = t_2 | \beta_i, X_i^{t_1+t_2}) = \left\{ \prod_{t=1}^{t_1-1} \Pr(D_{it} = 0 | X_{it}, \beta_i) \right\} \times \Pr(D_{it_1} = 1 | X_{it_1}, \beta_i) \times \left\{ \prod_{t=t_1+1}^{t_1+t_2-1} \Pr(D_{it} = 0 | X_{it}, \beta_i) \right\} \times \Pr(D_{i,t_1+t_2} = 1 | X_{i,t_1+t_2}, \beta_i). \tag{7}$$

where $X_i^{t_1+t_2}$ is the entire path for the covariates: $X_i^{t_1+t_2} = \{X_{it}\}_{t=1}^{t_1+t_2}$.

Post Wal-Mart entry, the utility is assumed to be:

$$U_{it} = (\beta_{i0} + \beta_{i0,W})' f(\tau_{it}) + \beta'_{ip} p_{it} + \varepsilon_{it}, \qquad t > T_W, \tag{8}$$

where $\beta_{i0,W}$ captures the impact of competitor entry.[17]

To model the basket size once the household is in the store, we use a semi-log specification which has been used extensively in marketing for modeling sales and expenditures (see for example, Blattberg and Neslin 1989). In particular, let b_{it} be log expenditures for household i in time period t (which is zero unless $U_i(t) > 0$). If a store visit is made at time t, the pre-entry log basket size b_{it} is assumed to be

$$b_{it} = \lambda_{i0} + \lambda_{ip} p_t + \lambda_{i\tau} \tau_{it} + \varepsilon_{e,it}, \qquad t < T_W, \tag{9}$$

where p_t is the marketing mix environment on store visit t. The parameter $\lambda_{i\tau}$ captures the impact on basket size due to the recency of the previous visit. In general, we would expect a smaller basket size if the customer had visited the store recently. Finally, we assume $\varepsilon_{e,it} | v_i \sim \mathrm{N}(0, v_i^{-1})$. Post Wal-Mart entry, the log basket size is modelled as:

$$b_{it} = (\lambda_{i0} + \lambda_{iW}) + \lambda_{ip} p_t + \lambda_{i\tau} \tau_{it} + \varepsilon_{e,it}, \qquad t \geq T_W. \tag{10}$$

where λ_{iW} captures the impact of Wal-Mart on the basket size.

4.2 Heterogeneity

Since we expect different households to react differently to Wal-Mart's entry, it is important to account for consumer heterogeneity in the model parameters. Furthermore, we

[17]More advanced specifications can easily be entertained. For example, it is possible to allow for change in sensitivity to marketing mix variables by letting $\beta_{ip} + \beta_{ip,W}$ be the new sensitivity vector after entry. Another generalization is to allow for both a short run and long run effect of Wal-Mart. This can be accomplished by adding a short-run dummy to the specification, e.g., a dummy equal to one in the first 60 days after entry. This could capture "curiosity effects" which differ from the long run effect.

also expect the responses by households to be related to their observed characteristics such as demographics. In this paper we use a parametric approach to model household heterogeneity. The model parameters are allowed to vary across households due to both observed and unobserved factors. Let $\theta_i = (\beta_i, \lambda_i)$ be the full vector of coefficients from the purchase timing and expenditure equations discussed above. We assume that θ_i follows a multivariate normal distribution with a mean vector ΠZ_i and covariance matrix Ω:

$$\theta_i | \Pi, Z_i \sim \mathrm{N}(\Pi Z_i, \Omega), \tag{11}$$

where Z_i is a vector containing household characteristics. For ν_i we assume a Gamma distribution $G(\nu_i | a, b)$ with parameters (a, b).

For inference, we use a hierarchical Bayesian approach. In particular, we use a Markov Chain Monte Carlo procedure to simulate the posterior distribution of the model parameters and to compute household level estimates of preferences. As discussed in Allenby in Rossi (1999), Bayesian procedures are well suited for these models especially when one is interested in making inference at the individual level. Since these procedures have become quite standard in the literature, we outline the estimation algorithm in the appendix.

Using the estimated model we can simulate expenditures over a certain period (e.g., a month) and break expenditures down into number of trips and basket size, both at the household level and at the store level. We can do this holding promotions fixed to estimate causal Wal-Mart effects. We can also simulate the effects of various targeted promotion policies and gauge to what extent these can be used by the store to fight Wal-Mart.

5 Estimation Results

We estimated the model described above using the algorithm outlined in the appendix. The marketing mix vector p_t consisted of the five promotion variables discussed above.[18] The function f was, after some experimentation, specified as

$$f(\tau_{it}) = (1\ , 0.1\tau_{it}\ , 0.01\tau_{it}^2\ , 1/\tau_{it}), \tag{12}$$

where the scaling in the second and third element is to stabilize estimated coefficients. This specification allows for a wide range of different hazard shapes.

[18]The promotion variables were each normalized to have mean 1 over the estimation period. The standard deviation for the normalized promotional indices were 0.57 (produce), 0.75 (meat), 0.36 (hbc), 0.47 (general merchandise) and 0.19 (grocery).

The variables included in the second stage of the hierarchical model (11) was $Z_i = \{D^r_{ji}\}_{i=1}^n$, where D^r_{ji} is equal to 1 if household i is located in census tract region j. The average composition of household characteristics as well as average distance to the focal store and Wal-Mart distance by region is shown in table 3. The regions show considerable variation in both distance and average income, ranging from regions very close to the store (region 15, 10 and 17) to regions close to Wal-Mart (region 18) to regions far away from both stores (e.g., region 13). Note that while demographics are only available to us at a block-group level, we do have the exact distances to the two stores at the household level. Standard specifications of models of site choice typically include distance (and sometimes distance squared) to each site as an approximation of travel costs. While we could follow this approach, we chose the dummy specification for several reasons. First, the correlation between distance to the focal store and distance to Wal-Mart is .96 in our sample.[19] This makes it impossible to estimate two separate distance effects. Second, we use a fairly fine grid of regions in our dummy specification and this provides us with a clean "non-parametric" estimate of the distance effects. Finally, the dummy specification allows us to capture other census tract-specific characteristics apart from distance (income, age, education etc.).

In Table 5 we report estimates of the hierarchical coefficients Π and the diagonal elements of Ω in (11) for the coefficients relating to the store trip model (5) and (8). Recall from above that the Z-variables in the model are dummies for 19 different residential regions. So the dummy coefficient estimates may be interpreted as the mean coefficient for the corresponding region. It is evident that there is variability in mean coefficients across regions, implying that the mean store visit frequency varies across region. Since it is hard to directly interpret the coefficients to the variables which are functions of τ ("time since last purchase"), we plot the implied distributions of store visit times. Figure 4 plots the distribution of inter-store-visit times prior to Wal-Mart's entry for the three regions 3, 9 and 15.[20] Note from table 3 that region 15 is located only 0.39 miles from the store, while region 3 is located 7.69 miles from the store. Region 9 is in between – located 2.16 miles from the store. It is evident from the figure that store distance is an important factor in determining the average inter-store-visit times in a region. As

[19]The reason for this is obvious: Since the households live in a wide area around the two stores, distances will tend to be correlated. While one could alleviate this problem to some extent by restricting the sample to households living in a small radius around the two stores, this will throw away a substantial part of the sample. We are specifically interested in solving the problem facing the retailer and so we will not artificially restrict the sample.

[20]These distributions were computed holding the promotional indices fixed at their in-sample mean value.

expected, longer distance to the store implies longer average inter-store-visit times. All promotion coefficients are either positive or (not significantly different from) zero. An increase in all promotion indices by one standard deviation increases the latent index in the duration model (i.e., mean utility value in (5)) from .027 for region 1 to .062 for region 4. By computing the expected number of visits per households under the two promotional levels, these coefficients translate into an overall effect on aggregate monthly store visits equal to 6.7%.

In Figure 5 pre- and post-Wal-Mart distributions of inter-store-visit times are displayed for regions 15 and 18. As noted above region 15 is located only 0.39 miles from the store while region 18 is the region closest to Wal-Mart (households in region 18 has an average distance to the store equal to 2.27 miles and an average distance to Wal-Mart equal to 0.82 miles). The average inter-store-visit time increases for both regions after Wal-Mart's entry (since probability mass shifts from smaller duration times to larger). However, the Wal-Mart effect is clearly much stronger for region 18 – the region closest to Wal-Mart.

As noted above, our estimation procedure also gives us a set of household level coefficient estimates (for example, the posterior mean of θ_i for each household). Figure 6 shows the effects of a promotion on the estimated hazard for household nr. 3572 in the sample. For the first hazard in Figure 6(a) (labelled "Low Promotion") the promotional indexes is equal to 1. For the second hazard (labelled "High Promotion") the promotional indexes are all increased by one standard deviation. As expected the "High promotion" hazard shifts up – implying a reduced expected inter-store-visit time (Figure 6(c)). Figure 6(b) shows the ratio of the hazards in Figure 6(a). If the proportionality assumption assumed for standard proportional hazard models were satisfied this ratio should be independent of time, i.e., a straight line. Clearly, this is not the case. This demonstrates the value of the non-proportionality assumption. In addition, we can easily simulate the effects of different time-paths for the promotional variables.

Table 6 shows estimates for the basket size equation (9) and (10). There is substantial variation in the average basket size across regions (as reflected in the intercept). The coefficient to the Wal-Mart dummy is negative for all regions and may be interpreted as the average percentage drop in basket size after Wal-Mart's entry (holding promotions constant). The effect varies from 3 to 10 percent. The smallest change in found in region 15 (the region closest to the store) while the biggest effect is for region 18 (the region closest to Wal-Mart). The coefficient to τ (time since last purchase) ranges from 1 to 2 percent. So the basket size on average increases by about 1-2 percent per day since last

purchase. An increase in all promotion indices by one standard deviation increases the basket size from 1.3% for region 1 to 5% for region 2 and 18.

The above results indicate that both store visit duration times and basket sizes are affected by Wal-Mart's entry and that average effects vary by region. To quantify the combined effect of entry on duration times and basket size by region, we simulated expected monthly expenditure for each household pre- and post-Wal-Mart entry using the household level estimates, again holding the promotion level fixed. This amounts to computing the expected value of (2) for $T = 30$ for each household, before and after Wal-Mart's entry. In Figure 7 and 8 the resulting distribution of relative change (i.e., percentage change) (Figure 7) and absolute change (Figure 8) in mean expenditure is shown. The average effect for the whole sample was minus 19 percent for the relative change distribution (shown by the plus sign in the figure) and minus $25 for the absolute change distribution. The overall effect (the sum of all effects in Figure 8) is -$244,405. This amounts to 17% of the pre-Wal-Mart monthly store volume. However, both figures show a wide distribution around this mean (ranging from about minus to plus 100 percent change for the relative change distribution and from about minus $350 to $150 for the absolute change distribution). How much of this variation can be explained by regional characteristics? In table 7 we show the overall effect on average monthly expenditure by region as well as the effect on monthly number of trips and basket size. For example, the average percentage change of households' monthly expenditure in region 1 was minus 24 percent. This drop came about in part from an average reduction in number of trips per month equal to 20 percent. The average drop in basket size for region 1 was 6 percent[21]. Table 7 shows that the average effect of entry on monthly expenditure varies from minus 15 percent (for region 6 and 17) to minus 37 percent (for region 18). The average effect for all regions is, as noted above, minus 19 percent. The main cause of the change in expenditure is a reduction in the number of trips per month. Compared to trip frequency the drop in basket size is small. Table 7 shows another important feature of the Wal-Mart-effect distribution: The regional mean is associated with a substantial amount of within regional variation. This should come as no surprise in light of the results shown in Table 5 and 6: the amount of total variation in heterogeneity explained by the regional dummies (shown in the column labeled "Z-fraction") ranges from 1 to 6

[21]For this exercise, the basket size at the household level was calculated as $bsize = \mathrm{E}[V|\hat{\theta}_h]/\mathrm{E}[nt|\hat{\theta}_h]$, where V is monthly expenditure, nt is number of trips in a month and $\hat{\theta}_h$ is the household level estimate for household h. Since this is a non-linear function of expected expenditure and expected number of trips, the percentage change in number of trips and basket size will not necessarily add up to the percentage change in expenditure.

percent for the duration model and from 1 to 10 percent for the basket model. So we should not expect to be able to explain the variation in the Wal-Mart effect very well by the regional dummies as is evident by the large amount of with-in cell variation in Table 7. We can conclude that while mean effects do vary across regions, there is still a considerable amount of unexplained variation left.

The above results indicate that it is hard to predict which households are affected the most by Wal-Mart's entry using households' neighborhood characteristics only (such as store distance and Wal-Mart distance). This raises the obvious question of how one might then explain the variation in Wal-Mart effects. As a start, we can dig deeper into the distribution of entry effects. Figure 7 and 8 show a considerable amount of heterogeneity in entry effects. To probe deeper, we define the total entry effect as the change in monthly expenditure for all households and decompose it as follows:

$$\text{entry effect} = TL_- + TL_+ \equiv \sum_{h:\Delta_h<0} \Delta_h + \sum_{h:\Delta_h>0} \Delta_h, \tag{13}$$

where Δ_h is the change in expected monthly expenditure for household h. The total loss is the sum of those households' expenditure change which is negative plus the sum of those which is positive. The total entry effect is ,as mentioned above, $-\$244,405$, while TL_- is $-\$289,429$. A natural question is to what extent a small fraction of households are responsible for the majority of TL_-. Figure 9 shows the "Lorenz curve" for the effects distribution for those households who contribute to TL_-. This figure confirms that the lower tail of the effects distribution contributes a substantial amount to the overall effect. In particular, the bottom 10 percent of households in the effects distribution is responsible for about 30 percent of TL_- (and 45 percent of the total store losses). The bottom 20 percent is responsible for about half of TL_- (69% of total store losses). This suggests that – as a beginning – it might be of interest to try to profile the households in the very left tail of the effects distribution.

6 Profiling the Defectors to Wal-Mart

In the previous section we found that distance to the store (based on the regions that household live in) while useful, explain little variation in heterogeneity of response. We also found that a small proportion of households seem to account for a large proportion of the observed losses at the store level. In this section we explore the extent to which the households that respond most to Wal-Mart can be profiled based on their parameter estimates (such as promotion sensitivity) and other observed household characteristics.

Note that from a managerial perspective, such profiling of households that respond to Wal-Mart can be quite important. For instance, it can allow the retailer to not only target customers with similar characteristics at this store, but also transfer the findings to other store locations where it comes in competition from Wal-Mart (or other stores). To be more specific, consider the problem of identifying the consumers that are at high risk of defection at a different location where a Wal-Mart is scheduled to open in the next few months. To take findings from the experience of this store to the new location, it is important to not only identify the households based on their individual card numbers or the region they live in, but to also map these households on some actionable demographic or other characteristics, which then becomes the basis of identifying potential defectors at the new location. Since store opening information is generally available well in advance, it can allow the retailer to take preemptive actions for the households who are at high risk of defection.

6.1 Household Level Parameter Estimates

We test the extent to which household level coefficients of the model described above is informative about the Wal-Mart effect on store expenditure using the following:

- Pre-Wal-Mart basket size (as reflected in the intercept of the log-basket equation λ_{i0} in (9))
- Pre-Wal-Mart trip frequency (a function of the parameters in the duration model),
- Pre-Wal-Mart monthly expenditure (a function of both the basket and duration model) and
- Promotional sensitivity.

In Figure 10(a) we show the average value of each of these four measures by decile of the effects distribution. For example, Figure 10(a) shows the average value of the log basket size intercept for each decile of the effects distribution. A strong relationship between location in the effects distribution and basket size is evident: The average log basket size for households who are associated with the largest loss to the store (the 0-10% group) is the biggest of all. The average log basket size falls roughly linearly with decile (though the average intercept increases slightly for the 90%-100% group). The trip frequency plot (fig. 10(b)) is U-shaped, implying that both the far left tail and right tail of the effects distribution have higher trip frequencies than the middle of

the distribution. The 0-10% group has roughly the same trip frequency as the 90% - 100% group. The 0-10% group has the largest pre-Wal-Mart expenditure (fig. 10(c)) and average expenditure is falling up to the 50%-60% group after which it increases. Sensitivity to grocery promotions (fig.10(d)) displays a monotonic relationship with the percentiles of the effects distribution with the 0-10% group being the least sensitive to promotions and the 90%-100% group the most sensitive.

These findings indicate that households who are large basket shoppers and are non-sensitive to grocery promotions are more likely to undergo a large negative change in their monthly expenditure (at the focal store) than the remaining population. In addition, households who are located in the left tail of the effects distribution have higher trip frequencies and monthly expenditure than households located in the middle of the distribution. These are plausible findings: Large basket shoppers who are non-sensitive to promotions in their trip-frequency, will in general gain by moving from a Hi-Lo pricing environment (the focal store) to an EDLP store (Wal-Mart). On the other hand, small basket shoppers who are sensitive to promotions will benefit from staying with the focal store and take advantage of promotions when they occur.

To demonstrate the value of these calculations in order to pin-point household segments with large negative changes in expenditure, Figure 11 shows the effects distributions for two segments of roughly 500 households each. These segments were determined by first sorting households into a 5×5 matrix with cells corresponding to quintiles of the distribution of log basket size intercepts and grocery promotion sensitivities. We then plotted the distribution of effects for household with highest promotion sensitivities and smallest basket sizes, and the distribution of effects for household with smallest promotion sensitivities and biggest basket sizes. This simple segmentation strategy – using parameters which can be estimated on pre-Wal-Mart data – is able to separate out a shopper-segment who contributes significantly to the overall loss in store volume.

6.2 Observed Household Characteristics

We now turn our attention to observed household variables that can help identify the potential defectors to Wal-Mart. In section 5, we found that distance to the store can be an important factor. However, given the large standard deviations in table 7, there is significant heterogeneity still left to be explained. Consider for example, the hazard functions for three selected households in Figure 12: hh-A lives 0.09 miles from the focal store while hh-B lives 0.21 miles from Wal-Mart. It is evident from the plots that entry of Wal-Mart had very different impact on these two households, confirming the findings

above that distance to store can be quite important. Next consider the hazards for hh-B and hh-C which also lives next to Wal-Mart (the households are in fact neighbors living .04 miles apart). Surprisingly, we find that entry of Wal-Mart had little impact on the hazard of household C. However, a deeper probe into the purchase behavior can explain why we observe these different reactions. Prior to Wal-Mart entry, household C is found to visit the store very frequently with average basket size of only $9 (as opposed to basket size of $51 for hh-B). More importantly, 77% of the total trips of hh-C occur between 9 a.m and 5 p.m on (non-holiday) weekdays (compared with only 4% for hh-B). This in turn implies presence of a retired or otherwise unemployed person in hh-C that continues to frequent the incumbent store for bargains.

The example above suggests that there are a number of other characteristics that can help identify the households most likely to respond to Wal-Mart. For the purpose, we use a large set of household specific variables, several of which are computed using the transaction history of the households *prior* to Wal-Mart's entry. Table 4 provides the summary statistics on these variables which fall into 3 broad categories:

- **Demographics**: The first four demographic variables in Table 4 (*% Rent, Income, Age and HH Size*) refers to the percent of population living in rented dwellings, the median income, median age, and median household size for the census block group that the household belongs to. The next two demographic variables (*Baby* and *Pet*) are dummies indicating the presence of a baby and pet. These were computed from the household purchase history data. For example, if a household is observed to purchase baby products such as diaper or baby food it indicates presence of an infant in the family. Similarly purchase of dog food or cat litter indicates presence of a pet.
- **Shopping Variables**: We use the time and day of trip information to construct two variables that relate to household shopping behavior: *% of trips on Weekend* (the percent of trips that a household makes on a weekend) and *% of trips between 9-5* (the percent of total visits that were made between 9 and 5 on weekdays excluding holidays). These two variables can be treated as proxies for shopper's search cost. For instance, if a household is observed to make majority of their purchases between 9 and 5 on the weekdays, it suggests presence of retired or otherwise unemployed member in the household.
- **Product Purchase Behavior**: The last set of variables were created using household purchase behavior in different product types (again created using transactions

prior to Wal-Mart entry). The primary motivation for these variables comes from business press reports that argue that one of the major weakness of Wal-Mart supercenter is in the fresh food area. As discussed in section two, Wal-Mart supercenters primarily rely on pre-packaged produce and meat from supplier. Thus households that allocate a large proportion of their expenditures to fresh produce (*% Expenditure on Produce*), fresh meat (*% Expenditure on Meat*), and fresh seafood (*% Expenditure in Seafood*) are less likely to abandon this store in favor of Wal-Mart. Similarly large purchases in prepared food departments such as salad bar and deli (*% Expenditure on HMR*: proportion of expenditure in home meal replacement) could result in higher affinity for the store compared to Wal-Mart. Finally, *% Private* refers to proportion of total expenditures on the store brands[22]. The likely impact of this variable in determining whether a household defects to Wal-Mart is not entirely clear. Previous research (Corstjens and Lal 2000) suggest that store brands can create store loyalty. At the same time, researchers have also found store brand buyers to be more price sensitive (Hoch 1996, Hansen et al 2003), and if more price sensitive households frequent discount stores then we can find the opposite effect.

To test the usefulness of these variables in profiling households that are most likely to respond to Wal-Mart, we construct the following indicator variable:

$$DEFECT = 1 \text{ for 20\% of households with largest } \Delta_{Expenditure} \quad (14)$$
$$= 0 \textit{ otherwise} \quad (15)$$

where $\Delta_{Expenditure}$ refers to the change in household's monthly expenditure following Wal-Mart's entry[23]. We then run a simple probit regression as a function of household characteristics described above. Note that instead of taking this 2-step approach, we could have directly incorporated these demographic variables in the model in section 5 (as additional "Z" variables). However, several of these constructed variables are potentially endogenous, and could have biased the model estimates.

The results are presented in Table 8. These results are for a sample of 8,000 cardholders, with another 2,000 kept as a holdout sample. All of the demographic variables from the census data are found to be insignificant. On the other hand, the two demographics

[22] Excludes non-packaged goods like items in meat and produce departments.
[23] We repeated the exercise using the bottom 10, 15, and 25% of the households and found similar results.

constructed using the transaction data are highly significant and show that households with an infant or pet are more likely to respond to Wal-Mart. Similarly, we find that household specific shopping or product purchase variables are quite useful in identifying households that move to Wal-Mart. For instance, Table 8 shows that households that shop mostly on weekends are more likely to respond to Wal-Mart, while households that shop during 9 am and 5 p.m. on weekdays are less likely to do so. Similarly, households that spend a large proportion of their in-store expenditures on fresh produce, seafood, and home meal replacement items are less likely to move to Wal-Mart. In terms of store-brand purchases, we find that store-brand buyers have a higher likelihood of moving purchases to Wal-Mart. This is in contrast to the findings in the previous literature that suggest that store-brand buyers are also more store loyal (Corstjens and Lal 2000). Finally, confirming the findings above and those found in the previous literature (Bell and Lattin, 1998), we find that large basket consumers are more likely to choose an EDLP operator.

To assess the usefulness of the households variables for targeting the likely defectors to Wal-Mart, we compute the predicted probabilities (based on estimates above) for a hold-out sample of 2,000 cardholders. Note that 400 of these households are in the 20% group that reduced the expenditure the most (i.e., for who the indicator variable DEFECT takes value 1). The objective of the retailer is to identify these 400 households based on their observed characteristics. The gains chart reflecting the information contained in the household variables is presented in Figure 13. The 45-degree line represents the performance if targeting is done at random. Gains due to information in the household variables is reflected in the extent to which the line lies above the 45-degree line. For example, the chart shows that by targeting the top 20% based on predicted probabilities using the (above mentioned) household variables, the retailer would be able to capture 46.4% of the targets. By contrast, 20% picked up at random would include only 20% of the target cardholders. Thus, the chart shows that the household specific variables can be quite useful for such targeting purposes.

7 Discussion and Future Research

One of the biggest challenge facing the supermarket industry is competition from Wal-Mart. Although a relatively new player, Wal-Mart through its supercenter format has become the nation's largest grocer and is cited by supermarket managers as their biggest concern in the coming years. Using a unique frequent shopper database, we provide

an empirical study of the impact of entry by a Wal-Mart supercenter on the sales of a traditional grocery store. We model the two key households decision of whether to visit the store and in-store expenditure using a flexible model of inter-purchase time and basket size. Heterogeneity across households is modeled using a hierarchical structure that allows the response parameters to vary due to observed and unobserved factors. In order to characterize the potential defectors to Wal-Mart, we use a large set of household specific variables such as their distance to the stores, demographics, and other shopping characteristics.

Our results show that the incumbent store lost significant volume–amounting to a quarter million dollars in monthly revenue–following Wal-Mart's entry. Decomposing the lost volume into store visits and in-store expenditures, we find that the majority of the losses came due to fewer store visits with little impact on the basket size once consumers are in the store. This is an important finding as it suggests that strategies designed to drive store traffic could be an effective way for recovering some of the lost volume. Interestingly, a small proportion of customers are found to account for a large proportion of the losses. For example, 10% of the households account for 45% of the store's lost revenue, while 20% of the customers account for almost 70% of the lost revenue. In terms of consumer characteristics, we find that distance to store while useful, explains little variation in household heterogeneity. Households that respond to Wal-Mart are likely to have an infant and pet in the family, and are more likely to be weekend shoppers. Similarly, store-brand buyers have a higher likelihood of moving purchases to Wal-Mart, while households that spend a large proportion of their grocery expenditures on fresh produce, seafood, and home meal replacement items are less likely to so. Finally, we find that the households that respond to Wal-Mart are large basket consumers, confirming the findings in Bell and Lattin (1998) that large basket buyers are more likely to choose an EDLP operator. Using a holdout sample, we find that these shopper characteristics can be quite useful in identifying potential defectors to Wal-Mart.

There are of course several caveats to our analysis and potential directions for future research. Foremost, our focus in this paper has been on the two broad household decisions of store visit and basket size, while ignoring the basket composition aspect. Even though a Wal-Mart supercenter carries all products typically found in a supermarket, variation in the quality of products (for example in produce and meat), as well as the breadth and depth of assortment can lead to differential impact across departments and categories. Thus, it is conceivable that while the basket size remains constant, the basket composition has changed. Since retailers increasingly employ category management tools where each

category is treated as a strategic business unit and pricing, merchandising, promotions, and product mix are determined at the category level (Blattberg and Fox, 1995), it is important to do a category-by-category analysis to analyze the differential impact across product groups. In doing so, one can draw upon the extensive literature on developing defensive marketing strategies (for example, the various strategies suggested in the DEFENDER type models, Hauser and Shugan 1983) to enhance category level retention.

There are also several shortcomings related to the data used in the analysis. First, we do not observe consumer purchases outside of the store in question. Similarly, our analysis is based on expenditures rather than profitability. It is possible that the defectors to Wal-Mart are not only high revenue customers, but are also more profitable as they are found to be large basket (lower store visit frequency) and hence have fewer opportunities to take advantage of the promotions. Finally, another avenue for future research is based on our finding that the majority of the losses at the store were due to fewer store visits. This suggests that it is important for the retailers to figure out the products that are best suited to drive store traffic. Given that the retailer has to choose a subset of 50 to 100 products from a total of over 50,000 unique UPCs, this can be a non-trivial task. However, with better data and advancements in computing power, we hope that some of these issues can be addressed in the future.

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MCMC algorithm

We use a Gibbs sampling algorithm to simulate the posterior distribution of the model parameters. In the following we describe the conditional distributions making up the Gibbs sampler for our model.

The store visit model is

$$U_{it} = X'_{it}\beta_i + \varepsilon_{it},, \qquad t = 1, \ldots, T_i;\ i = 1, \ldots, N, \tag{16}$$

where $\varepsilon_{it} \sim \mathrm{N}(0,1)$. The expenditure model is

$$e_{it} = X'_{e,it}\lambda_i + \varepsilon_{e,it}, \tag{17}$$

where e_{it} is observed only when consumer i makes a store visit on day t, and $\varepsilon_{e,it} \sim \mathrm{N}(0, v_i^{-1})$.

The joint posterior distribution of latent utilities for consumer i, U_i, and $\theta_i = (\beta_i, \lambda_i)$ and v_i is then

$$p(U_i, \theta_i, v_i | e_i, D_i, \Pi, \Omega, b) \propto \prod_{t:D_{it}=0} \mathrm{TN}_{(-\infty,0)}(U_{it}|X'_{it}\beta_i, 1) \times \prod_{t:D_{it}=1} \mathrm{TN}_{(0,\infty)}(U_{it}|X'_{it}\beta_i, 1) \times \prod_{t:D_{it}=1} \mathrm{N}(e_{it}|X'_{e,it}\lambda_i, v_i^{-1}) \times N(\theta_i|\Pi, \Omega)p(v_i|b), \tag{18}$$

where $\mathrm{TN}_{(r_1,r_2)}$ is the truncated normal distribution with truncation region (r_1, r_2), and $p(v_i|a,b)$ is the gamma prior on v_i. The full joint posterior of $(U, \theta, v, \Pi, \Omega, b)$ is the product of (18) for all households multiplied by the prior for (Π, Ω, b).

This leads to the following conditionals for U_{it}:

$$U_{it}|\theta_i, \Pi, \Omega \sim \begin{cases} \mathrm{TN}_{(-\infty,0)}(U_{it}|X'_{it}\beta_i, 1) & \text{if } D_{it} = 0, \\ \mathrm{TN}_{(0,\infty)}(U_{it}|X'_{it}\beta_i, 1) & \text{if } D_{it} = 1. \end{cases} \tag{19}$$

The conditional for θ_i is found by first stacking the observations for U_i and e_i:

$$\mathrm{Y_i} \equiv \begin{bmatrix} U_i \\ e_i \end{bmatrix} = \begin{bmatrix} X_i & 0 \\ 0 & X_{e,i} \end{bmatrix} \theta_i + \begin{bmatrix} \varepsilon_i \\ \varepsilon_{e,i} \end{bmatrix} = \mathrm{X_i}\theta_i + \varepsilon_i. \tag{20}$$

In the following we let K_θ denote the dimension of θ, and K_Z denote the dimension of Z_i.

Conditional on U_i, this has the form of a normal linear regression model with covariance matrix

$$\mathrm{V}(\varepsilon_i) = \Sigma \equiv \begin{bmatrix} I_{T_i} & 0 \\ 0 & \nu_i^{-1} I_{np_i} \end{bmatrix}, \tag{21}$$

where np_i denotes the number of store visits by consumer i. By standard results the conditional for θ_i is then

$$\theta_i|\Pi, \Omega, U_i \sim \mathrm{N}(\theta_i|\hat{\theta}_i, \hat{\Omega}_i), \tag{22}$$

where

$$\hat{\Omega}_i^{-1} = \mathrm{X_i}'\Sigma^{-1}\mathrm{X_i} + \Omega^{-1}, \tag{23}$$

$$\hat{\theta}_i = \hat{\Omega}_i\left[\mathrm{X_i}'\Sigma^{-1}\mathrm{Y_i} + \Omega^{-1}\Pi Z_i\right]. \tag{24}$$

Letting $ssq_i \equiv \sum(e_{it} - X'_{eit}\lambda_i)^2$, the conditional for v_i is

$$\begin{aligned} \nu_i &\propto v_i^{np_i/2} \exp\left\{-\frac{v_i}{2} ssq_i\right\} v_i^{a-1} \exp\left\{-bv_i\right\}, \\ &\propto \mathrm{G}(v_i|np_i/2 + a, ssq_i/2 + b), \end{aligned} \tag{25}$$

a gamma distribution.

To describe the conditionals for Π, Ω we first define

$$\begin{aligned} M_{zz} &= \sum_{i=1}^{n} Z_i Z_i', \\ M_{z\theta_j} &= \sum_{i=1}^{n} Z_i \theta_{ij}, \quad j = 1, \ldots, K_\theta, \end{aligned} \tag{26}$$

and

$$M_{zy} = \begin{bmatrix} M_{z\theta_1} \\ M_{z\theta_2} \\ \vdots \\ M_{z\theta_{K_\theta}} \end{bmatrix}.$$

Finally, let $\pi = \mathrm{vec}(\Pi')$. Using a prior of the form,

$$\begin{aligned} \pi &\sim \mathrm{N}(\mu_\pi, \Lambda_\pi^{-1}), \\ \Omega^{-1} &\sim \mathrm{W}(\nu, S), \end{aligned}$$

where $\mathrm{W}(\nu, S)$ denotes the Wishart distribution with ν degrees of freedom and scale matrix S, standard results leads to the conditionals

$$p(\Omega^{-1}|\pi, \theta) = \mathrm{W}\Big(\Omega^{-1}|\nu + n, \big(S^{-1} + \sum_{i=1}^{N} u_i u_i'\big)^{-1}\Big),$$

where $u_i = \theta_i - \Pi Z_i$, and

$$p(\pi|\Omega, \theta) = \mathrm{N}\Big(\pi|\Omega_\pi\big[(\Omega^{-1} \otimes I_{K_Z})M_{zy} + \Lambda_\pi \mu_\pi\big], \Omega_\pi\Big),$$

where $\Omega_\pi = \left[(\Omega^{-1} \otimes M_{zz}) + \Lambda_\pi\right]^{-1}$. We set the prior parameters as follows: $\mu_\pi = 0.0$, $\Lambda_\pi = 0.1 I_{K_\theta * K_Z}$, $\nu = K_\theta + 2$, $S = I_{K_\theta}/(K_\theta + 2)$.

The conditional for b is seen to be

$$\begin{aligned} p(b|v) &\propto p(b) \prod_{i=1}^{n} p(v_i|a, b), \\ &\propto p(b) b^{na} \exp\left\{ -b \sum_{i=1}^{n} v_i \right\}. \end{aligned} \tag{27}$$

We use a gamma prior for b, $b \sim \mathrm{G}(a_0 = 5, a_1 = 2)$. This implies a Gamma distribution for the conditional of b:

$$b \sim \mathrm{G}\left(b|na + a_0, \sum_{i=1}^{n} v_i + a_1\right). \tag{28}$$

	NO CARD	EMPLOYEE CARD	CARD MEMBER
SALES	12.4%	2.0%	85.6%
TRANSACTIONS	36.0%	3.0%	61.0%
BASKET SIZE	$8.0	$16.6	$33.5

Table 1: Shopper Card Penetration.

	PRE WAL-MART		POST WAL-MART		WHOLE PERIOD	
DEPARTMENT	MEAN	STD	MEAN	STD	MEAN	STD
PRODUCE	12.66	7.64	13.25	7.33	12.97	7.48
MEAT	164.19	123.19	202.25	146.87	184.16	137.34
HBC	125.81	46.25	155.28	51.08	141.27	50.98
GM	74.35	25.97	97.78	48.21	86.57	40.86
GROCERY	519.79	101.93	614.69	97.04	569.26	110.08

Table 2: Pre- and Post-Wal-Mart Promotion Index.

		AVERAGE DISTANCE IN MILES TO		
GROUP ID	FREQUENCY	FOCAL STORE	WAL-MART	INCOME ($)
1	392	6.10	3.70	33,909
2	242	6.88	7.69	41,896
3	1026	14.11	14.32	42,306
4	241	2.38	1.85	58,297
5	435	1.24	1.57	30,938
6	292	1.33	1.86	43,280
7	345	1.64	2.31	50,626
8	309	2.16	4.51	56,620
9	747	1.65	3.10	60,165
10	1221	0.64	2.72	40,935
11	249	2.61	4.16	46,907
12	315	5.00	4.63	64,052
13	674	5.10	7.48	63,316
14	626	5.98	7.98	56,878
15	884	0.39	2.35	22,945
16	820	0.71	3.16	28,546
17	963	1.41	3.91	35,719
18	240	2.27	0.82	60,480
19	3317	1.81	2.42	58,978

Table 3: Average characteristics for the 19 census tract regions

VARIABLE	MEAN	STD	MIN	MAX
RENT	0.71	0.24	0.03	0.99
MEDIAN INCOME	44352	16860	8713	105218
MEDIAN AGE	40.52	4.79	19.30	66.00
HH SIZE	2.36	0.31	1.21	3.94
BABY	10%			
PET	29%			
% OF TRIPS ON WEEKEND	0.31	0.19	0.00	1.00
% OF TRIPS BETWEEN 9-5	0.39	0.24	0.00	1.00
% EXPDITURE ON PRODUCE	0.10	0.06	0.00	0.74
% EXPDITURE ON MEAT	0.14	0.08	0.00	0.77
% EXPDITURE ON SEAFOOD	0.03	0.05	0.00	0.56
% EXPDITURE ON HMR	0.02	0.05	0.00	0.92
% EXPDITURE ON STORE BRAND	0.14	0.07	0.00	0.59

Table 4: Demographic, Shopping, and Product Purchase Variables

ATTRIBUTE	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	S.D.	Z FRACTION
CONSTANT	-1.19 (0.04)	-1.28 (0.05)	-1.37 (0.05)	-1.26 (0.06)	-1.09 (0.04)	-1.11 (0.05)	-1.15 (0.05)	-1.23 (0.06)	-1.12 (0.03)	-0.95 (0.02)	-1.30 (0.05)	-1.32 (0.05)	-1.16 (0.03)	-1.29 (0.04)	-0.89 (0.03)	-1.02 (0.03)	-1.12 (0.03)	-1.25 (0.06)	-1.21 (0.05)	0.58 (0.01)	0.06 (0.01)
$10^{-1} \times r$	-0.11 (0.04)	0.00 (0.03)	-0.01 (0.02)	-0.01 (0.02)	0.10 (0.03)	0.00 (0.03)	-0.10 (0.04)	0.11 (0.02)	0.01 (0.03)	0.01 (0.02)	0.04 (0.03)	-0.05 (0.04)	-0.04 (0.03)	0.08 (0.03)	-0.05 (0.03)	0.01 (0.02)	0.08 (0.03)	-0.05 (0.03)	0.03 (0.03)	0.57 (0.01)	0.01 (0.00)
$10^{-2} \times r^2$	0.02 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	-0.02 (0.01)	0.00 (0.01)	0.01 (0.01)	-0.02 (0.01)	-0.01 (0.01)	-0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	-0.01 (0.01)	-0.02 (0.01)	0.00 (0.01)	0.00 (0.01)	-0.02 (0.01)	0.01 (0.01)	-0.01 (0.01)	0.12 (0.00)	0.01 (0.00)
$1/r$	-0.74 (0.05)	-0.93 (0.06)	-0.93 (0.05)	-0.91 (0.06)	-0.67 (0.04)	-0.82 (0.05)	-0.93 (0.05)	-0.79 (0.05)	-0.09 (0.03)	-0.60 (0.02)	-0.94 (0.05)	-0.97 (0.05)	-0.78 (0.03)	-1.01 (0.04)	-0.53 (0.03)	-0.61 (0.03)	-0.53 (0.03)	-0.94 (0.05)	-0.88 (0.05)	0.56 (0.01)	0.08 (0.01)
du	-0.07 (0.03)	-0.05 (0.04)	-0.09 (0.02)	-0.02 (0.04)	-0.04 (0.03)	-0.12 (0.04)	-0.09 (0.03)	-0.08 (0.05)	-0.05 (0.02)	-0.05 (0.02)	-0.07 (0.04)	-0.05 (0.04)	-0.02 (0.02)	-0.07 (0.03)	-0.08 (0.02)	-0.05 (0.02)	-0.02 (0.02)	-0.15 (0.04)	-0.06 (0.04)	0.30 (0.01)	0.02 (0.00)
$10^{-1} \times du \times r$	-0.06 (0.03)	-0.08 (0.04)	-0.09 (0.02)	-0.04 (0.04)	-0.17 (0.04)	-0.09 (0.04)	0.01 (0.04)	-0.10 (0.04)	-0.09 (0.03)	-0.11 (0.02)	-0.09 (0.04)	-0.05 (0.04)	-0.10 (0.03)	-0.14 (0.03)	-0.10 (0.02)	-0.12 (0.03)	-0.13 (0.02)	-0.11 (0.04)	-0.10 (0.04)	0.33 (0.01)	0.02 (0.00)
$10^{-2} \times du \times r^2$	0.00 (0.01)	0.02 (0.01)	0.02 (0.00)	0.01 (0.01)	0.04 (0.01)	0.02 (0.01)	0.01 (0.01)	0.03 (0.01)	0.03 (0.01)	0.03 (0.01)	0.02 (0.01)	0.01 (0.01)	0.03 (0.01)	0.03 (0.01)	0.02 (0.01)	0.03 (0.01)	0.04 (0.01)	0.02 (0.01)	0.02 (0.01)	0.00 (0.00)	0.02 (0.00)
$du \times (1/r)$	-0.07 (0.05)	-0.07 (0.07)	-0.08 (0.04)	-0.07 (0.07)	-0.10 (0.04)	-0.03 (0.06)	0.01 (0.05)	0.00 (0.05)	-0.04 (0.03)	-0.06 (0.03)	-0.05 (0.07)	-0.01 (0.06)	-0.10 (0.04)	-0.04 (0.04)	-0.05 (0.03)	-0.05 (0.03)	-0.08 (0.03)	-0.04 (0.07)	-0.07 (0.06)	0.34 (0.01)	0.02 (0.01)
PRODUMOD	0.01 (0.01)	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)	0.01 (0.01)	0.01 (0.01)	0.02 (0.01)	0.00 (0.01)	0.02 (0.01)	0.01 (0.00)	0.03 (0.01)	0.03 (0.01)	0.02 (0.01)	0.02 (0.01)	0.01 (0.01)	0.00 (0.01)	0.01 (0.01)	-0.01 (0.01)	0.01 (0.01)	0.00 (0.00)	0.01 (0.00)
PRODMEAT	0.00 (0.01)	0.00 (0.01)	0.01 (0.00)	0.01 (0.01)	0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.00)	0.00 (0.00)	0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	-0.01 (0.01)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.01)	-0.01 (0.01)	0.08 (0.00)	0.01 (0.00)
PRODSTNC	0.01 (0.02)	0.00 (0.02)	0.02 (0.01)	0.01 (0.02)	0.02 (0.01)	0.03 (0.02)	0.02 (0.02)	0.04 (0.02)	0.01 (0.01)	0.02 (0.01)	0.03 (0.02)	-0.01 (0.02)	0.00 (0.01)	-0.01 (0.01)	0.01 (0.01)	0.02 (0.01)	0.01 (0.01)	0.02 (0.02)	0.01 (0.02)	0.14 (0.00)	0.01 (0.00)
PRODGH	0.02 (0.01)	0.06 (0.01)	0.04 (0.01)	0.03 (0.01)	0.04 (0.01)	0.05 (0.01)	0.05 (0.01)	0.05 (0.01)	0.05 (0.01)	0.04 (0.01)	0.03 (0.01)	0.05 (0.01)	0.04 (0.01)	0.06 (0.01)	0.04 (0.01)	0.03 (0.01)	0.05 (0.01)	0.05 (0.02)	0.05 (0.01)	0.12 (0.00)	0.01 (0.00)
PRODSTNC	0.04 (0.03)	0.07 (0.04)	0.07 (0.02)	0.05 (0.03)	0.07 (0.03)	0.05 (0.03)	0.10 (0.03)	0.11 (0.03)	0.05 (0.02)	0.09 (0.02)	0.10 (0.04)	0.09 (0.02)	0.11 (0.02)	0.09 (0.04)	0.07 (0.02)	0.09 (0.02)	0.07 (0.02)	0.07 (0.05)	0.06 (0.05)	0.27 (0.01)	0.01 (0.00)

Table 5: Hierarchical coefficient estimates, duration model (posterior means with posterior standard deviation in parenthesis)

Attribute	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	s.e.	Z fraction
Constant	3.20	3.30	3.45	3.21	2.95	3.07	3.06	3.19	3.14	2.89	3.34	3.37	3.24	3.43	2.86	2.95	3.02	3.27	3.30	0.01	0.10
	(0.05)	(0.06)	(0.03)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.03)	(0.02)	(0.05)	(0.05)	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)	(0.06)	(0.05)	(0.01)	(0.01)
BW	-0.07	-0.05	-0.07	-0.04	-0.03	-0.04	-0.04	-0.04	-0.05	-0.04	-0.06	-0.06	-0.04	-0.05	-0.03	-0.04	-0.04	-0.10	-0.05	0.18	0.01
	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.00)	(0.00)
T	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.02	0.02	0.02	0.01	0.01	0.02	0.01	0.02	0.02	0.02	0.01	0.01	0.04	0.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
FROMPROD	0.02	0.03	0.02	0.00	0.01	0.01	0.03	0.03	0.03	0.03	0.04	0.03	0.01	0.00	0.02	0.02	0.02	0.03	0.04	0.10	0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.04)	(0.01)	(0.00)	(0.00)
FROMMENT	0.00	0.01	0.00	0.01	-0.01	0.00	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.09	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
FROMREST	0.02	0.02	0.00	0.01	0.01	0.03	0.01	-0.01	0.01	0.02	0.02	-0.01	-0.01	0.02	0.03	0.03	0.02	0.01	-0.03	0.14	0.03
	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.00)	(0.01)
FROMOH	0.00	0.05	0.04	0.02	0.01	0.04	0.05	0.06	0.04	0.04	0.04	0.04	0.03	0.03	0.02	0.03	0.03	0.03	0.04	0.12	0.02
	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.00)	(0.01)
FROMCHOC	-0.01	-0.01	0.04	0.01	0.06	-0.03	0.03	0.00	-0.01	0.00	-0.01	0.01	0.03	0.03	-0.03	-0.01	0.05	0.05	0.00	0.22	0.03
	(0.04)	(0.05)	(0.02)	(0.04)	(0.03)	(0.04)	(0.04)	(0.04)	(0.02)	(0.022)	(0.04)	(0.04)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.05)	(0.04)	(0.01)	(0.01)

Table 6: Hierarchical coefficient estimates, Log basket size (posterior means with posterior standard deviation in parenthesis)

Region	Average percentage change in monthly expenditure	Average percentage change in monthly number of trips	Average percentage change in basket size
1	-0.24	-0.20	-0.06
	(0.29)	(0.28)	(0.11)
2	-0.18	-0.16	-0.03
	(0.26)	(0.23)	(0.11)
3	-0.27	-0.24	-0.05
	(0.26)	(0.25)	(0.11)
4	-0.18	-0.16	-0.02
	(0.26)	(0.24)	(0.11)
5	-0.17	-0.16	-0.02
	(0.22)	(0.22)	(0.11)
6	-0.15	-0.12	-0.03
	(0.24)	(0.23)	(0.11)
7	-0.16	-0.14	-0.03
	(0.24)	(0.22)	(0.12)
8	-0.18	-0.17	-0.02
	(0.24)	(0.22)	(0.12)
9	-0.19	-0.16	-0.04
	(0.22)	(0.21)	(0.11)
10	-0.16	-0.14	-0.02
	(0.26)	(0.25)	(0.13)
11	-0.21	-0.18	-0.04
	(0.26)	(0.24)	(0.11)
12	-0.20	-0.18	-0.02
	(0.27)	(0.26)	(0.11)
13	-0.14	-0.12	-0.03
	(0.24)	(0.22)	(0.11)
14	-0.23	-0.21	-0.(04
	(0.25)	(0.23)	(0.11)
15	-0.18	-0.17	-0.01
	(0.26)	(0.23)	(0.14)
16	-0.16	-0.15	-0.02
	(0.26)	(0.25)	(0.13)
17	-0.15	-0.13	-0.03
	(0.25)	(0.23)	(0.12)
18	-0.37	-0.32	-0.08
	(0.25)	(0.24)	(0.10)
19	-0.21	-0.18	-0.03
	(0.26)	(0.24)	(0.12)
TOTAL	-0.19	-0.17	-0.03
	(0.26)	(0.24)	(0.12)

Table 7: Average Wal-Mart entry effects by region (with standard deviation in parenthesis)

VARIABLE	ESTIMATE	SE
INTERCEPT	-1.5569	0.5222
% RENT	0.2447	0.1793
MEDINC	0.0004	0.0008
MEDAGE	0.0015	0.0053
AVGHHSZ	0.0491	0.1277
BABY	0.4589	0.0452
PET	0.3787	0.0323
% WEEKEND	0.3064	0.1058
% 9-5 TRIPS	-0.3134	0.0888
% PRODUCE	-0.6112	0.2818
% SEAFOOD	-2.3161	0.4313
% HMR	-2.2864	0.3978
% MEAT	-0.1657	0.2002
% PRIVATE	1.1086	0.3234
BASKET-SIZE	0.013	0.0006

Table 8: Probit Regression: Profiling the Defectors to Wal-Mart.

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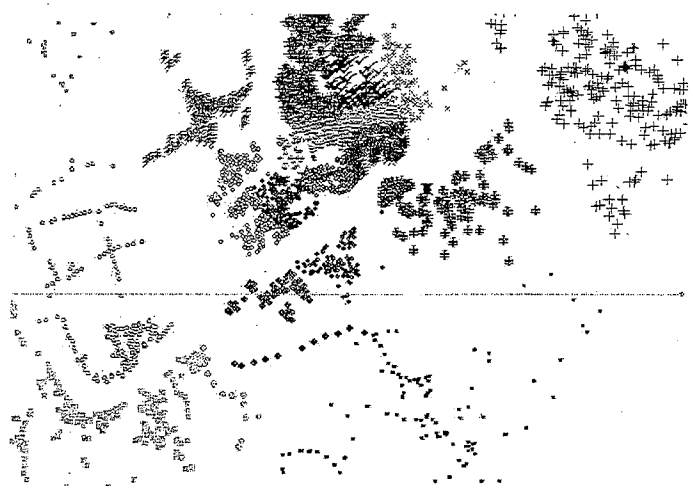

Figure 1: Household locations.

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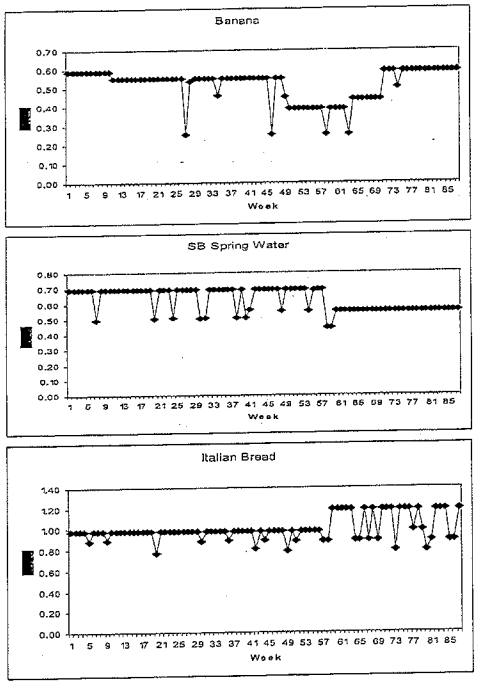


Figure 2: Pricing series for three products.

42

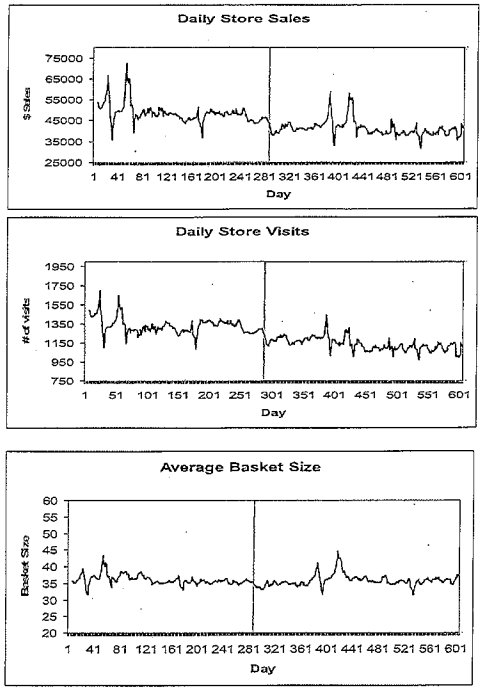


Figure 3: Aggregate sales, visits and basket size for the focal store.

43

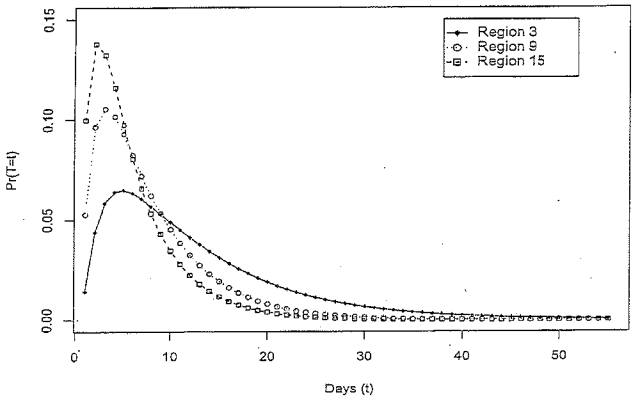


Figure 4: Distributions of inter-store-visit times for three regions prior to Wal-Mart entry.

44

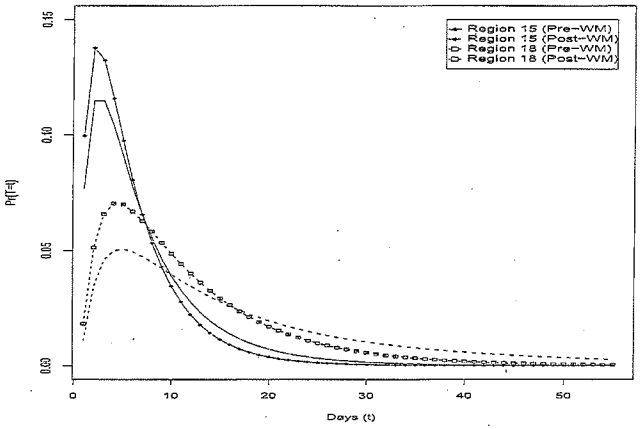
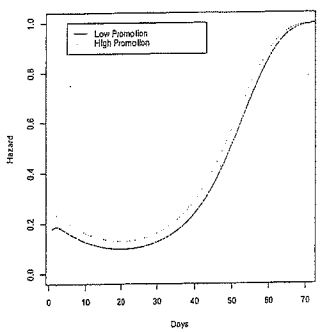
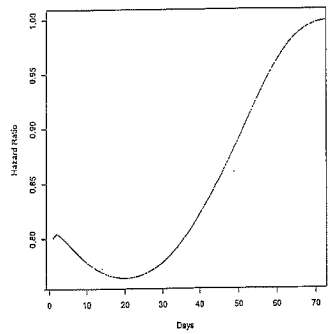


Figure 5: Distributions of inter-store-visit times for two regions, pre and post Wal-Mart entry.

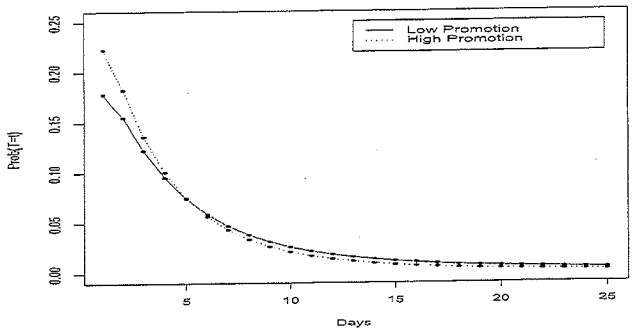
45



(a) Hazard functions, Household #3572



(b) Hazard ratio, Household #3572



(c) Distributions of Inter-store-visit times, Household #3572

Figure 6: Promotion Effects for Household #3572.

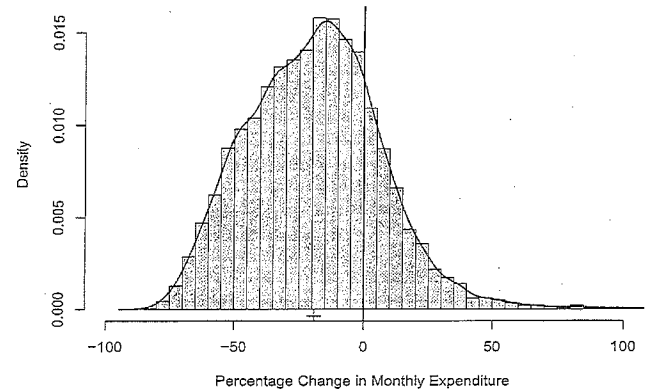


Figure 7: Distribution of Wal-Mart entry effect (relative change), 9852 households.

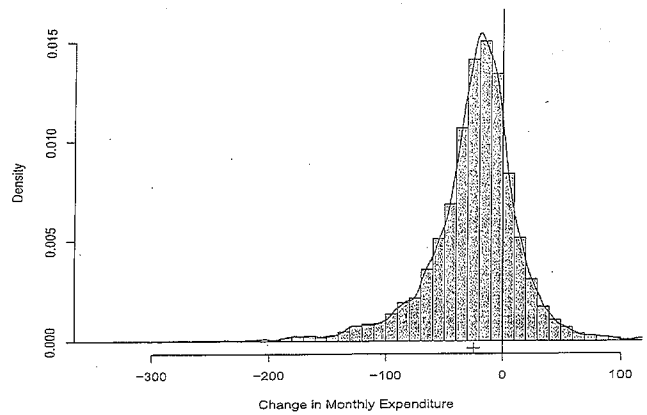


Figure 8: Distribution of Wal-Mart entry effect (absolute change), 9852 households.

48

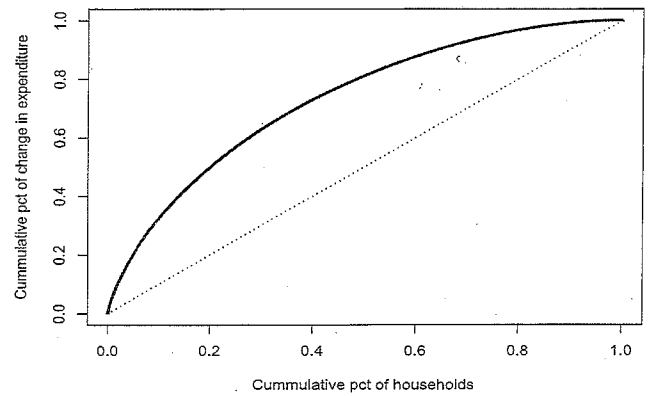
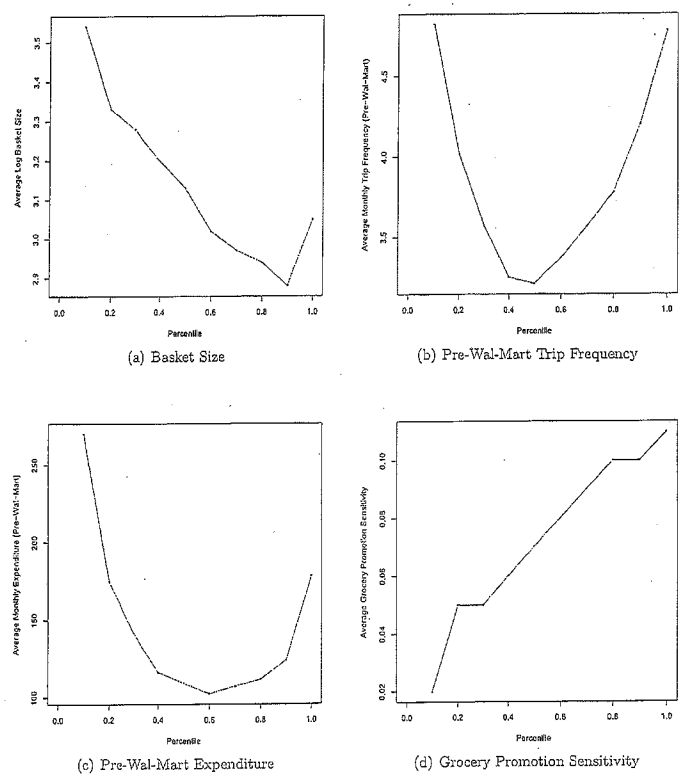


Figure 9: Lorentz curve for Wal-Mart effects distribution.

49



(a) Basket Size (b) Pre-Wal-Mart Trip Frequency

(c) Pre-Wal-Mart Expenditure (d) Grocery Promotion Sensitivity

Figure 10: Decile plots of the effects distribution versus shopping behavior metrics.

50

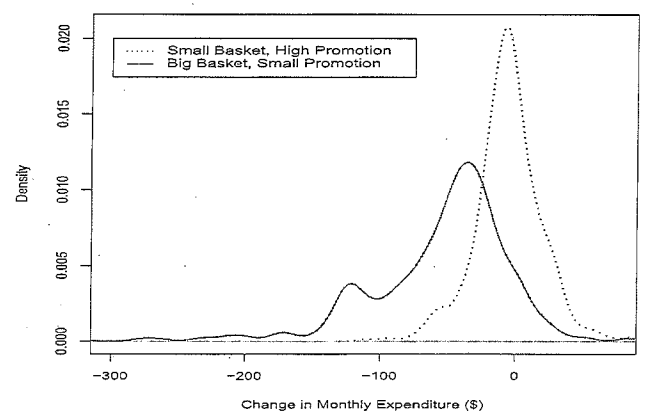


Figure 11: Effects Distribution for Two Segments.

51

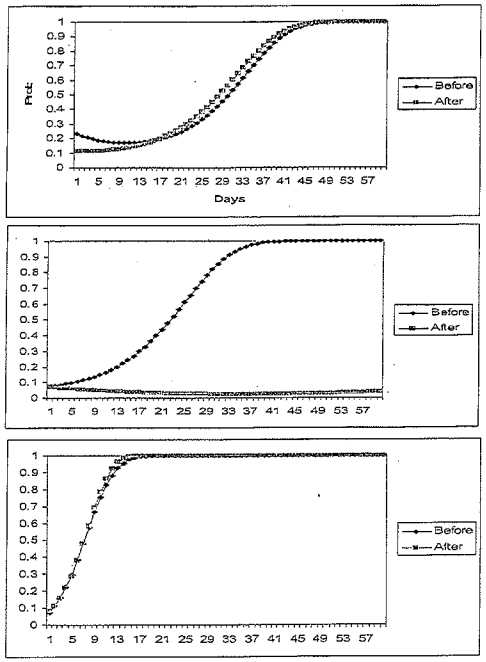


Figure 12: Hazards for three households: Household A: Distance to Store .09 miles, Basket Size: $32, pct. of (9-5) trips:17, Household B: Distance to WM .21 miles, Basket size: $51, % of (9–5) trips: 4%, Household C: Distance to WM .21 miles, Basket size: $9, % of (9–5) trips: 78%.

52

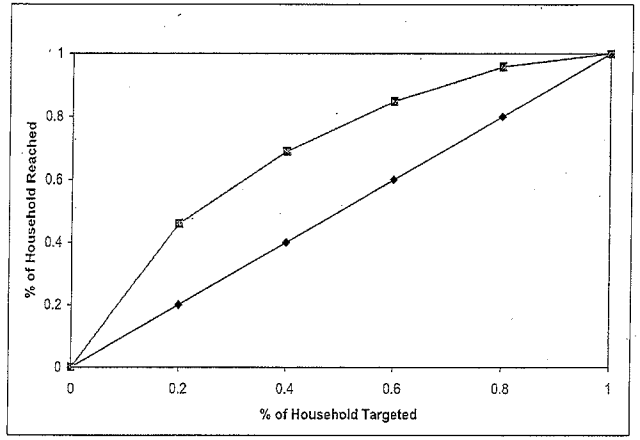


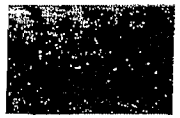
Figure 13: Gains Chart for hold-out sample.

53

ATTACHMENT 10

SUPERCENTERS AND THE TRANSFORMATION OF THE BAY AREA GROCERY INDUSTRY:

Issues, Trends, and Impacts



Bay Area Economic Forum

January 2004

BAY AREA COUNCIL

BAY AREA ECONOMIC FORUM
A Partnership of the Association of Bay Area Governments and the Bay Area Council

Association of Bay Area Governments

Supercenters and the Transformation of the Bay Area Grocery Industry: Issues, Trends, and Impacts

Bay Area Economic Forum
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the Association of Bay Area Governments

January 2004

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Public Economics Group

INTRODUCTION

The nation's retail grocery sector is undergoing a major transformation, led by supercenters – big-box retail stores with full-scale grocery setvice. These supercenters are the latest development in the nationwide restructuring of the retail grocery industry. Based on efficient distribution systems, low prices, and shoppers increasingly seeking value, supercenters are intensifying competition within the sector. While they are a national phenomenon, supercenters also have important local impacts. Their imminent appearance in California and the Bay Area raises a complex range of issues concerning their costs and benefits, fiscal implications for local governments, and land use policy.

This report is designed to provide decisionmakers with the information and analytical tools needed to make sound decisions regarding the possible development of supercenters in their communities. It refrains from judging whether these facilities are desirable or not, but instead presents the key issues that local decisionmakers will need to consider.

The report was prepared by Dr. Marlon Boarnet, associate professor of Planning, Policy, Design and Economics at the University of California at Irvine, where he chairs the Department of Planning, Policy and Design, and by Dr. Randall Crane, professor of Urban Planning and associate director of the Institute of Transportation Studies at UCLA. They were assisted by Daniel Chatman and Michael Manville, who are currently doctoral candidates at UCLA.

A Bay Area Economic Forum review panel composed of Lenny Mendonca (Director, McKinsey & Company, San Francisco), Diana Farrell (Director, McKinsey Global Institute), John McCaffrey (Managing Partner, PricewaterhouseCoopers LLP, San Francisco), Fred Furlong (Regional Vice President, Federal Reserve Bank of San Francisco), Sunne McPeak (President, Bay Area Council), Eugene Leong (Executive Director, Association of Bay Area Governments), Paul Fassinger (Research Director, Association of Bay Area Governments), Gerald Rayerafi (Planning Director, Association of Bay Area Governments), Sean Randolph (President, Bay Area Economic Forum) and Gary Binger (Smart Growth Director, Urban Land Institute) provided extensive advice and guidance.

On-line copies of this report can be accessed on the Bay Area Economic Forum's website at www.baveconfor.org. The Bay Area Economic Forum is a civic partnership of business, government, labor, university and community leaders that addresses issues impacting the vitality and competitiveness of the Bay Area's economy and the quality of life of its residents. A non-profit public-private partnership, it is jointly sponsored by the Bay Area Council and the Association of Bay Area Governments

Executive Summary

Transformations in the discount retail industry are rapidly altering the grocery business nationwide, as California will soon learn firsthand. The engine of this change is the retail format known as the supercenter—a big-box retail store that also contains the equivalent of a full-size grocery store, with total floor space often three to four times as large as that of a conventional supermarket. As recently as the mid-1990s, supercenters occupied niche markets and were confined largely to regional chains. In just a few short years, Wal-Mart, the dominant force in American discount merchandising, has used the new format to make itself the dominant national grocer as well. Wal-Mart is now the largest grocer by sales volume and the fifth largest by number of stores. Other discount chains that have experimented with the supercenter format include Kmart (the nation's 22nd largest grocer, ranked by sales) and Target (the 27th largest).

California has no supercenters today but several are proposed to open soon. Wal-Mart alone plans to open 40 in California over the next few years.

Why is the restructuring of the grocery industry important to the Bay Area economy? Based on trends elsewhere, the region can expect substantial impacts of three kinds:

- **Lower prices charged for grocery goods,**
- **Lower wages and benefits paid to grocery workers, and**
- **An array of local development issues, such as traffic and fiscal effects.**

While some changes will be beneficial, others suggest local costs. Due to their magnitude, the *distribution* and *timing* of these benefits and costs are critical policy issues.

This report thus has two primary purposes: To profile this trend, by estimating these impacts for the region, and to clarify their relevance and complexity at the municipal level. It also outlines a checklist of costs and benefits for communities considering supercenters.

1. Consumer benefits

For most consumers, the clearest advantage of supercenters is the mix of goods offered at lower than average prices. As supercenters achieve sizeable market share, these savings will be significant.

Assuming that supercenters capture between 6 and 18 percent of the region's grocery sales by 2010, total consumer savings on groceries are estimated to range from $382 million to $1.13 billion per year in the Bay Area, an important issue given the Bay Area's high cost of living. Through multiplier effects, these savings will generate additional stimulative effects on overall regional spending. While multiplier effects from lower prices are difficult to quantify, the overall regional impact could be up to two times the amount of direct expenditure savings.

Consumers also benefit from one-stop shopping, precluding the need for separate trips to buy groceries and other products. These benefits will be diminished, however, to the extent supercenter shopping requires longer trips, in turn increasing the time and money costs to consumers of shopping travel.

2. Lower wages and their impact on the regional economy

The grocery industry is an important, if often overlooked, source of high-wage entry-level jobs in the Bay Area. The entrance of a low-wage competitor into the grocery industry will likely produce downward wage and benefit pressure on grocery jobs throughout the region.

The average grocery job in the large Bay Area supermarket chains currently pays wages and benefits worth about $42,552 per year, of which about a third is the value of the benefit package (including health care coverage, vacation, holiday and sick leave). Conversely, supercenters will offer total compensation (wages and benefits) estimated at $11.68 per hour *less* than this, or about $21,000 less yearly per average grocery employee.

As a whole, grocery workers in the Bay Area now earn roughly $1.5 billion in wages plus benefits. However, if lower wage, big box grocery stores obtain an 18 percent market share over the next several years, as indicated in other urban areas, this wage/benefit payroll is estimated to fall by as much as $677 million.

These direct losses have indirect consequences. Lower regional incomes mean less spending on other goods and services. Through multiplier effects, the net economic impact of this reduction of wages and benefits to the regional economy could be more than double the direct loss, though again such multipliers are difficult to quantify.

3. Local development and fiscal impacts

In many municipalities, land use decisions are linked to fiscal policy, because local governments receive a share of sales tax revenues generated within their borders. California cities thus often seek to so-called sales tax "cash cows," such as auto dealerships and big-box chains, with promises of zoning variances, infrastructure enhancements, or tax rebates.

However, the bottom-line calculation of supercenter tax revenues is more nuanced than often appreciated. First, an expansion into non-taxable grocery sales will not generate the sales tax revenue per square foot of a conventional discount store. Second, net sales tax revenue will be reduced to the extent that supercenter sales simply displace sales at other stores in the same municipality. At a regional scale, supercenters bring the potential for shifting sales tax revenues across municipalities, creating a regional pattern of winners and losers.

Third, any revenue impact must also be weighed against local public sector costs, such as the traffic, possible vacancies at other retail sites, and the public services required by a supercenter. Local government must consider both the positive and negative externalities of the supercenter format to arrive at the true impact of on public revenues.

For example, supermarkets often anchor neighborhood shopping districts. A loss of a supermarket to big box competition could threaten the economic health of other stores that rely on foot traffic generated by the grocery store. In some cases, supercenters—much as the big-box retail format more generally—could threaten the economic vitality of existing downtowns or neighborhood shopping centers.

Changes in retail patterns can also be associated with changes in traffic patterns. In some cases, the low-density, land-intensive nature of a supercenter might be at odds with municipal goals of building at higher densities. On average nationwide, supercenters generate over 3,300 car trips per day. Furthermore, because supercenters are generally located on the urban fringe, they often result in substantially more total vehicle miles traveled (VMT) for grocery shopping in comparison with conventional grocery stores.

It is difficult to predict whether these changes will be viewed as alarming or benign in any particular municipality, but two points are important. First, supercenters have the potential to bring land use changes, and local officials should evaluate these. Second, some of those issues, including growth patterns and the character of traffic flow, are regional in nature, meaning the decisions of one municipality can impose undesired consequences on other municipalities.

This report is intended in part as a tool to assist local governments. Its goal is thus two-fold: To illuminate these broader consumer, employment, wage, land use, and fiscal issues associated with the rise of supercenters, and to articulate their regional implications.

The bulk of the report is an industry analysis of both big-box retail and grocery sales. It focuses on Wal-Mart because that firm is by far the national leader in supercenters, and because it is, to large extent, driving the rapid transformation of the grocery industry. In 1994, Wal-Mart had 147 supercenters; in 2002 it had 1,258. During that time, no other national chain came close to achieving a similar growth in supercenters. In the near term, Wal-Mart is the most likely developer of supercenters in the Bay Area.

In the end, the report is cautionary. Supercenters are part of a national and even international change in the retailing and grocery sectors, and those changes, like many other economic restructurings, bring both costs and benefits. Lower consumer prices and efficiency gains should be weighed against the direct and indirect effects of lower wages and benefits in the retail grocer sector, and fiscal and land use impacts that are substantially more complex than conventional "fiscal boon" scenarios assume. The entry of the world's largest grocer into California is anything but simple. At the same time, the basic facts are straightforward.

ATTACHMENT 11

Wal-Mart's Impact on Local Police Costs

Many cities and towns across the country are reporting that big-box retailers are generating large numbers of police calls—far more than local businesses do.

One reason for this is that Wal-Mart and other big chains, as a matter of company-wide policy, involve the police in every incident, no matter how small. While someone caught shoplifting a $3 item from a local store might simply be told by the owner never to come back, that same $3 shoplifting incident at Wal-Mart will cost the city hours of police time in responding to the call, filling out paperwork, and a possible court appearance.

Another factor is that big-box stores seem to attract criminals passing through, particularly those outlets located near a highway interchange and open 24 hours. Perhaps they prefer the anonymity of a supercenter's aisles to the intimate environment of Bob's Hardware on Main Street, where Bob himself greets you from behind the counter.

Below we have culled reports of this problem from around the country. Studies have found that big-box stores can also increase other municipal costs, particularly road maintenance, and eliminate tax revenue from small businesses that are forced to close or downsize. Altogether, these costs may even *exceed* the tax revenue a big-box store generates. For more on these studies, go to **www.HometownAdvantage.org.**

Vista, California — A constant stream of arrests at Wal-Mart contributed to a 24 percent rise in the crime rate. (*San Diego Union-Tribune*, Jun. 5, 2003)

Port Richey, Florida — One in four arrests are made at Wal-Mart, which is straining the local police department. Since the store opened, non-emergency response times have risen significantly, while traffic citations have plummeted. The town hired one additional officer when Wal-Mart arrived and the police chief says they need two more, which would cost the city more than the $75,000 that the store generates in tax revenue. (*St. Petersburg Times*, May 20, 2002)

Royal Palm Beach, Florida — The arrival of Home Depot, Lowe's, Wal-Mart, and other chains along State Road 7 has resulted in an additional 1,500 police calls each year, forcing the town to hire more officers and build a new police station near the retail strip. (*Sun-Sentinel*, Feb. 21, 2005)

Beech Grove, Indiana — The town hired an additional police officer at a total cost of $75,000 a year to handle the additional burden of a new Wal-Mart. (*The Indianapolis Star*, Mar. 17, 2004)

Fishers, Indiana — The town reported over 400 police calls a year from a Wal-Mart supercenter. (*The Indianapolis Star*, Mar. 17, 2004)

Pineville, North Carolina — The town added some six million square feet of new retail, including a major shopping center, big-box stores, chain restaurants, and gas stations. But the stores are costing the town a fortune in police time, forcing Pineville to raise property tax rates across the board in 2002. (*Charlotte Observer*, May 28, 2003)

East Lampeter, Pennsylvania — District Judge Ronald Savage has had to add more days to his monthly court calendar just to deal with crimes at Wal-Mart, which generates almost one-third of his non-traffic criminal violations, criminal misdemeanors, and felony complaints—a number the judge described as "astronomical." (*Intelligencer Journal*, Aug. 18, 2003)

Ephrata, Pennsylvania — A 203,000-square-foot Wal-Mart had dramatically increased the police force's workload. "Bad checks, use of stolen credit cards. ... During a busy week, we'll have three to five retail theft arrests, and with each arrest, that ties up an officer who has to go down, take a person into custody' and follow up with paperwork and possibly a court appearance," said police detective Brad Ortenzi. (*Sunday News*, Jun. 8, 2003)

North Lebanon, Pennsylvania — A new Wal-Mart generates 200 police calls a year for this small township. "If we had known the number of calls, we probably would have considered an increase in officers," police chief Kim Wolfe said. "We just had no idea what it would be like. It doesn't matter what time of the day or night; we get calls there." (*The Lebanon Daily News*, Jan. 27, 2005)

South Strabane, Pennsylvania— South Strabane police have experienced a sharp rise in calls since Wal-Mart opened in 2000. Wal-Mart generates more police calls than any other place in town, averaging about one a day, which strains the 15-man force. "It's a burden. It costs me overtime," police Chief Don Zofchak said, noting the department has had to cut back on neighborhood patrols because of Wal-Mart. Officials have not undertaken a fiscal impact study and do not know whether Wal-Mart costs the town more than it generates in tax revenue. (*Pittsburgh Post-Gazette*, March 27, 2005)

West Sadsbury, Pennsylvania — Police calls rose dramatically when Wal-Mart opened. "It has overwhelmed us at times," according to Police Chief John Slauch, who said added tax revenue from the store did not cover the extra costs. (*Philadelphia Inquirer*, Apr. 12, 2004)

Dallas, Texas — Small towns are not the only ones reporting problems. A memo from the Police Department said a new Wal-Mart store would dramatically increase the workload for officers and result in longer response times for calls. (*The Dallas Morning News*, Jun. 5, 2002)

Harrisville, Utah — Calls to the local police department climbed by one-third following the opening of a Wal-Mart supercenter, forcing the town to hire two more officers. (Associated Press, May 22, 2004)

Woodstock, Virginia — The chief of police reported that one-quarter of the town's police calls in 2001—127 calls in all—were for Wal-Mart. He described it as a "nightmare." (Memo from the Front Royal, Virginia, Chief of Police, 2003)

Download this and more at **www.HometownAdvantage.org,** a clearinghouse of resources on big-box retail impacts and planning policy solutions, maintained by the Institute for Local Self-Reliance, 1313 5th St SE, Minneapolis, MN 55414, (612) 379-3815

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[redacted]

Crime and Wal-Mart — "Is Wal-Mart Safe?"

An Analysis of Official Police Incidents at Wal-Mart Stores

May 1, 2006

WakeUpWalMart.com
Washington, DC

[redacted]

"Crime in our parking lots was on a rapid increase in many areas of region ten, Florida, and it was evident from customer count and sales in the evening hours, that people were becoming afraid to visit our stores during those hours."

Tom Rinehart, Wal-Mart, 1996

Summary

One of the most important issues raised by citizen groups and local communities in the growing public debate about Wal-Mart is whether or not a relationship exists between Wal-Mart stores and crime.[1] In the last few years, anecdotal news accounts of crimes at Wal-Mart stores or parking lots, coupled with statements made by law enforcement, have raised a public concern that Wal-Mart stores may be, as one court has described it, a "magnet for crime" (See Appendix B).

The following study, titled "Is Wal-Mart Safe?," is the first nationally available study to evaluate this important issue. The first phase of this study analyzes police incident reports (calls for service) associated with 551 Wal-Mart stores and provides an estimate of both the average rate of reported total incidents per store and reported "serious or violent" incidents per store (See Appendix A). This study is also the first available report that compares and contrasts the average rate of reported police incidents at "high incident" Wal-Mart stores with the average rate of reported police incidents at nearby Target stores.

The study further estimates the cost to taxpayers and local communities associated with policing Wal-Mart stores. Finally, our estimate of what it would cost for Wal-Mart to adopt roving security patrols at all stores is provided.

Among the critical findings of the "Is Wal-Mart Safe?" study:

- Wal-Mart stores experience a significant number of police incidents. In 2004, police received 148, 331 calls for service for the 551 Wal-Mart stores analyzed;
- The average number of reported incidents per store for the 551 stores analyzed was 269;
- The Wal-Mart stores in our sample that reported the most incidents in 2004 experienced higher average rates of reported police incidents than nearby Target stores;
- Based on the average rate of reported incidents for the 551 Wal-Mart stores analyzed in this study, we estimate that in 2004 police may have received almost 1 million calls for service at Wal-Mart stores or parking lots – or 2 reported police incidents per minute in 2004;
- Nationally, Wal-Mart stores cost local taxpayers an estimated $77 million in increased policing costs in 2004;
- Wal-Mart could implement roving security patrols at all stores nationwide at an estimated cost of 4 cents per monthly customer visit.

Each of the 551 police reports used in the "Is Wal-Mart Safe?" study is available for download and review at WalMartCrimeReport.com.[2]

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[1] Unless otherwise indicated, a reference to incidents at a Wal-Mart means incidents at a Wal-Mart property, including a Wal-Mart parking lot.

[2] The police incident reports used for this study are official records of the number of times police were called to respond to an incident (calls for service) at a Wal-Mart property. The reported incidents run the gamut from calls to assist a motorist locked out of a car to calls to investigate a homicide. The police reports did not reflect the outcome of these calls for service or the precise location of the incident. Thus, for example, a police report indicating a call for

Introduction: Wal-Mart Stores and Public Safety

At the end of 2005, Wal-Mart ranked #2 on the Fortune 500 with sales of over $312 billion and net profits of $11.2 billion. Wal-Mart is also the nation's largest retailer with over 3,857 stores and a customer base estimated by the company at 151 million visits per week - with women consumers representing 70 percent of all Wal-Mart customers. Wal-Mart has also announced plans to open 1,500 new stores over the next five years or roughly 300 news stores each year between 2006 and 2010. At the end of 2005, Wal-Mart's 3,857 stores were located in 2,183 cities and/or towns across all 50 states.[3] In sum, Wal-Mart is a significant and powerful social and economic force both nationwide and in the very fabric of thousands of American communities.

Wal-Mart's ambitious plans for growth, however, have faced an increasing degree of public opposition from citizen groups who oppose plans to expand or open new Wal-Mart stores in their communities. Based on news articles, in the last two years, community groups in over 204 cities and towns have organized to oppose new Wal-Mart openings or the expansion of current Wal-Mart stores.

In opposing Wal-Mart expansion or growth, so-called "site fight" groups point to various concerns, including increased traffic, congestion, sprawl, as well as crime. In particular, the questions about the relationship between incidents of crime and Wal-Mart stores raises concerns among site fight groups about the adverse impact a new or current Wal-Mart store could have on a community's quality of life, overall public safety, and local policing.[4]

The following research study, titled "Is Wal-Mart Safe?" is the first national study to examine the average rate of reported calls for service at or near Wal-Mart stores. The "Is Wal-Mart Safe?" study is based on a detailed analysis of local police incident reports (calls for service) covering 551 Wal-Mart stores in 434 cities and 30 states.[5] The stores were chosen randomly based on a sample of 1,004 Wal-Mart stores that were open for all of 2004.[6] The primary findings of this study are based only on the police reports associated with these 551 stores.

service at a Wal-Mart address could reflect an incident in a store or in the parking lot. In some instances, however, the nature of the crime, such as auto theft, provides insight into the location of the incident (see Appendix A).

[3] Wal-Mart Stores, Inc., SEC Filing, Form 10-K, Fiscal Year 2006; Wal-Mart Stores, Inc., presentation, January 2005; Wal-Mart Stores, Inc., "United States Operations Data Sheet March 2006," at www.walmartfacts.com March 2, 2006; Parija Bhatnagar, "Wal-Mart mea culpa: 'We're human beings'," CNNMoney.com, June 3, 2005; Wal-Mart Store Listings 2005, Trade Dimensions Data.

[4] For example see Sprawl-Busters "Home Town America Fights Back": http://www.sprawl-busters.com/search.php?SRCHrecent=1

[5] In 2005, we requested from police departments lists of all incidents reported (calls for service) at Wal-Mart addresses over the last two years, organized by date and type of incident to which police responded. In total, we received information for 582 stores in 30 states. Because we analyzed only those Wal-Mart stores that were open for all of 2004, and because we received some of the reports after we began our analysis, 31 stores were ultimately excluded from the sample. Wal-Mart reported that it had 3,551 stores (3,013 Wal-Mart stores and 538 Sam's Clubs) open in the US in January 2004.

[6] This initial analysis focuses only on 2004 police incident report data associated with Wal-Mart addresses. The considerable time needed to request, organize, and analyze over 10,000 pages of data took up much of 2005. Future research will analyze all stores open as of 2005, as well as to compare 2004 and 2005 incident reports.

The "Is Wal-Mart Safe?" study is divided into the following sections:

(a) Public statements made by police officials and communities concerning the perceived relationship between Wal-Mart stores and crime;
(b) The average rate of reported police incidents among Wal-Mart stores, both on a per store basis and estimated nationwide;
(c) The average rate of reported "serious or violent" police incidents per Wal-Mart store
(d) A comparison of reported police incidents at a cross-section of Wal-Mart and Target stores;
(e) The estimated cost to taxpayers for police work associated with responding to calls for service at or near Wal-Mart stores, both per store and nationwide;
(f) A comparison of the estimated cost to taxpayers for reported police incidents at or near Wal-Marts versus nearby Target stores;
(g) The estimated cost to Wal-Mart for providing security patrols at all Wal-Mart stores, both for Wal-Mart and on a per customer basis.

A. Wal-Mart and Crime: Public Statements by Local Officials

In 2001, Justice Larry Starcher of the West Virginia Supreme Court of Appeals stated that "a quick search of reported cases reveals that Wal-Mart parking lots are a virtual magnet for crime."[7] In addition, many police officials have discussed the impact of having to respond to calls for service at Walmart properties.

For example, police chiefs and police officials from cities as diverse as Epping, NH; Moraine, OH; and Harrisville, UT, have described the relationship between Wal-Mart stores and crime:

- **South Strabane, PA:** Police Chief Don Zofchak met with Wal-Mart officials in 2004 trying to reduce their calls to the police. "Frankly, it was unbearable.... I've got 26 square miles and God, knows how many other businesses to deal with. Their requests or demands for service, proportionally, were overwhelming." [Pittsburgh Post Gazette, March 27, 2005]

- **North Lebanon, PA:** Police Chief Kim Wolfe said that, "If we had known the number of calls [from Wal-Mart], we probably would have considered an increase in officers.... We just had no idea what it would be like. It doesn't matter what time of the day or night; we get calls there." [The Lebanon Daily News, January 27, 2005]

- **West Sadsbury, PA:** Police Chief John F. Slauch said that Wal-Mart "has completely changed the way we do business. It has overwhelmed us at times." [Philadelphia Inquirer, April 12, 2004]

- **Tappahannock, VA:** Police Chief James Barrett, said Wal-Mart "is a strain on services. If they moved out tomorrow, it wouldn't upset me." [St. Petersburg Times, May 20, 2002]

- **Harrisville, UT:** Since Wal-Mart opened in Harrisville, UT in early 2001, calls to the police department have jumped by a third. The number of officers has increased from four to six. The store's parking lot, where more than half the city's DUIs originate, is now patrolled overnight. "Our DUIs skyrocketed," said Harrisville Police Officer Nate Thompson, cruising the parking lot one recent Friday night. "It just went through the roof." [Associated Press, May 7, 2004]

- **Moraine, OH:** Police calls almost tripled after a Wal-Mart opened in Moraine, Ohio in 2003. Moraine public information officer Paul Guess said "We had anticipated, because the store is open 24 hours, that we would have an increase." [Dayton Daily News (Ohio), August 11, 2005]

[7] Justice Larry Starcher, writing in the Concurring Opinion in Jane Doe v. Wal-Mart Stores, Inc., West Virginia Supreme Court of Appeals, No. 20612, December 13, 2001.

- **Epping, NH:** Police Lieutenant Mike Wallace said, "Because there's a lot of time spent at Wal-Mart, the rest of the town is affected by that.... There's not as much time for direct patrols...There has to be some kind of relief if they want us to cover them 24 hours a day. [Union Leader (Manchester, NH), November 16, 2005]

The increased demands of policing Wal-Mart stores have posed serious challenges for communities. Some of the concerns cited by local communities include increased pressure on community policing, budgetary pressures, as well as increased concerns over public safety. Again, examples of such concerns were raised in cities as diverse as Hermantown, MN, Beech Grove, IN, Orlando, FL, Tega Cay, SC, Vista, CA, and Dallas, TX.

- **Epping, NH:** Town officials in Epping, NH turned down Wal-Mart's request to have its store open 24-hours during the holidays, saying that police calls from the store were already overburdening the police force. Calls to the police, arrests, and complaints filed at the store in its first four months of operation led to a 7.5 percent increase in the town's crime rate. [Union Leader (Manchester NH), May 23, 2004 and Union Leader (Manchester, NH), November 16, 2005]

- **Hermantown, MN:** Wal-Mart's plan to expand in Hermantown, MN would increase police calls for the already understaffed police department. [Duluth News-Tribune, February 20, 2005]

- **Tega Cay, SC:** In 2004, three Tega Cay Planning Commission members completed a study that said a proposed Wal-Mart would bring more crime and traffic than previously thought. Commission member Don Colangelo said two more Tega Cay police officers would need to be hired to handle the additional police calls. [The Herald (Rock Hill, S.C.), November 26, 2004.]

- **Beech Grove, IN:** Beech Grove, Indiana estimated in 2004 that increased calls from a new Wal-Mart would necessitate the hiring of an extra police officer budgeted at $75,000. **Fishers, IN:** Fishers, Indiana police responded to 292 calls from Wal-Mart in just the first 8 months of 2003. **Greenwood, IN:** In 2004, planners in Greenwood, Indiana projected that a new Wal-Mart would net the city an additional $27,933 a year but had only estimated $5,000 in additional police costs to come up with that figure. Those projections were off given that Marion County police had to respond to 511 calls in 2003 at their Wal-Mart. [Indianapolis Star, March 17, 2004]

- **Port Richey, FL:** In 2002, Port Richey's Wal-Mart was projected to pay $75,000 in property taxes for the year. To handle increased police calls, the police department spent $72,275 in overtime in just the first seven months of its fiscal year. Because of the small size of Port Richey's police department, sending two officers to Wal-Mart takes up the entire force working on a given shift. As the number of calls to Wal-Mart rose, police response times increased on other non-emergency calls. [Tampa Tribune, July 23, 2003]

- **Pineville, NC:** In March 2003, town leaders in Pineville, NC turned down a proposed Wal-Mart. City Planners in Pineville determined that the town would have to hire two additional police officers to monitor the store and respond to calls there. They estimated the new officers would cost the town $120,000. An attorney for Wal-Mart stated that the proposed Wal-Mart would have likely brought the town $100,000 in sales, property, and other taxes. [Charlotte Observer, May 26, 2003]

- **Ephrata, PA:** Brad Ortenzi, police detective in Ephrata, PA said in 2003 that Wal-Mart led to a "drastic increase" in his workload. "Bad checks, use of stolen credit cards. ... During a busy week, we'll have three to five retail theft arrests, and with each arrest, that ties up an officer who has to go down, take a person into custody" and follow up with paperwork and possibly a court appearance. [Sunday News (Lancaster, PA) June 8, 2003]

- **Vista, CA:** Mayor Morris Vance cited increased crime at Wal-Mart as taxing local budgets and policing efforts. "This is a difficult time for this to happen," Mayor Vance said, referring to the

city's strapped budget. "We definitely cannot afford more police officers right now. With the budget, it's hard to keep what we have." [The San Diego Union-Tribune, June 5, 2003]

- **Orlando, FL:** In Orlando, the local police blotter indicates that the crime rate in a 5-square-mile area of MetroWest jumped more than 70 percent in the first year after Wal-Mart's arrival in August 2001. Traffic accidents rose 31 percent, property crimes 110 percent, robberies 231 percent and car thefts 56 percent, according to the Orlando Police Department. [Orlando Sentinel, January 27, 2003]

- **Dallas, TX:** A 2002 internal Dallas Police Department memo warned that a proposed Wal-Mart Supercenter would lead to longer response times. [Dallas Morning News, Jun 5, 2002]

- **North Versailles, PA:** Calls to Wal-Mart and the development that came with it caused the police department to have to more than double its size, growing from 10 to 26 officers between 1998 and 2002. [St. Petersburg Times, May 20, 2002]

- **Ankeny, IA:** Ankeny police saw a substantial increase in crime once Wal-Mart supersized to a 207,000-square-foot store in September 1999. Police records show that crimes such as shoplifting, theft, forgery and counterfeiting increased 74 percent in 2000 at the Wal-Mart Supercenter compared with the smaller Wal-Mart that operated in town in 1999. Police Chief Paul Scranton requested two new officers to deal with increased workloads in 2000 and the city hired a consultant to study in 2001 whether to hire officers and/or take officers off other duties. [Des Moines Register, July 22, 2000 and Des Moines Register, November 7, 2001]

B. Analysis of Reported Police Incidents and Wal-Mart Stores

We gathered and analyzed 2004 police incident reports (i.e. calls for service for violent crimes, nonviolent crimes, and other matters) for 551 Wal-Mart stores that were open for all of 2004. The sample of Wal-Mart stores analyzed represented 15.5 percent of all U.S. Wal-Marts as of January 2004.[8] Police incident reports were requested, collected, and analyzed from 404 police departments from 434 cities and towns.

According to the police reports analyzed, in 2004, police received a total of 148,331 calls for service at these 551 Wal-Mart stores.[9] The average number of reported police incidents per Wal-Mart store was 269.[10]

Table 1: Wal-Mart Stores: Average Rate of Reported Police Incidents

Wal-Mart Stores Sampled	Number of Reported Calls for Service in 2004	Average Rate of Reported Police Incidents Per Wal-Mart Store in 2004
551	148, 331	269

[8] Wal-Mart Stores, Inc, SEC Filing Form 10-K for Fiscal Year 2005

[9] We were able to count the total number of incidents reported for 551 of the 582 Wal-Mart stores about which we received data. We were unable to analyze the other 31 reports because (i) we received them too late for inclusion in the study, or (ii) the relevant stores were not open for all of 2004.

[10] If you removed the five states with the highest number of total police incidents reported, the average rate of police incidents reported for the remaining 261 Wal-Mart stores in 25 states would be 220 per Wal-Mart store.

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In terms of geographic distribution, Wal-Mart stores from 30 states were included in the analysis (see Table 2). The five states with the highest number of Wal-Mart's stores analyzed were: California (91), Texas (69), Florida (68), Illinois (39), and Arizona (34). The five states with the highest number of reported police incidents, however, were: North Carolina, Arizona, Florida, California and Texas. The 290 stores from these five "high incident" states accounted for 90,798 of the calls for service at all Wal-Mart stores analyzed. In 2004, the average rate of reported police incidents at these 290 Wal-Mart stores was 313 per Wal-Mart store.

Table 2: Reported Police Incidents at Wal-Mart Stores: State by State Breakdown

State	Total Number of Reported police incidents	# of Wal-Mart Stores
Alabama	155	1
Arizona	10,149	34
California	24,682	91
Colorado	619	3
Connecticut	5,689	25
Florida	23,069	68
Iowa	2,379	8
Illinois	9,294	39
Indiana	306	2
Kansas	2,207	7
Massachusetts	4,676	22
Maryland	2,222	14
Michigan	1,707	10
Minnesota	433	4
Missouri	1,027	3
North Carolina	11,157	28
New Hampshire	743	6
New Jersey	2,367	11
New Mexico	3,468	6
Nevada	672	2
New York	5,660	28
Ohio	6,220	33
Oregon	1,139	6
Pennsylvania	311	3
Rhode Island	1,044	4
Tennessee	1,442	5
Texas	21,741	69
Virginia	148	1
Washington	2,471	11
Wisconsin	1,134	7
Totals	148,331	551

Based on all police reports analyzed, the top ten Wal-Mart stores of the stores we examined with the highest number of total calls for service were located in ten different cities and from six states - four in Florida, two in Texas, one in California, one in Ohio, one in Massachusetts, and one in North Carolina (See Table 3).

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Table 3: Top Ten Wal-Mart Stores: Total # of 2004 Reported Police Incidents

Address	City	State	Reported Police Incidents in 2004
9300 N.W. 77th Avenue	Hialeah Gardens	FL	1875
5100 Okeechobee Road	Fort Pierce	FL	1593
1505 N. Dale Mabry Hwy	Tampa	FL	1582
2793 Taylor Road S.W.	Reynoldsburg	OH	1199
5226 Sigmon Road	Wilmington	NC	1186
7401 Samuell Blvd	Dallas	TX	1173
2727 Dunvale Road	Houston	TX	1123
1950 Auto Center Drive	Glendora	CA	1001
100 Charlton Road	Sturbridge	MA	999
19910 Bruce B. Downs Road	Tampa	FL	996

C. Wal-Mart Stores: Rates of Reported "Violent & Serious Crime" Police Incidents

460 of the 551 reports we analyzed provided a more detailed explanation of the specific types of police incidents reported at each store.[11] These 460 official police reports were collected from 364 cities and 29 states. This sample of Wal-Mart stores represented 13 percent of all Wal-Mart stores opened as of January 2004.

Based on this detailed sample of official police reports, local police departments responded to a total number of 122,751 calls for service at the 460 Wal-Mart stores. Again, the police reports did not provide information on whether or not the reported incident allegedly took place inside the store or in the parking lot, but the nature of the incidents (e.g., shoplifting) might suggest the location of the incident. While the detailed data provided by these police reports indicates that a majority of reported police incidents were of a non-violent or non-serious nature (e.g., shoplifting), a significant number of reported police incidents involved more "serious or violent crimes."[12]

Reported "serious or violent" incidents such as rape, attempted rape, murder, and kidnapping, were defined based on the definitional criteria established by the Federal Bureau of Investigations (see Appendix A).[13] Based on the FBI's definitional criteria, in 2004, police were called to respond to a total of 2,909 reports of "serious or violent crimes" at the 460 Wal-Mart stores we analyzed.[14] The most "serious or violent crimes"

[11] We were unable to analyze the other 91 reports because (i) we received them too late for this report, (ii) the law enforcement department did not provide the information necessary to categorize the reported incidents, or (iii) the departments only provided the sum total of reported incidents.

[12] Under the Uniform Crime Reporting codes the FBI says that some crimes "are serious crimes by their nature and/or volume." In these offenses the FBI includes murder, manslaughter, forcible rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft, and arson. When analyzing serious crimes the FBI also includes simple assault, and we did as well. [FBI, Uniform Crime Reporting (UCR) Summary Reporting http://www.fbi.gov/ucr/ucrquest.htm]

[13] See Appendix A for definitions of the categories analyzed.

[14] Some municipalities include more crimes under the heading of "serious"crime than does the FBI. They include, for example, weapons law violations and drug/narcotic violations. We also analyzed the data from 460 Wal-Mart stores for these two categories. Police reported 694 incidents involving drug/narcotics violations at the 460 Wal-Mart stores.

that police responded to at this sample of Wal-Mart stores include: four homicides, nine rapes or attempted rapes, 23 kidnappings or attempted kidnappings, 154 sex crimes, 1,024 auto thefts, and 550 robberies or attempted robberies (See Table 4). Based on the total number of "serious or violent criminal incidents" reported, an average of six "serious or violent incidents" were reported per Wal-Mart store in 2004.[15]

Table 4: Total Number of Reported "Serious or Violent" Incidents at 460 Wal-Mart Stores in 2004

Reported "Serious or Violent Crime" Incident Category	Number of Reported Incidents
Assault with a deadly weapon, assault, and battery:	1,145
Auto theft:	1,024
Robbery and attempted robbery:	550
Sex crimes:	154
Kidnapping and attempted kidnapping:	23
Rape and attempted rape:	9
Homicide and attempted homicide[16]:	4

Among these 460 Wal-Mart stores analyzed, the top ten stores with highest number of "serious or violent" incidents reported were in Arizona (3), California (4), New Mexico (1), Florida (1), and Texas (1) – (see Table 5).

Table 5: Top Ten Wal-Marts in 2004 with Reported "Serious or Violent" Police Incidents

Address	City	State	Total Reported Incidents	Total Number of Serious Incidents Reported
2020 North 75Th Ave.	Phoenix	AZ	372	50
3721 East Thomas Road	Phoenix	AZ	632	47
3661 Truxel Road	Sacramento	CA	576	40
710 Dennery Road	San Diego	CA	397	38
2300 White Lane	Bakersfield	CA	922	35
1607 West Bethany Home Rd	Phoenix	AZ	513	32
15272 Bear Valley Road	Victorville	CA	731	32
1107 South Shaver Street	Pasadena	TX	481	32
1505 N. Dale Mabry Hwy	Tampa	FL	1582	31
301 San Mateo Blvd SE	Albuquerque	NM	598	30

Police reported 170 incidents involving weapons law violations at the 460 Wal-Mart stores. Adding these categories to our analysis would boost the number of "serious" incidents reported to 3,773 at the 460 Wal-Mart stores. See the following website for a description of all the categories considered "serious" under one state's crime reporting: www.bci.utah.gov/UCRIBR/PartOne_GroupA.pdf

[15] Adding reported police incidents involving drug/narcotics violations and weapons law violations to our analysis would boost the total number of "serious" incidents reported to 3,773 at the 460 Wal-Mart stores. That would bring the average number of "serious" incidents per store to 8.

[16] As of March 7, 2006, we had not received sufficient information to clarify 19 incidents at Wal-Mart stores in Houston reported as "Homicide Investigations." These incidents were being investigated by the Houston Homicide Division, which investigates homicides but also other violent crimes. Information in response to two FOIA requests of the incident reports was insufficient to determine what type of crime the police were investigating.

D. National Estimates of Reported Police Incidents at All Wal-Mart Stores

At the end of 2004, Wal-Mart had a total of 3,702 stores in the United States. Based on this study's finding of an average of 269 calls for service per Wal-Mart store, we estimate that as many as 995,838 police incidents may have been reported at U.S. Wal-Mart stores nationwide in 2004. Using this same 2004 estimate, police were called an average of 2,728 times every day, 114 times every hour, and two times every minute, to Wal-Mart stores in the United States (See Table 6).

Table 6: Nationwide Estimates of Reported Police Incidents at Wal-Mart Stores in 2004

2004 Average Rate of Reported Incidents Per Wal-Mart Store	# of Wal-Mart Stores, 2004	Nationwide Estimate of Reported Police Incidents at Wal-Mart Stores	Reported Incidents per Day	Reported Incidents Per Hour	Reported Incidents Per Minute
269	3,702	995,838	2,728	114	2

E. Reported Police Incidents: A Comparison of Wal-Mart & Target Stores

A critical question explored by the "Is Wal-Mart Safe?" study is whether Wal-Mart stores are unique in experiencing a significant average rate of reported police incidents or do other nearby "big box stores" experience similar rates of reported police incidents. In theory, both Wal-Mart and nearby Target stores should be expected to experience roughly similar rates of reported police incidents. In order to address this question, a second phase of the "Is Wal-Mart Safe?" safe study compared and contrasted the rates of police incidents reported between select Wal-Mart stores and nearby Target stores.

This phase of the study focused on the 50 Wal-Mart stores out of the 460 analyzed stores that experienced the "highest rate" of reported police incidents in 2004.[17] Target stores chosen for the comparative analysis were within a 10-mile radius of the 50 "high incident" Wal-Mart stores. Of these 50 "high incident" Wal-Mart stores, three stores did not have a Target within 10 miles, leaving a sample of 47 Wal-Mart stores for further analysis. Because of further data restrictions, the sample for comparison was limited to 32 Wal-Mart stores and 30 nearby Target stores.[18]

[17] Methodological constraints prevented us from being able to request and analyze police reports for every Target store within 10 miles of the 551 Wal-Mart stores for which we received police reports. We chose instead the 50 Wal-Mart stores from the 551 in this study that had the highest total number of police incidents reported. For each of these 50 Wal-Mart stores, Yahoo Yellow Pages and Driving Directions were used to locate the nearest Target store within 10 miles of the Wal-Mart store.

[18] As of February 13, 2006, we received incident reports for 37 Target stores. Of these 37 incident reports, seven of them could not be used for our analysis because (i) three of the Target stores were not open for all of 2004, (ii) two Target stores had police reports for 2005 but not for 2004, (iii) one police department only reported 911 emergency calls and not other incidents for the Target store for which we requested information, and (iv) one police department only sent information on arrests instead of information on all incidents. Therefore, in the end we analyzed incident reports for 32 Wal-Mart stores and 30 Target stores.

Based on a detailed analysis of official reports, a total of 24,645 police incidents were reported at the 32 "high incident" Wal-Mart stores in 2004. The average number of police incidents reported for these Wal-Mart stores was 770 per store in 2004. Interestingly, when comparing official data for Wal-Mart and Target stores, a significant difference did exist between the average rate of reported police incidents at Wal-Mart stores versus the average rate of reported police incidents at nearby Target stores.[19]

With respect to Target, a total of 5,100 police incidents were reported at the 30 Target stores located within 10 miles of the 32 "high incident" Wal-Mart stores in 2004. Based on the data, the average number of police incidents reported among nearby Target stores was 170 in 2004. In comparison, the average rate for the Wal-Mart stores was 770 in 2004. In addition, two of the 30 Target stores (Coral Springs, FL and Albuquerque, NM) were each within 10 miles of two Wal-Mart stores. In order to equalize the sample at 32 Wal-Mart stores and 32 Target stores, we recalculated the total by counting the reported police incidents from these two Target stores twice. Counting these two Target stores twice raises the total number of reported police incidents for Target to 5,590 and increases the police incident average to 175 per Target Store versus 770 per Wal-Mart store.

Table 7: Averages for Wal-Mart Stores and Target Stores Analyzed

Average Number of Reported Police Incidents at the 32 Wal-Mart Stores in 2004:	Average Number of Reported Police Incidents at the 30 Target Stores in 2004:	Average Number of Reported Police Incidents at the 32 Target Police Reports (30 stores with 2 counted twice) in 2004:
770	170	175

Based on the total number of reported police incidents for Wal-Mart (24,645) and Target (5,590), the daily rate of calls for service also varies considerably between these two retailers. Target stores experience a reported police incident rate of 0.47 a day or less than one call for service every two days. In contrast, Wal-Mart stores experience a reported police incident rate of 2.10 a day or over four calls for service every two days. Essentially, the average rate of reported police incidents at Wal-Mart stores is over 400 percent higher than the average rate of incidents at nearby Target stores.

Interestingly, Wal-Mart stores continued to experience higher rates of reported police incidents per store even when each Wal-Mart store in the sample is compared individually to the nearest Target. In fact, in every case, the total number of reported police incidents at the Wal-Mart store analyzed exceeded the total number of calls for service at its closest Target store. The largest difference between any of these Wal-Mart and Target stores was in Dallas, Texas, where a Wal-Mart store had 987 more reported incidents than the nearest Target store (4 miles away). The smallest difference was in Ocoee, Florida where a Wal-Mart store had 194 more calls for service than the nearest Target store (3 miles away) (See Table 8).

[19] The police reports and other data available to us at present do not fully explain why these Wal-Mart stores have a higher average rate of incidents than the nearby Target stores. This study does not attempt to analyze the factors that might account for the difference in those rates.

Table 8: Store-by-Store Comparison of Wal-Mart and Target Stores reported police incidents in 2004

Wal-Mart Store City, St	Wal-Mart Store Address	Wal-Mart Reported. Incidents by Store in 2004	Target Store City, St	Target Store Address	Target Reported Incidents by Store in 2004	Distance Between Wal-Mart and Target Store (in Miles)	Difference Between # of WMT Incidents and # of TGT Incidents in 2004
Dallas, TX	7401 Samuell Blvd	1,173	Mesquite, TX	1629 N Town East Blvd	186	4	987
Houston, TX	2727 Dunvale Road	1,123	Houston, TX	7051 Southwest Fwy	197	2	926
Merritt Island, FL	1500 E Merritt Island Cswy	984	Merritt Island, FL	250 Crockett Blvd	170	3	814
Albuquerque, NM	2550 Coors Bldv. Nw	975	Albuquerque, NM	9371 Coors Blvd NW	169	5.5	806
Houston, TX	2700 South Kirkwood Drive	941	Houston, TX	10801 Westheimer Rd	95	1.3	846
Bakersfield, CA	2300 White Lane	922	Bakersfield, CA	1300 Wible Rd	151	1.7	771
N Richland Hills, TX	6401 Ne Loop 820	915	Watauga, TX	8000 Denton Hwy	54	3.2	861
Coral Springs, FL	3801 Turtle Creek Dr	862	Coral Springs, FL*	6200 W Sample Rd	242	0.2	620
Dekalb, IL	2300 Sycamore Road	844	De Kalb, IL	2555 Sycamore Rd	108	0.4	736
Mesa, AZ	1955 So. Stapley Drive	828	Mesa, AZ	1135 S Gilbert Rd	165	1.5	663
Bakersfield, CA	2601 Fashion Place	805	Bakersfield, CA	3401 Mall View Rd	103	0.3	702
Coral Springs, FL	6001 Coral Ridge	796	Coral Springs, FL*	6200 W Sample Rd	242	4.9	554
Hickory, NC	2525 Hwy 70 Se	785	Hickory, NC	1910 Catawba Valley Blvd SE	275	3.6	510
Dallas, TX	1521 North Cockrell Hill Road	782	Dallas, TX	2417 N Haskell Ave	500	6.8	282
Arlington, TX	4801 South Cooper Street	779	Arlington, TX	1600 W Arbrook Blvd	248	1	531
Garland, TX	3159 Garland Avenue	761	Garland, TX	5301 N Garland Ave	149	1.1	612
Houston, TX	13484 Northwest Freeway	753	Houston, TX	13250 Northwest Fwy	148	0.4	605
Victorville, CA	15272 Bear Valley Road	731	Victorville, CA	15321 Palmdale Rd	56	2.4	675
Yuma, AZ	2900 S Pacific Ave	722	Yuma, AZ	725 W 32nd St	131	1.7	591
Albuquerque, NM	400 Eubank Blvd NE	708	Albuquerque, NM*	11120 Lomas Blvd NE	248	0.6	460
Hamden, CT	2300 Dixwell Avenue	685	North Haven, CT	200 Universal Dr N	105	2.6	580

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Wal-Mart Store City, St	Wal-Mart Store Address	Wal-Mart Reported Incidents by Store in 2004	Target Store City, St	Target Store Address	Target Reported Incidents by Store in 2004	Distance Between Wal-Mart and Target Store (in Miles)	Difference Between # of WMT Incidents and # of TGT Incidents in 2004
Greenville, NC	210 Greenville Blvd	664	Greenville, NC	3040 S Evans St	159	0.1	505
National City, CA	1200 Highland Avenue	641	Chula Vista, CA	40 N 4th Ave	229	1.6	412
Phoenix, AZ	3721 East Thomas Road	632	Phoenix, AZ	4515 E Thomas Rd	209	0.9	423
Amarillo, TX	3700 I-40 East	618	Amarillo, TX	8201 W Interstate 40	51	7.7	567
Wichita, KS	501 East Pawnee	607	Wichita, KS	404 S Tracy St	100	3.8	507
Beaumont, TX	4145 North Dowlen Road	606	Beaumont, TX	5850 Eastex Fwy	58	0.7	548
Ocoee, FL	10500 West Colonial Drive	606	Orlando, FL	7501 West Colonial Drive	412	3	194
Phoenix, AZ	6145 North 35Th Avenue	603	Phoenix, AZ	740 W Camelback Rd	197	3.1	406
Brandon, FL	11110 Causeway Blvd	601	Brandon, FL	187 Brandon Town Center Dr	81	1	520
Albuquerque, NM	301 San Mateo Blvd Se	598	Albuquerque, NM*	11120 Lomas Blvd NE	248	3.4	350
Independence, MO	4000 South Bolger Dr	595	Independence, MO	17810 E 39th St S	104	0.2	491

Total Wal-Mart Store Reported Incidents in 2004:	24,645	Total Target Store Reported Incidents in 2004:	5,590	Difference in Reported Incidents	19,055

*Note: Date gathered for Target stores in Coral Springs, FL and Albuquerque, NM are counted twice because they are each within ten miles of more than one Wal-Mart store.

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F. Wal-Mart versus Target Stores: Average Rate of Reported Violent & Serious Crime Incidents

We also analyzed whether any difference existed between Wal-Mart and Target in the number of reported police incidents defined as "serious or violent crimes." (See definitions set forth in Section C.) Again, based on the sample of 32 high incident Wal-Mart stores and 30 Target stores, with the data for two Target stores counted twice, a striking difference existed between the rates of "serious or violent crime" incidents at Wal-Mart stores versus nearby Target stores.

In total, 648 "serious or violent" incidents were reported at the Wal-Mart stores versus 100 at nearby Target stores. On average, 20.25 "serious or violent" criminal incidents were reported per Wal-Mart store versus 3.13 per Target store. Based on this analysis, Wal-Mart stores experienced 6 times the number of reported criminal incidents defined as "serious or violent" than nearby Target stores in 2004.[20]

Table 9: Comparison of Reported "Serious or Violent" Incidents at Wal-Mart versus Target in 2004

Reported Incident Category	Number of Reported Incidents by Category at 32 Wal-Mart Stores	Number of Reported Incidents by Category at 30 Target Stores (with Coral Springs and Albuquerque stores counted twice)
Assault with a deadly weapon, assault, and battery:	198	33
Auto theft:	303	34
Robbery and attempted robbery:	109	18
Sex crimes:	31	14
Kidnapping and attempted kidnapping:	3	0
Rape and attempted rape:	2	1
Homicide and attempted homicide:	2[21]	0
TOTAL	648	100

[20] Some municipalities include more crimes under the heading of "serious" crime than does the FBI. They include, for example, weapons law violations and drug/narcotic violations. We also analyzed the data from 32 Wal-Mart stores and 30 Target stores for these two categories. Police reported 144 incidents involving drug/narcotics violations at the 32 Wal-Mart stores. Police reported 26 incidents involving drug/narcotics violations at the 30 Target stores (with data for 2 of those stores counted twice). Police reported 32 incidents involving weapons law violations at the 32 Wal-Mart stores. Police reported 8 incidents involving weapons law violations at the 30 Target stores (with data for 2 of those stores counted twice).

Putting these two categories into the totals would boost to 824 the number of "serious" incidents reported at the 32 Wal-Mart stores and boost to 134 the number of "serious" incidents reported at the 30 Target stores (with 2 repeated). See the following website for a description of all the categories considered "serious" under one state's crime reporting: www.bci.utah.gov/UCRIBR/PartOne_GroupA.pdf

Adding police incidents involving drug/narcotics violations and weapons law violations would boost the average number of such incidents per store. On average, 25.75 "serious" criminal incidents were reported per Wal-Mart store versus 4.18 per Target store. Even with this broader categorization of "serious" crimes, Wal-Mart stores continue to experience 6 times the number of reported criminal incidents defined as "serious or violent" than nearby Target stores in 2004.

[21] This figure does not include 8 incidents which are characterized as "Homicide Investigations" by the Houston Homicide Department, which investigates many serious crimes involving weapons and assaults. As of March 7, 2006, information received from the Houston Homicide Department based on two separate FOIA requests for incident reports failed to provide sufficient details to determine if these were investigations of homicides or calls about weapons. None of the three Targets in Houston had "Homicide Investigations."

G. Policing Wal-Mart Stores: Estimating the Cost to Taxpayers

Various police officials, as cited in section A of this report, have discussed the negative effects that high rates of reported police incidents at Wal-Mart stores have on local policing efforts. Each police incident at a Wal-Mart store is not only costly in terms of taxing local police response and adding additional administrative duties, but is a direct expense paid by local taxpayers. This section of the "Is Wal-Mart Safe?" study estimates the cost to taxpayers for policing Wal-Mart stores.[22]

According to public and government reports, for each incident, a police officer will spend an average of one hour responding to each call for service, which includes interviewing witnesses, apprehending suspects, and/or assisting citizens, and another one hour on related administrative duties, such as writing reports.[23] Nationally, the average police department spends $80,600 in operating costs per police officer each year – resulting in a $38.75 average hourly rate for police officers.[24] At this hourly rate, we estimate the average cost of a police response is $77.50 per incident. By multiplying this average hourly police cost per incident by the total number of incidents at Wal-Mart stores, it is possible to estimate the total taxpayer cost of police responding to Wal-Mart incidents.

Essentially, given the average of two hours of police time spent per police incident, the taxpayer cost per incident at Wal-Mart store is estimated at $77.50. Since 148,331 police incidents were reported at 551 Wal-Mart stores, the estimated total cost to taxpayers for these 551 stores was $11,495,653 in 2004. The average cost to taxpayers per Wal-Mart store, based on the sample of 551 stores analyzed, was $20,848 per store in 2004.

Extrapolating these figures on a nationwide basis, and based on an average of 269 incidents per Wal-Mart store and a total number of 3,702 Wal-Mart stores at the end of 2004, taxpayers would have paid an estimated $77,177,445 to respond to 995,838 reported police incidents at Wal-Mart stores (See Table 10).[25]

[22] Estimating the taxpayer cost of responding to reported police incidents at Wal-Mart stores depends on three factors: (a) the average time spent by police officials per call; (b) the average time spent by police officials conducting administrative duties related to the call, such as filling out reports; (c) the average hourly expense per police officer. For the purposes of estimation, we assume that the police respond to every call for service.

[23] We based our hours per call estimate on data gleaned from several news articles and official testimony. See "FY 2003 APPROPRIATIONS, Federal Document Clearing House Congressional Testimony," April 10, 2002, "Better Coordination Needed Among Participating Agencies," GAO Reports, March 30, 2001, "No slowdown in fighting speeders," The Union Leader (Manchester NH) August 23, 2005, "St. Petersburg Police Department uses new recruitment video to weed out cadets," CBS News Transcripts June 13, 2005, "DUI Crash Shatters The Lives Of 2 Lawmen," The Arizona Republic (Phoenix) December 20, 2004, "FP Detectives Overworked, Report Finds," The Stuart News/Port St. Lucie News (Stuart, FL) October 31, 1998, "A Shook to the System," Denver Westword (Colorado) June 11, 1998, "DA stops prosecuting some misdemeanors," Albuquerque Tribune (New Mexico) January 07, 1998, "City considers mandatory permits for burglar alarms," Fort Worth Star-Telegram (Texas) December 16, 1998, "Annapolis police want pay raise, but that's not all," The Capital (Annapolis, MD.) April 23, 1998, "Booking: Change helping officers," Ventura County Star (California) December 14, 1997

[24] The U.S. Department of Justice's Bureau of Justice Statistics reported in 2000 that the average police department spent $80,600 per officer. The amount spent per police officer includes operating costs such as salary, benefits, equipment costs, and other operating expenses. The hourly cost for policing is based on dividing the average yearly cost of an officer by a 40-hour week spread over 52 weeks.

[25] Wal-Mart Stores, Inc., SBC Filing, Form 10-K, Fiscal Year 2005

Table 10: Estimating Cost to Taxpayers of Policing U.S. Wal-Mart Stores, 2004

2004 Average Incident Rate Per Wal-Mart store	# of Wal-Mart Stores, 2004	Nationwide Estimate of Reported Police Incidents at Wal-Mart	Estimated Cost per Reported Incident	Estimated Nationwide Cost to Taxpayers	Average Cost of Reported Incidents Per Wal-Mart Store
269	3,702	995,838	$77.50	$77,177,445	$20,848

H. Policing Wal-Mart versus Target Stores: Estimates of Taxpayer Cost

Based on 24,645 calls for service at 32 "high incident" Wal-Mart stores, we estimate that taxpayers paid $1,909,988 to police these 32 Wal-Mart stores in 2004. The average cost to taxpayers was $59,675 per "high incident" Wal-Mart store.

In contrast, we estimate that taxpayers paid $433,225 to police Target stores in 2004, based on a total of 5,590 calls for service.[26] The estimated average taxpayer cost per Target stores is $13,563. This comparative sample of "high incident" Wal-Mart stores and nearby Target stores suggests that policing efforts at Wal-Mart stores cost taxpayers nearly 4.4 times more per store than nearby Target stores.

I. Policing Wal-Mart Stores: Estimated Taxpayer Costs, 2006-2010

In 2006, Wal-Mart announced plans to open 1,500 new U.S. Wal-Mart stores over the next five years.[27] Based on a growth rate of 300 new stores per year, and assuming the average number of 269 reported police incidents per Wal-Mart store remains constant, we project the cost to taxpayers will rise substantially over the next five years consistent with Wal-Mart's growth.

Extrapolating our cost estimates on a national basis, we further estimate that local police departments will respond to 6,398,165 police incidents at Wal-Mart stores over the next five years. We estimate that in 2010 police will respond to 1,441,033 calls for service at over 5,357 U.S. Wal-Mart stores. Thus, we estimate the total cost to local taxpayers for policing U.S. Wal-Mart stores over the next five years (2006-2010) will be $495,857,788 -- or nearly half a billion dollars. (See Table 11 and Appendix A)[28]

[26] Since two Target stores (Coral Springs, FL and Albuquerque, NM) are located within 10 miles of more than one of the 32 Wal-Mart stores, the police incident data from these specific Target stores were counted twice to equalize the sample at 32 Wal-Mart stores and 32 Target stores

[27] "Wal-Mart sees room for over 1,500 new stores," www.msnbc.com, 02/08/06

[28] This figure assumes that operating costs per police officer holds constant at $80,600 a year. This figure is from the Bureau of Justice Statistics for 2000 and is likely to yield a conservative estimate for the costs in 2010. We use that figure because it is the latest available figure.

Table 11: Estimating Cost to Taxpayers, 2006-2010

Year ending	Projected # of Wal-Mart stores	Estimated Number of Police Incidents (All U.S. Wal-Mart Stores)	Projected Taxpayer Cost[29]
31-Dec-06	4,157	1,118,233	$86,663,058
31-Dec-07	4,457	1,198,933	$92,917,308
31-Dec-08	4,757	1,279,633	$99,171,558
31-Dec-09	5,057	1,360,333	$105,425,808
31-Dec-10	5,357	1,441,033	$111,680,058
		Total 5 year cost	$495,857,788

J. Improving Security at Wal-Mart Stores: Wal-Mart's Cost

In 1996, Dave Gorman, then vice president of Loss Prevention for Wal-Mart Stores, Inc., publicly acknowledged that a 1994 test project of "roving security patrols" effectively reduced incidents of crime at high crime Wal-Mart stores to near zero.[30] According to Mr. Gorman, a 1994 internal Wal-Mart survey determined that 80 percent of Wal-Mart crime occurred in store parking lots. Since 1996, Wal-Mart has yet to publicly adopt a national Wal-Mart crime deterrent policy that would include security measures, such as manned security cameras and roving security patrols at all stores.

The most recent public statements by Wal-Mart in 2000 state that only 17 percent of its stores have roving security patrols.[31] Given the large number and type of police incidents that were reported at just a sample of Wal-Mart stores in 2004, it would appear that Wal-Mart could, as it determined in its own study in 1994, significantly reduce police incidents, as well as deter future incidents, through more active security measures at each store. More importantly, since Wal-Mart estimates that 151 million consumers - 70 percent of them women - shop at Wal-Mart stores each week, and given that its own internal reviews in 1996 show that crime is a factor in store performance, it is fair to state that improvements to Wal-Mart security would provide a safer shopping experience for consumers while also helping minimize taxpayer costs.

This part of the "Is Wal-Mart Safe?" study estimates the total cost to Wal-Mart if it adopted a company-wide program of 24-hour roving "security patrols" for all its stores.

The basis for calculating Wal-Mart's cost of providing "roving security patrols" at all stores in 2005 is as follows:

- Average price for a golf cart in the United States was $4,000 in 2005.[32]
- Average hourly wage of a security guard in the U.S. is $9.87.[33]

[29] This figure assumes that operating costs per police officer holds constant at $80,600 a year. This figure is from the Bureau of Justice Statistics for 2000

[30] David Gorman, "Loss Prevention Racks Up Success," Security Management, March, 1996

[31] Good Morning America, August 11, 2000

[32] Average of figures in news articles and prices from one dealer. See Golf Carts Buyer's Guide, "Utility vehicle and golf car pricing," http://www.buyerzone.com/industrial/golf_carts/buyers_guide6.html, "Sun City future: Puttin' along," The Charlotte Observer (North Carolina) January 29, 2006, "Little wheels, big jobs," Valley Morning Star, October 22, 2005, "Golf cart business rolls into the green," St. Petersburg Times (Florida) June 23, 2003

[33] Bureau of Labor Statistics, Occupational Surveys (BLS), Occupational Employment Survey, November 2004, www.bls.gov/oes

- Wal-Mart's wage cost for 24-hour security patrols per Wal-Mart store is $1,658 a week, or $86,224 a year.
- Total cost of "24-hour roving security patrol" is $90,224 a year per Wal-Mart store[34]

Based on these figures, it is estimated that providing a 24-hour "roving security patrol" at all 3,857 Wal-Mart stores in 2005 would cost Wal-Mart $348 million or one-tenth of one percent of its total revenue.[35] The estimated cost of security patrols running dusk-to-dawn would be just $181 million in 2005.

Based on Wal-Mart's stated customer base of 151 million consumers a week, it is estimated that 24-hour security patrols would cost Wal-Mart an average of 4 cents per weekly visit by a customer. In contrast, "Dusk-to-Dawn" security patrols could be provided at all Wal-Mart stores at the cost of 2 cents per weekly visit by a customer.

Table 12: Estimating Cost of Security Patrols Per Weekly Customer

Total yearly cost for all U.S. stores	$347,995,202
Cost per week	$6,692,215
Number of Customers per week	151,158,049
Cost per customer	$0.04

[34] This figure is calculated by including the price of a new golf cart and paying a security guard to operate it 24 hours a day in the parking lot of a Wal-Mart store.

[35] Wal-Mart Stores Inc., just released its net sales figures for the year ending January 31, 2006. It posted $312.4 billion in revenue. The cost of providing round the clock roving security guard patrols in every one of its U.S. parking lots would be 0.11 percent of this sales figure. Wal-Mart Stores, Inc., SEC Filing, Form 10-K, Fiscal Year 2006

Conclusion

The "Is Wal-Mart Safe?" report is the first-ever national survey examining reports of police incidents at Wal-Mart stores and parking lots. The report shows, based on the stores sampled, Wal-Mart has a significant number of police incidents, and Wal-Mart has a higher average rate of police incidents than one of its closest competitors, Target.

This study finds some disturbing facts about Wal-Mart and crime in 2004, including:

1) In 2004, Wal-Mart had a total of 2,909 calls for service for alleged "serious or violent crimes" at just 460 of its stores. For this sample, the most "serious or violent crimes" that police reported responding to, included: 4 homicides, 9 rapes or attempted rapes, 23 kidnappings or attempted kidnappings, 154 sex crimes, 1,024 auto thefts, and 550 robberies or attempted robberies. Based on the total number of "serious or violent criminal incidents" reported, an average of six "serious or violent incidents" were reported per Wal-Mart store in 2004 (see Section C).

2) The Wal-Mart stores sampled had an average reported police incident rate of 269 incidents per store in 2004 (see Section B).

3) Based on the number of incidents in the sample, we estimate that for all Wal-Mart stores nationwide, police may have responded to 995,838 police incidents at Wal-Mart stores in 2004, two incidents per minute (see Section D).

4) Wal-Mart stores had more calls for service than nearby Target stores. For the sample, the average rate of reported police incidents at Wal-Mart stores was 400% higher than the average rate of incidents at nearby Target stores and 6 times higher for the number of reported criminal incidents defined as "serious or violent" (see Section E & F).

5) Based on the number of incidents in the sample, we estimate that in 2004 the nationwide cost to American taxpayers for police to respond to 995,838 calls for service at Wal-Mart stores or parking lots was $77 million (see Section G).

6) Over the next five years (2006-2011), it is estimated police will have to respond to 6,398,165 police incidents at Wal-Mart stores at a cost of nearly half a billion dollars, $495, 857,788 (see Section I).

7) The cost to Wal-Mart to provide a 24-hour "roving security patrol," which internal Wal-Mart studies say can lower crime to near zero levels, would only be $348 million or one-tenth of one percent of its total revenue. The $348 million figure means Wal-Mart could institute security measures for only 4 cents per weekly customer visit (see Section J).

In conclusion, it is evident the problem of Wal-Mart and crime has not gone away since Wal-Mart's own internal study in 1994. In fact, as early as 1995, Wal-Mart officials warned the company about a high number of police incidents at some of its stores and developed an effective solution for deterring or lowering crime. Yet, it appears that Wal-Mart officials chose not to adopt a national program to address the problem of crime at its stores and only implemented the "roving security patrol" solution at 17 percent of its stores.

Appendix A: Methodology for the Study: "Is Wal-Mart Safe?"

The following provides a detailed explanation of the study's methodology.

An Analysis of Incident Reports at Wal-Mart Stores

- In 2005, we requested from certain police departments lists of all incidents reported (calls for service) at Wal-Mart stores over the last two years, organized by date, and the type of incident that police responded to. The departments were chosen randomly among a sample of 1,004 Wal-Mart stores. These 1,004 stores were selected based on concentrations of Wal-Mart stores and geographic diversity. We received documents back from police departments covering 582 stores in 483 cities in 30 states. The documents that we received are available online at WalMartCrimeReport.com.

- In order to have a standardized and comparable time period for the study, we limited our analysis to those Wal-Mart stores that were open for all of 2004. The considerable time needed to request, organize, and analyze over 10,000 pages of data occurred during much of 2005. Future research will be conducted to analyze all stores open as of 2005, as well as to compare 2004 and 2005 incident reports. In January 2004, Wal-Mart reported that it had 3,551 stores (3,013 Wal-Mart stores and 538 Sam's Clubs) in the US.

- We received police reports for 582 Wal-Mart stores. Of these 582 stores, we were able to count the total number of incidents reported for 551 Wal-Mart stores. We were unable to analyze the other 31 reports because (i) we received them too late for this report, or (ii) the relevant stores were not open for all of 2004.

    - According to these police reports, in 2004, the police responded to 148,331 incidents at these 551 Wal-Mart stores. This is an average of 269 calls for service per store in 2004. Wal-Mart had 3,857 stores at the end of 2005. Based on the average calls for service per store, we estimate that 1,037,533 incidents were reported to local police departments from all U.S. Wal-Mart stores in 2005.

Estimating the Rates of Reported "Violent and Serious Crime" Police Incidents:

- We further analyzed the reports by categorizing the incidents by type of incident investigated. Of the 551 reports, we were able to further analyze 460 Wal-Mart stores in 29 states. We were unable to analyze the other 91 reports because (i) we received them too late for this report, (ii) the law enforcement department did not provide the information necessary to categorize the incidents, or (iii) the departments only provided the sum total of incidents. A list of these store locations is attached to this report. For these 460 Wal-Mart stores, in 2004, police departments responded to a total number of 122,751 incidents.

- We used the FBI's Uniform Crime Reporting (UCR) codes in order to categorize the reports of "serious and violent crimes" at Wal-Mart stores. Police departments may list standard UCR crimes under slightly different names on the reports that we received. The following is how we categorized "Serious or Violent Crimes."

    - Assault with a deadly weapon, assault, and battery: Includes any incident that contained the words "assault" or "battery." Does not include incidents indicating domestic violence, threats, or harassment.
    - Auto theft: Includes auto theft. Does not include incidents indicating theft of items from an auto, recovery of stolen autos, or shoplifting.

- Drug "related": Includes incidents such as drug or controlled substance possession, distribution, or possession of drug paraphernalia. Does not include incidents indicating prescription forgery or intoxication.
- Robbery and Attempted Robbery: Includes any incident mentioning robbery, armed robbery, or attempted robbery
- Sex Crimes: Includes incidents such as molestation, lewd behavior, lascivious behavior, and prostitution. Does not include rape incidents.
- Kidnapping and Attempted Kidnapping: Includes any incident indicating kidnapping or abductions.
- Rape and Attempted Rape: Includes any incident that contained the word rape.
- Homicide and Attempted Homicide: Includes any incident indicating homicide or attempted homicide.

- We also categorized the following incidents:
  - Drug "related": Includes incidents such as drug or controlled substance possession, distribution, or possession of drug paraphernalia. Does not include incidents indicating prescription forgery or intoxication.
  - Weapons: Includes incidents such as brandishing or possessing a weapon.

Comparing Wal-Mart Stores to Nearby Target Stores:

- Methodological constraints prevented us from being able to request and analyze police reports for every Target store within 10 miles of the 551 Wal-Mart stores for which we received police reports. We chose instead the 50 Wal-Mart stores from the 551 which had the highest total number of police incidents reported. For each of these 50 Wal-Mart stores, Yahoo Yellow Pages and Driving Directions were used to locate the nearest Target store within 10 miles of the Wal-Mart store.

- As of February 13, 2006, we received incident reports for 37 Target stores. Of these 37 incident reports, 7 of them could not be used for our analysis because (i) 3 of the Target stores were not open for all of 2004, (ii) 2 Target stores had police reports for 2005 but not for 2004, (iii) 1 police department only reported 911 emergency calls and not other incidents for the Target store for which we requested information, and (iv) 1 police department only sent information on arrests instead of information on all incidents. Therefore in the end we analyzed incident reports for 32 Wal-Mart stores and 30 Target stores, with incident reports for two Target stores counted twice to equalize the Wal-Mart and Target sample.

Estimating the Taxpayer Cost of Policing Wal-Mart Stores:

- In order to estimate the taxpayer cost of policing Wal-Mart stores we estimated the average cost of policing an incident per hour and the average amount of time spent per incident at Wal-Mart.

- We used the Bureau of Justice Statistics figure for the average local police department's operating costs per police officer from 2000. This figure for 2000 was the most recent available figure. (Note that the BJS reported higher operating costs per officer for sheriff's departments and other police forces.) Operating costs include such things as salaries, benefits, and equipment. From this figure, we were able to estimate what the average local police department spends on police work per hour per police officer by dividing it by 40 hours a week for 52 weeks. Because our figure is from 2000 and policing costs have likely risen we believe that our estimate is conservative.

- Based on newspaper accounts and official testimony from police officials, we estimated that for the average incident, officers spend one hour in the field and one hour on other related duties. An officer likely has to spend much more time on a call if an arrest is made, if an officer later has to testify in court, or if the officer has to collect detailed evidence. An officer may spend less time

per incident on police incidents where citizens and businesses do not press charges or where other citizens provide most of the aid to the citizen or company making the call for police service.

- Therefore, our figure for policing Wal-Mart stores assumes that one police officer responds to each incident and spends two hours responding to the incident.

Projecting Total Taxpayer Cost to Police Wal-Marts from 2006-2011

- We took Wal-Mart's statement that it will open 1,500 stores between 2006 and 2011 and projected that the company would open up 300 stores each year between 2006 and 2011.

- Based on our finding in this study that the average Wal-Mart store of the 551 stores we analyzed had 269 calls for service in 2004, we applied this average to the projected number of stores open for 2006 through 2011. We similarly multiplied the figure for the average cost of responding to a police incident with the projected number of police incidents at all U.S. Wal-Mart stores from 2006 to 2011.

- We continued to hold constant the operating costs per officer from 2000. We believe that police costs have increased from 2000 to present and will continue to increase through 2011. Therefore, we believe that our estimate for police costs is conservative.

Estimating the Cost of Security Patrols at Wal-Mart

- In order to estimate the cost of roving security patrols at Wal-Mart, we determined the average cost of a new golf cart and the average hourly wage of a security guard. The average price for a golf cart, which was $4,000, was determined by news articles and prices reported from an online golf cart dealer. The average hourly wage of a security guard was determined using Bureau of Labor Statistics (BLS) government industry data, which was $9.87. To calculate the annual cost of round the clock security for one store, we multiplied this hourly wage rate by 24 hours and 365 days a year. We then added in the cost of the golf cart. Therefore, the estimated annual cost of providing roving 24-hour security to one store is $90,224.

- To determine a company-wide cost of security we multiplied this out by the total Wal-Mart stores in 2005. This estimated cost is $348 million a year. The weekly cost is determined by dividing this figure by 52 which equals $6.7 million a week.

- Wal-Mart states that it has 151 million customers a week. Therefore to determine the estimated cost of round-the-clock security per weekly store visit, we divide $6.7 million by 151 million customers to come up with 4 cents per weekly store visit.

Appendix B: Summary of Reports of Alleged Crimes at Wal-Marts Between 2003 and 2006

Murder[i]

The press reported 16 alleged murders between 2003 and 2006 in Wal-Mart parking lots and stores. In addition, according to press reports, two women were allegedly abducted from Wal-Mart parking lots between 2003 and 2006 and killed elsewhere.

Reported Alleged Murders at Wal-Mart Stores and Parking Lots

Glendale, AZ	August 2005	The Associated Press, August 25, 2005[ii]
Glendale, AZ	August 2005	The Seattle Post-Intelligencer, August 24, 2005[iii]
Riverside, CA	April 2004	Press Enterprise (Riverside, CA), April 16, 2004[iv]
Colorado Springs, CO	June 2005	The Gazette (Colorado Springs), September 14, 2005[v]
Rocky Hill, CT	February 2004	Hartford Courant (Connecticut), February 25, 2004[vi]
Macon, GA	February 2006	Macon Telegraph (Georgia), February 9, 2006[vii]
Baton Rouge, LA	May 2004	The Reveille via University Wire, June 25, 2004[viii]
Las Vegas, NV	June 2004	Las Vegas Review-Journal (Nevada), October 20, 2004[ix]
Las Vegas, NV	December 2004	Las Vegas Review-Journal (Nevada), 12/18/2004[x]
East Stroudsburg, PA	December 2004	Morning Call (Allentown, Pennsylvania), December 18, 2004[xi]
Garden City, SC	June 2005	The Myrtle Beach Sun-News, June 5, 2005[xii]
Grand Prairie, TX	June 2004	Associated Press, June 20, 2004[xiii]
Katy, TX	June 2005	Houston Chronicle, June 16, 2005[xiv]
Spring, TX	February 2006	KTRK Channel 13 Houston, TX, February 5, 2006[xv]
Fairlawn, VA	February 2006	The Roanoke Times, February 26, 2006[xvi]
Spokane, WA	June 2005	Spokeman Review (Spokane WA), June 14, 2005[xvii]

Reported Alleged Abductions from Wal-Mart Parking Lots Where Victims Were Murdered Elsewhere

West Memphis, AR	April 2003	Arkansas Democrat-Gazette, April 12, 2003[xviii]
Tyler, TX	January 2005	NBC News Transcripts January 22, 2005[xix]

Attempted Murders

The press reported 19 alleged attempted murders between 2003 and 2006 in Wal-Mart parking lots and stores.

Reported Alleged Attempted Murders at Wal-Mart Stores and Parking Lots

Monterey County, CA	July 2003	Monterey County Herald, July 31, 2003[xx]
Ukiah, CA	March 2003	UPI, November 16, 2004[xxi]
Colorado Springs, CO	May 2005	The Gazette (Colorado Springs), May. 23, 2005[xxii]
Greeley, CO	November 2005	Durango Herald (Colorado), November 10, 2005[xxiii]
Palm Beach County, FL	May 2003	Sun-Sentinel (Fort Lauderdale, FL) May 21, 2003[xxiv]
Fort Myers, FL	June 2005	The News-Press (Fort Myers, Florida), June 29, 2005[xxv]
Manatee County, FL	January 2003	The Bradenton Herald (Florida), January 22, 2003[xxvi]
Fort Oglethorpe, GA	December 2005	WDEF-TV Channel 12, Chattanooga TN, Dec 27, 2005[xxvii]
Galesburg, IL	December 2004	The Pantagraph (Bloomington, Illinois), January 3, 2005[xxviii]
Cumberland, IN	September 2004	The Indianapolis Star, September 23, 2004[xxix]
Boutte, LA	March 2003	Times-Picayune (New Orleans, LA), March 18, 2003[xxx]
Albuquerque, NM	August 2005	KASA, Channel 2 News, Albuquerque, August 25, 2005[xxxi]
Glenville, NY	September 2003	The Times Union (Albany, NY), September 10, 2003[xxxii]
Oneonta, NY	April 2003	Press & Sun-Bulletin (Binghamton, NY), April 1, 2003[xxxiii]
Surfside Beach, SC	June 2005	The Myrtle Beach Sun-News, June 3, 2005[xxxiv]
Sioux Falls, SD	January 2005	Argus Leader (Sioux Falls, South Dakota), July 13, 2005[xxxv]
Memphis, TN	November 2005	Daily Advertiser (Lafayette, LA), August 19, 2003[xxxvi]
Grand Prairie, TX	June 2004	Associated Press, June 20, 2004[xxxvii]
West Valley City, UT	January 2004	The Salt Lake Tribune, February 1, 2004[xxxviii]

Rape, Sexual Assault, and Molestation:

The press reported that 16 women and children were allegedly raped or sexually assaulted in Wal-Mart stores and parking lots between 2003 and 2006. The press reported that 10 of these rapes and/or assaults allegedly took place in the stores themselves. In addition, according to press reports, 4 women were

allegedly abducted from Wal-Mart parking lots and raped elsewhere between 2003 and 2006. Of these 20 reports, 11 involved alleged sexual assaults of children (9 of the alleged assaults on children allegedly took place in the stores).

Alleged Rapes and Sexual Assaults Reported at Wal-Mart Stores and Parking Lots

Scottsdale, AZ	2004-2005	The Arizona Republic. Jul. 27, 2005[xxxix]
Scottsdale, AZ	2004-2005	The Arizona Republic. Jul. 27, 2005[xl]
Scottsdale, AZ	June 2005	The Arizona Republic. Jul. 27, 2005[xli]
Greeley, CO	January 2006	Greeley Tribune (Colorado), January 28, 2006[xlii]
Greeley, CO	January 2006	Greeley Tribune (Colorado), January 28, 2006[xliii]
Avon, IN	February 2006	Indianapolis Star, February 8, 2006[xliv]
Lunenburg, MA	January 2006	Sentinel & Enterprise (Fitchburg, MA), January 24, 2006[xlv]
Stafford, NJ	July 2005	Asbury Park Press (New Jersey), July 29, 2005[xlvi]
East Stroudsburg, PA	February 2005	Morning Call (Allentown, Pennsylvania) March 9, 2005[xlvii]
Orangeburg, SC	July 2004	The Charlotte Observer (North Carolina), December 19, 2004[xlviii]
Aberdeen, SD	August 2004	Aberdeen American News (South Dakota), August 30, 2004[xlix]
Hunter's Crossing, TN	February 2004	Knoxville News-Sentinel (Tennessee), February 17, 2004[l]
Oak Ridge, TN	July 2005	Knoxville News-Sentinel (Tennessee), July 6, 2005[li]
Houston, TX	August 2005	The Houston Chronicle, August 06, 2005[lii]
Cedar City, UT	January 2003	The Salt Lake Tribune, 2/24/2004[liii]
Grand Chute, WI	August 2003	The Post-Crescent (Appleton, WI), January 24, 2004[liv]

Reports of Women Allegedly Abducted from Wal-Mart Parking Lots and Raped Elsewhere

West Melbourne, FL	February 2004	Florida Today (Brevard County, FL), February 9, 2004[lv]
Mountain Home, ID	June 2003	The Idaho Statesman, July 3, 2003[lvi]
Framingham, MA	December 2005	Boston Herald, December 21, 2005[lvii]
Tyler, TX	January 2005	NBC News Transcripts, January 22, 2005[lviii]

Reported Alleged Sex Crimes Against Children at Wal-Mart Stores and Parking Lots

Scottsdale, AZ	2004- 2005	The Arizona Republic, Jul. 27, 2005[lix]
Scottsdale, AZ	2004- 2005	The Arizona Republic, Jul. 27, 2005[lx]
Scottsdale, AZ	June 2005	The Arizona Republic, Jul. 27, 2005[lxi]
Avon, IN	February 2006	Indianapolis Star, February 8, 2006[lxii]
Lunenburg, MA	January 2006	Sentinel & Enterprise (Fitchburg, MA), January 24, 2006[lxiii]
Stafford, NJ	July 2005	Asbury Park Press (New Jersey), July 29, 2005[lxiv]
Orangeburg, SC	July 2004	The Charlotte Observer (North Carolina), December 19, 2004[lxv]
Aberdeen, SD	August 2004	Aberdeen American News (South Dakota), August 30, 2004[lxvi]
Hunter's Crossing, TN	February 2004	Knoxville News-Sentinel (Tennessee), February 17, 2004[lxvii]
Houston, TX	August 2005	The Houston Chronicle, August 06, 2005[lxviii]
Grand Chute, WI	August 2003	The Post-Crescent (Appleton, WI), January 24, 2004[lxix]

Attempted Rapes, Sexual Assaults:

The press reported that assailants allegedly tried to rape or sexually assault 3 women and children in Wal-Mart parking lots and stores between 2003 and 2006.

Reported Alleged Attempted Rapes/Sexual Assaults at Wal-Mart Stores and Parking Lots

Ashland, KY	July 2003	The Associated Press, July 26, 2003[lxx]
Breaux Bridge, LA	June 2005	State-Times/Morning Advocate (Baton Rouge, Louisiana), May 24, 2003[lxxi]
Charlotte, NC	April 2003	Charlotte Observer (North Carolina), April 24, 2003[lxxii]

[1] The statistics above only include alleged crimes reported in Wal-Mart stores, their parking lots, or right behind the stores. The statistics above excluded murders allegedly committed at Wal-Mart construction sites, hit and run accidents in which the perpetrator was charged with homicide, Wal-Mart employees who were alleged to have committed crimes off of store grounds, criminals who were apprehended at Wal-Mart for crimes committed elsewhere, and crimes in which bodies or victims were found in Wal-Mart parking lots but which the police suspect the crime was committed elsewhere.

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[ii] Joy Hepp And Michelle Roberts, "Family, Friends Mourn Wal-Mart Workers Killed In Parking Lot," The Associated Press, August 25, 2005
[iii] "Suspect Arrested After Fatal Wal-Mart Shootings," The Seattle Post-Intelligencer, August 24, 2005
[iv] John Welsh, "Search For Assailant Goes Through Busy Aisles; Man Killed Outside Store; Attack: Police Seek The Assailant. The Incident Did Not Disrupt Shopping At A Riverside Wal-Mart." Press Enterprise (Riverside, Ca) April 16, 2004
[v] Bill Hethcock, "Man Guilty Of Murder In Wal-Mart Shooting," The Gazette (Colorado Springs), September 14, 2005
[vi] Katie Melone, "Dad Charged With Murder In Baby's Death," Hartford Courant (Connecticut), February 25, 2004
[vii] Liz Fabian, "Man shoots woman, then turns gun on himself at Zebulon Road Wal-Mart," Macon Telegraph, 2/9/06
[viii] Natalie Naquin, "Businesses Receive Push To Increase Security," The Reveille Via University Wire, June 25, 2004
[ix] "In Brief: Murder Charge Trial Ordered In Death Of Air Force Major," Las Vegas Review-Journal (Nevada), October 20, 2004
[x] In Brief, Las Vegas Review-Journal (Nevada), 12/18/2004
[xi] "Tobyhanna man charged in shootings; East Stroudsburg incident left one dead and another injured," Morning Call (Allentown, Pennsylvania), December 18, 2004
[xii] "Man Charged With Murder In Woman's Death At Wal-Mart Parking Lot," The Associated Press, June 3, 2005 and "CASA boosts services to area Hispanics," The Myrtle Beach Sun-News, June 5, 2005
[xiii] "Officer shot by gunman in van upgraded to fair condition," Associated Press, June 20, 2004 and "GP officer's killer had terminal cancer Relatives shocked Navy vet would take life of another public servant," The Dallas Morning News, June 20, 2004
[xiv] "Two robbery deaths cause stir in Katy: Police hold town hall meetings on crime issues," Houston Chronicle, June 16, 2005
[xv] "Couple die in apparent murder-suicide in Spring," KTRK Channel 13 Houston, TX, February 5, 2006
[xvi] Tonia Moxley and Christina Rogers, "Man charged in killing at Wal-Mart," The Roanoke Times, February 26, 2006 http://www.roanoke.com/news/roanoke/wb/wb/xp-54496
[xvii] Thomas Clouse And Rob McDonald, "Man Killed In Store Parking Lot; Suspected Killer, 6 Others Arrested In Probe Of Shooting," Spokesman Review (Spokane, Wa), June 14, 2005
[xviii] Michael Frazier, "Parolee Caught On Camera With Kidnap Victim," Arkansas Democrat-Gazette, April 12, 2003
[xix] "Suspect Caught In Connection With Murder Of Texas Wal-Mart Clerk," NBC News Transcripts, January 22, 2005
[xx] Virginia Hennessey, "Teen May Be Tried As Adult," Monterey County Herald, July 31, 2003
[xxi] Hil Anderson, "Notebook: Police chiefs convention in L.A," UPI, November 16, 2004
[xxii] "Manager Shot After Purse Snatching At Platte Wal-Mart," The Gazette (Colorado Springs), May. 23, 2005, http://www.Gazette.Com/
[xxiii] Dale Rodebaugh, "Ex-Durango Wal-Mart manager arrested," Durango Herald, November 10, 2005
[xxiv] Nancy L. Othon, "Driver Jailed In Dragging, Shoplifting; Clerk Hurt Intervening In Theft At Wal-Mart Store," Sun-Sentinel (Fort Lauderdale, Fl) May 21, 2003
[xxv] "Briefs," The News-Press (Fort Myers, Florida), June 29, 2005
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ATTACHMENT 12

SMITH ENGINEERING & MANAGEMENT

February 2, 2007

Mr. J. William Yeates
Attorney at Law
3400 Cottage Way, Suite K
Sacramento, CA 95825

Subject: Weston Ranch Towne Center Project

P07002

Dear Mr. Yeates:

Per your request, I have reviewed the Draft Environmental Impact Report (hereinafter the DEIR) on the proposed Weston Ranch Towne Center Project (hereinafter "the project") in Stockton. My review has concentrated on the transportation and circulation component of the DEIR. My qualifications to perform this review include registrations as a Civil and Traffic Engineer in California, thirty-eight years of consulting engineering practice in those fields, focusing on traffic and transportation engineering matters, and including both preparation and review of environmental documents. My professional resume is attached. This letter-report summarizes my comments on the DEIR for transmission to the City of Stockton.

New Traffic Caused by Project Underestimated Because Diverted-Linked Trips Overstated. Significant Traffic Impacts Consequently Undisclosed

The authoritative reference source cited in the DEIR[1] indicates that shopping centers located in a mature developed attract about 34 percent of their total traffic from the traffic that is already driving by on the fronting streets (passer-by trips) and another 16 percent from people who are already driving close by, though not on the immediately fronting streets (diverted-linked trips).

In this case of the subject project, the analysts who prepared the DEIR quite reasonably decided that the limited amount of existing traffic on the fronting streets, the immediate passers-by, could not possibly supply 34 percent of the future shopping center traffic. The assumption that was used - that 10 percent of

[1] *Trip Generation Handbook, Second Edition,* Institute of Transportation Engineers, June, 2004

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5311 Lowry Road, Union City, CA 94587 tel: 510.489.9477 fax: 510.489.9478

the project traffic would be attracted from passers-by in existing traffic on the fronting streets – stretches credibility, since comprising 10 percent of the shopping center's peak hour traffic means the people who currently routinely drive by this shopping center site in the PM peak hour would each have to stop there on the average of about once every 8 days.

But much more significantly troubling is the assumption in the DEIR that diverted linked trips, mostly existing freeway users who deviate from their normal freeway trip to stop at this shopping center, instead of accounting for 16 percent of the shopping center traffic as in the referenced data source, would account for 40 percent – 2.5 times the normal share. This assumption is irrational and without substantiation. There is no connection between the fact that existing passer-by attraction will be low because there relatively few current drivers on the streets fronting the shopping center and the dynamics that affect how many drivers already passing by on the freeway might decide to stop at this particular center. The only logic is that 10 and 40 add up to 50, just like 34 and 16 do, but that is meaningless because there is no overriding premise that a shopping center will automatically attract half its traffic from the combination of passer-by and diverted-linked trips. If a new shopping center cannot attract a normal percentage of trips from existing passers-by because there are too few immediate passers-by there, it is far more likely to draw its numbers by attracting purposeful trips of people in its service area than by attracting a greater than normal percentage of trips of people already traveling on somewhat nearby roads. There simply is no connection between the numbers of immediate passers-by attracted and the numbers of diverted trips attracted, and if there is a reason why the passers-by are low, one cannot simply assume that diverted-linked trips will make up the difference.

Maintaining an assumption of a reasonable number of trips diverted from existing freeway travelers (the 16 percent indicated in the reference source instead of the 40 percent assumed in the DEIR) would not change the analysis of any of the surface street intersections, but it would mean an additional 828 new freeway trips in the PM peak period (as opposed to that many trips being attracted from existing freeway travelers). That increment to freeway traffic, together with other compounding considerations described herein, would create significant impacts on freeway segments that are not disclosed in the DEIR

DEIR Assigns Traffic To Paths Between Weston Center and the I-5 Freeway That Are Not Logical And As A Consequence, Fails To Disclose Significant Project Traffic Impacts

Overall, the traffic analysis assumes that about 70 percent of the project traffic will approach and depart the project site via the I-5 freeway, evenly split, 35 percent from and returning to the north; 35 percent from and returning to the south. What is illogical in the DEIR traffic assignment is the assumption described in Table 4.7-8 that about one-third of the traffic approaching the project from the northbound direction on I-5 will *actually bypass the site and the*

Mr. J. William Yeates
February 2, 2007
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interchange at French Camp Road, travel a mile further to the next freeway exit a Downing Avenue, then get off the freeway and backtrack another mile via surface streets to the project site. The pattern assumed for departure of these trips from the project site is unclear in the DEIR. The assumption that a significant portion of trips approaching the proposed project from I-5 northbound will follow this out-of-direction pattern results in about one-third of the trips approaching the site from that direction evading passing through the congested intersections of the northbound I-5 ramps with French Camp, the Southbound I-5 ramps with French Camp and the intersection of French Camp with Manthey.

The pattern of trips approaching the project site from I-5 southbound seems more realistic, with only 2 percent actually bypassing the site and the interchange at French Camp Road and continuing a mile further to Mathews Road before exiting and returning via local streets. This seems a more realistic estimate of travelers who might either inadvertently miss the exit, ones who see the project in passing and, on impulse, decide to make a return movement to stop, or ones who are knowledgeable repeat patrons who prefer a less congested though out-of-the-way backdoor route to the project site. However, the DEIR gives no indication whether or not it assumes any radical dispersion patterns for trips returning to I-5 south from the project.

The analysis needs to be redone without initial assumptions that substantial portions of traffic would take radically longer evasion routes instead of the most direct paths to the project site. Also, the assumed departure routes for freeway-oriented traffic from the project site must be clearly stated.

Projected Baseline Freeway Volumes Illogical

The southbound "without project" traffic volumes for segments of I-5 in the PM peak for the Year 2025 condition as projected in DEIR Table 4.7-15 are illogical with respect to the "Near Term" PM peak traffic volumes for the same segments and direction in the "no project" condition as projected on DEIR Table 4.7-11. The projected PM peak southbound volumes for the segments north of French Camp and north of Downing for the "2025 without project" scenario are actually 90 to 150 vehicles *less* than in the "near term without project" scenario. On the segments south of French Camp and south of Mathews, the projected PM peak southbound volumes for "2025 without project" are only 170 to 200 vehicles more than in the "near term without project" scenario. *These projections of minimal growth and actual declines in non-project freeway traffic over the next 15 to 18 years are simply not credible.* By comparison, the above-cited tables show the average growth in PM peak traffic between the near term and 2025 without project scenarios in the northbound direction of I-5 for the same four roadway segments ranges to a high of 1300 vehicles, averages 1115 vehicles per segment and has no segments showing declines. The traffic forecasts must be revisited to obtain credible background traffic forecasts.

Analysis of Closely Spaced Intersections as a Coordinated System

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For several closely spaced intersections including those at the foot of the I-5 ramps to French Camp and the intersections along French Camp to the relocated Manthey Road (and at another set of closely spaced intersections), the DEIR analysis uses traffic simulation models (CORSIM or SYNCRO) rather than the Highway Capacity Manual (HCM) program contained in TRAFFIX – the analysis program ordinarily specified in Stockton's TIA Guidelines. It is recognized that the simulation is a procedure also provided-for in those guidelines where closely spaced intersections make that appropriate (if specifically approved by City staff). The problem with the simulation as used in this case is that the application treats signals at intersections at the foot of the freeway ramps that would be under Caltrans control and intersections on the local roads that would be under City control as if they are part of one coordinated system.

Historically, as a practical matter, it has been virtually impossible to coordinate local jurisdiction signals with Caltrans freeway ramp signals for a combination of hardware, software/communications and institutional reasons. While hardware and software/communications compatibility has been improving in recent years, institutional problems remain difficult to solve. For that reason, it is unreasonable for the DEIR to base its traffic analysis on the speculative presumption that the Caltrans freeway ramp signals at I-5 and French Camp and the City signals along French Camp act as a single coordinated system. The evaluation should be conducted under assumptions that the City and Caltrans signals operate as separate systems.

Combined Effects

The preceding sections indicate the DEIR traffic analysis is based on an overstatement of diverted and consequently understated amount of new project-generated traffic that would be on and impact the I-5 freeway, an assumption that a substantial portion of freeway traffic would avoid the most direct route to the project site, an unreliable and non-credible forecast of future non-project freeway traffic, and an excessively optimistic assumption regarding coordination of City and Caltrans signals. These considerations would tend to have joint effects to cause understatement of the project's significant traffic impacts (including effects on freeway segment analysis, ramp queuing analysis, surface street queuing analysis, and intersection level-of-service analysis. Together, these considerations result in need for complete revision of the DEIR traffic analysis.

Conclusion

Based on the foregoing, we believe that the DEIR is inadequate with respect to its transportation analysis, that the analysis should be revised in accordance with the above comments, and that the revised analysis should be recirculated in draft.

Mr. J. William Yeates
February 2, 2007
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Sincerely,

Smith Engineering & Management
A California Corporation

REGISTERED PROFESSIONAL ENGINEER
DANIEL T SMITH JR.
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Exp. 6-30-08
TRAFFIC
STATE OF CALIFORNIA

Daniel T. Smith Jr., P.E.
President

ATTACHMENT 13

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Stockton CA 95219
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MEMORANDUM

DATE: February 2, 2007

TO: Jason Flanders, Esq.

SUBJECT: CITY OF STOCKTON WESTON TOWNE CENTER PROJECT

I have reviewed the Water Supply Assessment (WSA) for this project, and in my professional opinion, it fails to comply with the requirements of Water Code Sections 10910-10915. So as not to duplicate any of your excellent arguments, I will only deal with the other issues that make this WSA inadequate.

Table 1 at 8 purports to document water demands for this project. However, an arbitrary uniform water demand has been assigned to this property irrespective of land use. This water demand is the **average existing water use per urbanized acre.** The law requires that an actual water use for the proposed project be calculated or estimated. What is the purpose of presenting Table 1 in this WSA?

Discussion of the water rights and entitlements of the Stockton East Water District (SEWD) at 8 are totally irrelevant to the WSA except insofar as the Second Amended Contract of 1987 is concerned. This document provides for a firm entitlement of 20,000 acre feet per year of treated water to the City of Stockton Metropolitan Area (COSMA). COSMA **has no other source of surface water**. Furthermore, this WSA uses the Delta Water Supply Project EIR (DWSPEIR) as its basis for factual information, yet chooses to assume (unlike the DWSPEIR) that the water transfer agreement between SEWD and OID/SSJID will continue unchanged until 2019. The DWSPEIR assumes in its water supply projections that SSJID will **not** choose to renew beyond 2009.

What are the "various water supplies" claimed at 13? This needs a specific clarifying reference so that they can be identified and quantified. Also, the amount of conservation that will be required needs to be specifically quantified, and the measures that will be employed to achieve this conservation identified. What is the reason for mentioning these speculative other sources of water supply at 13 and 14 if they are not included in the analysis?

The discussion of the condition of the groundwater basin at 15 is inaccurate and highly misleading. The State of California, Department of Water Resources has classified the

CITY OF STOCKTON WESTON TOWNE CENTER PROJECT

Eastern San Joaquin Groundwater Basin as "in a critical condition of overdraft". The actual amount of the overdraft has been estimated by different authorities as 160,000 acre feet/year (San Joaquin County); 200,000 acre feet/year (USA Corps of Engineers); and 150,000 acre feet/year (US Geological Survey). As a result of the overdraft, the basin has lost 1,000,000 acre feet of active storage, and groundwater levels have declined by as much as 100 ft (USACE) over the last 30 to 40 years. The subbasin serves the cities of Ripon, Manteca, Lathrop, Stockton, and Lodi, in addition to agricultural areas generally east of the urbanized areas. According to the *Eastern San Joaquin Groundwater Management Plan,* "Current and historical groundwater pumping rates exceed the sustainable yield of the underlying groundwater basin on an average annual basis." It is misleading and inaccurate to only refer to the portion of the basin which is in the SEWD, without mentioning that this is only a portion of a larger, hydrologically interconnected basin which is in severe overdraft.

The groundwater discussion in this WSA is also inadequate in the fact that the "wedge" of salinity has significantly intruded into this area as a result of its sole reliance on groundwater and overpumping by municipal, domestic and agricultural wells. In my professional judgment, full reliance on groundwater to support the proposed development, as documented in this WSA, will seriously adversely affect the quality of groundwater in this area, cause a further eastward migration of salinity, and impair or eliminate the availability of usable groundwater in wells west of Interstate Highway 5. Has the area begun to be served by the South Stockton Aqueduct? If so, this needs to be addressed in this WSA. What impact will this have on surface water availability and groundwater extractions in north Stockton? What will be the effect on wells in the project area of the new arsenic regulations? These issues must also be addressed in the WSA.

The DWSPEIR states that, in order to mitigate the effect of groundwater overdraft in the COSMA, the "target yield" of the groundwater basin will be reduced to 0.6 acre feet/acre/year, yet this WSA, which is supposedly based upon the DWSPEIR, states that a groundwater yield of 0.92 acre feet/acre/year is acceptable. Why is this an acceptable yield in south Stockton, which has experienced a significant intrusion of salinity at 18?

What "planning level studies" are referred to at 18? These need to be specifically identified in this WSA. I carefully reviewed all available planning level studies in my review of the materials provided with GPU-2035 and did not find any such studies which support these "water duties." In addition, what "other sources" are referred to at 18? These need to specifically referenced in this WSA. The WSA needs to specifically identify how groundwater yield can be "sustainable" in a critically overdrafted groundwater basin.

At 19, the WSA analysis of water demand cannot be based upon "saturation rate of new demand. This does not comply with Water Code requirements. Water demand estimates must

Jason Flanders
February 2, 2007
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CITY OF STOCKTON WESTON TOWNE CENTER PROJECT

be based upon rationally derived actual estimates of water demand for the specific projects analyzed. Also, this WSA must define "other supplemental sources" as stated at 19.

The analysis of groundwater availability at 21 is unsubstantiated. The WSA must explain how the "sustainable yield of groundwater" can be derived when the basin is in a "critical condition of overdraft." In addition, the WSA fails to explain or provide any rationale for the statement at 23 that the "sustainable yield" of the groundwater basin will increase as the agricultural area becomes urbanized.

Why is the 1977-1980 dry period used in the drought analysis at 23? Did the WSA look at the extended drought beginning in 1987? Only the Second Amended Contract with SEWD of 1987 can be used in this analysis at 24, since this is the only entitlement that COSMA has for treated surface water. The other contracts and entitlements mentioned are with other agencies, to which COSMA is at best a third party.

What is COSMA's "long term plan for preventing overdraft of the groundwater basin" referred to at 27? The WSA must specifically identify this Plan and provide a summary so that the reader can understand how this Plan may be able to mitigate the damage caused by overdrafting this portion of the Eastern San Joaquin Groundwater basin.

MORRIS L. ALLEN, P.E.
CONSULTING CIVIL ENGINEER

CURRICULUM VITAE
MORRIS L. ALLEN, P.E.

Education:

San Jose State University, San Jose, California: B.S. in Civil Engineering with an emphasis in Environmental Engineering.

San Jose State University, San Jose, California: M.S. in Civil Engineering with an emphasis in Water Resources Management.

Registration:

Registered Professional Engineer (Civil), State of California

Certified Grade T5 Water Treatment Operator, State of California

Memberships:

American Society of Civil Engineers
American Water Works Association
American Public Works Association
International Association of Environmental Engineers
Water Environment Federation
California Water Environment Association

Summary of Background and Experience:

Over 36 years of progressively more responsible professional experience in civil engineering disciplines, including design, construction management, contract administration, facilities operation and management, management of various civil works, including flood control, watershed management, forestry, industrial complexes, public housing, sewage collection, treatment and disposal, stormwater systems, water supply, distribution and treatment, and other public utility systems.

Current Employment:

Civil Engineering consultant (sole proprietorship) in water supply, treatment and distribution, wastewater, sewage disposal systems; and utility and stormwater

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management and operations. Legal consulting and expert witness testimony in cases pertinent to experience.

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** SYNOPSIS OF PROFESSIONAL POSITIONS **

MORRIS L. ALLEN, P.E.

Employer	Date	Position	Responsibilities
Self-employed	January, 2003 to present	Consultant	Expert Witness; Civil Engineering; water, sewer, stormwater
City of Stockton	August, 1986 to December, 2002	Director of Municipal Utilities	General management of metropolitan regional water, sewage and storm drainage utility
City of Santa Cruz	October, 1974 to July, 1986	Director of Water Department	Full responsibility for management and direction of a major regional retail water utility
Tahoe City Public Utility District	October, 1971 to September, 1974	Chief Engineer and Assistant Manager	Responsible for all aspects of engineering program for a public water and sewer utility including maintenance and operations
Santa Clara Valley Water District	January, 1970, to September, 1971	Assistant Division Engineer	Construction contract administration and contract management
U.S. Navy Civil Engineer Corps	January to December, 1969	Assistant Director, Danang Design Division	Management and coordination of military design office in Vietnam
U.S. Navy Civil Engineer Corps	April, 1967 to December, 1968	Assistant Public Works Officer	Management of large and complex public works facility for Weapons Station and Polaris Missile Base
Santa Clara Valley Water District	December, 1964 to September, 1966	Assistant Civil Engineer	Construction Contract admin and design of flood control projects

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ATTACHMENT 14

Northeastern San Joaquin Groundwater Banking Authority
Coordinating Committee Meeting Summary
Wednesday, December 13, 2006

Added Item – Recognition of Outgoing GBA Board Chair:
Mr. Tom Flinn and Mr. Tom Gau recognized the contributions of Chairman Jack Sieglock to the GBA and presented him with a plaque to commemorate his service. Chairman Sieglock is termed out as a supervisor and therefore will no longer serve on the GBA Board.

A. Discussion on IRWMP Project Implementation Grant Recommendations – Mark Williamson/Brandon Nakagawa:
Mr. Nakagawa presented an overview of which Proposition 50 Implementation Grant applications were funded and which were not. While the GBA previously received approximately $500,000 towards the IRWMP planning grant process, the City of Stockton implementation application for the Delta Water Supply Project (DWSP) did not make the cut. The purpose of this presentation was to help analyze whether adaptations in the IRWMP process would be helpful to better position the county for future implementation grants.

Mr. Nakagawa stated water supply and water quality projects are favored, especially those that are cooperative among agencies. A 25% match is required with extra points going to those who provide a 50% match. However, the match requirement is waived if the project assists Disadvantaged Communities.

The evaluation process was a two-step process. The first step consisted of ratings on the completeness and caliber of the IRWMP and how the proposed project addressed the IRWMP priorities. The second part of the initial evaluation focused on the project itself and the IRWMP portion dropped in weight by 50%. In the second step, while the IRWMP was given less weight, more weight went to the specifics of the project.

The DWSP did not score well because of the following issues according to the assessment by the DWR rating team:

- The IRWMP is not adopted
- There are no adopted priorities
- It was not clear how the project ties to the IRWMP
- There is no adopted financing plan
- The project EIR was not certified
- Pumping water from the Delta is not a right, but a privilege
- It is a stand-alone project benefiting only one city
- The project conflicts with State priorities
- There was no discussion of Disadvantaged Communities
- Cost estimate are not verified
- The need for the project not clear

Mr. Williamson related the situation with another project he worked on, the Mojave Project. It was the highest scoring project in the first phase of the evaluation because their IRWMP is adopted, etc. However, in the second phase of review it was eliminated because of lack of readiness, no demonstrated environmental or Delta benefits, and it was seen as being constructed to accommodate new growth.

Mr. Kevin Kauffman stated he heard at the ACWA conference that DWR is going to revise the evaluation process so this discussion may be premature.

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ATTACHMENT 15

Water Supply Evaluation for the General Plan Update Preferred Alternative

Completed for City of Stockton Municipal Utilities Department
and
California Water Service Company

December 30, 2005
Amended May 12, 2006

CITY OF STOCKTON

MWH
MONTGOMERY WATSON HARZA

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Exhibit "C" – City of Stockton Delta Water Rights Permit

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Exhibit "E" – Results of 70 Year Historical Hydrology Model Runs from 2005 to 2035 in Five Year Increments

Exhibit "F" – Groundwater Studies Supporting Agricultural Credits

Exhibit "G" – SEWD Comment Letter for North Stockton Water Supply Assessment

List of Acronyms

AF – Acre-feet

AF/ac/year – Acre-feet per acre per year

Cal-Water – California Water Service Company

CEQA – California Environmental Quality Act

COS – City of Stockton

COSMUD – City of Stockton Municipal Utilities Department

COSMA – City of Stockton Metropolitan Area

CVP – Central Valley Project

DHS – California Department of Health Services

DWR – California State Department of Water Resources

DWSP – Delta Water Supply Project

ESA – Endangered Species Act

GP Update – General Plan Update

GIS – Geographic Information System

IGSM – Integrated Groundwater Surface Water Model

M&I – Municipal and Industrial Uses

mgd – million gallons per day

msl – mean sea level

NEPA – National Environmental Policy Act

OID – Oakdale Irrigation District

SEWD – Stockton East Water District

SOI – General Plan Sphere of Influence

SSJID – South San Joaquin Irrigation District

SWP – State Water Project

TAF – Thousands of Acre-feet

TAF/year – Thousands of Acre-feet per Year

USBR – United States Bureau of Reclamation

UWMP – Urban Water Management Plan

WSE – Water Supply Evaluation

WSA – Water Supply Assessment (as defined by SB610)

WTP – Water Treatment Plant

Introduction

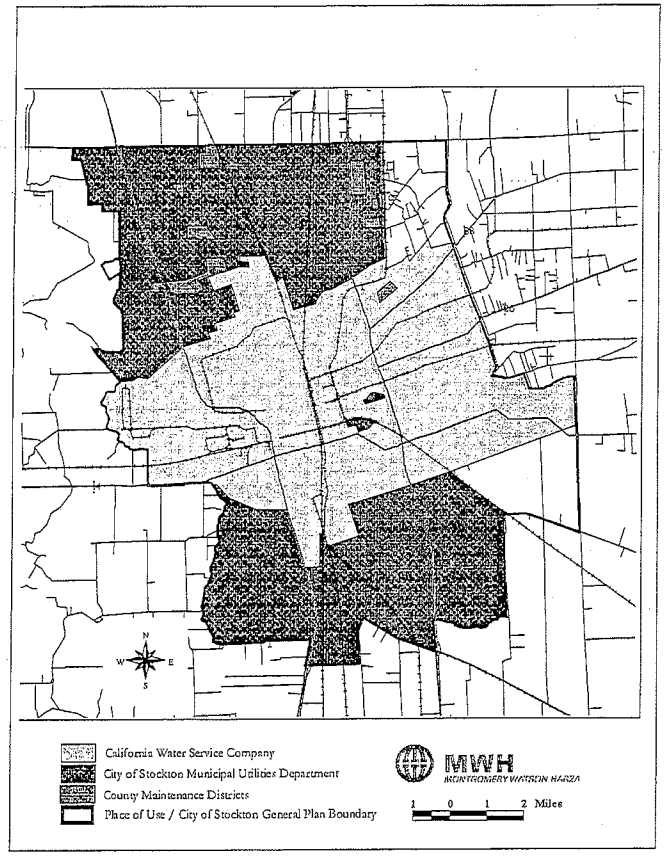
The City of Stockton (COS)[1] is currently in the process of updating its General Plan (GP Update) as required by state law in the preparation and maintenance of all planning documents that serve as blueprints for a community's land use and resource conservation decisions. As part of this process, the City of Stockton Planning Department has requested a study to determine the adequacy of water supply resources to serve the preferred land use plan that will supersede the current adopted 1990 General Plan.

To initiate the evaluation of the adequacy of water supplies, the City of Stockton Planning Department formally requested the City of Stockton Municipal Utilities Department (COSMUD) and the California Water Service Company (Cal Water) to prepare assessments of the extent to which existing and anticipated future water supplies will suffice to serve levels of growth contemplated under the proposed updated General Plan. This request reflected the fact that the retail purveyors' respective service areas lie entirely or partially within the GP Update boundaries. San Joaquin County has service areas within the planning boundary but was not formally notified by the Planning Department of this request because County service areas within the COS are developed to their maximum build-out and will not be affected by changes in land use proposed under the GP Update. However, supply and demands for the County service areas will be accounted for in the evaluation. **Figure 1** shows the current boundaries of the service areas relative to the current General Plan boundaries.

As municipal water purveyors that provide retail water service to the COS, the notification of the need for a determination of water supply sufficiency invokes a response from each agency. This response is intended to provide the kind of information required of a formal "water supply assessment" required by Water Code section 10910 et seq. (commonly known as SB 610), even though the purveyors do not believe that SB 610 actually applies to a comprehensive general plan update. Rather, SB 610 applies to categories of "projects" subsidiary to city-wide general plan updates (e.g., specific plans or general plan amendments contemplating the construction of more than 500 dwelling units). The limited application of these Water Code requirements was very clear in the predecessor to SB 610, known as SB 901 (see former Water Code sections 10910, subd (a) and 10913.) When SB 901 was in effect (1996 through 2001), it was clearly intended to complement the requirements of Government Code sections 65352, subdivision (b)(7), and 65352.5, which remain in effect and require cities and counties, in updating their general plans, to consult with "public water agencies" and to receive from them detailed information regarding water supply availability.

[1] COS is used in when referring to the political entity of the City of Stockton; whereas, the City of Stockton Metropolitan Area (COSMA) is used to refer to the geographic area that is or will be the service areas of the urban water retailers.

Figure 1. City of Stockton Water Retail Purveyors



Even though the purveyors believe that SB 610 was not intended to change the approach that was in effect during the lifetime of SB 901, the purveyors, in the spirit of cooperation, have nevertheless undertaken preparation of this document with the intent of having it function as a de facto water supply assessment, despite the general nature of the project at issue and the inevitably of the somewhat general nature of discussion included herein. It is important to acknowledge that this document is not a substitute for the formal consultation required by Government Code sections 65352 and 65352.5. See **Exhibit "A"** for response memo from COSMUD to the City of Stockton Community Development Department regarding the purpose of this WSE and the manner in which this WSE fulfills their request for a water supply assessment.

Background

The water supply resources serving the City of Stockton Metropolitan Area (COSMA), as it is defined by the GP Update, and the manner in which the water supply resources are conveyed, treated, and distributed to various customer sectors currently and into the future require some knowledge of the agreements and programs that are currently moving forward with a high level of certainty and those that are needed and being planned for on the path to full build-out of the GP Update.

The intent of the California Water Code 10910 - 10915 (inclusive) is to provide a means for coordination between land use lead agencies and public water purveyors. The purpose of this coordination is to ensure that prudent water supply planning has been conducted, and that planned water supplies are adequate to meet existing and anticipated demands.

Water Code Sections 10910 - 10915 (inclusive) require land use lead agencies: 1) to identify the responsible public water purveyor for a proposed development project, and 2) to request from the responsible purveyor, a "Water Supply Assessment" (WSA). The purpose of the WSA is to demonstrate the sufficiency of the purveyors' water supplies to satisfy the water demands of the proposed development project, while still meeting the current and projected water demands of existing customers. Although, as explained in the Introduction, the purveyors do not believe that a formal water supply assessment is required for a general plan update, this document has nevertheless been prepared with the intent of including all of the contents required of a formal WSA. This is so despite the title of the document being a Water Supply Evaluation (WSE) rather than a WSA.

Project Description

The City of Stockton is located near the center of San Joaquin County immediately south of the community of Lodi and north of the community of Manteca. The City serves as the County seat and is located 83 miles east of the San Francisco Bay area and 40 miles south of the City of Sacramento. Interstate

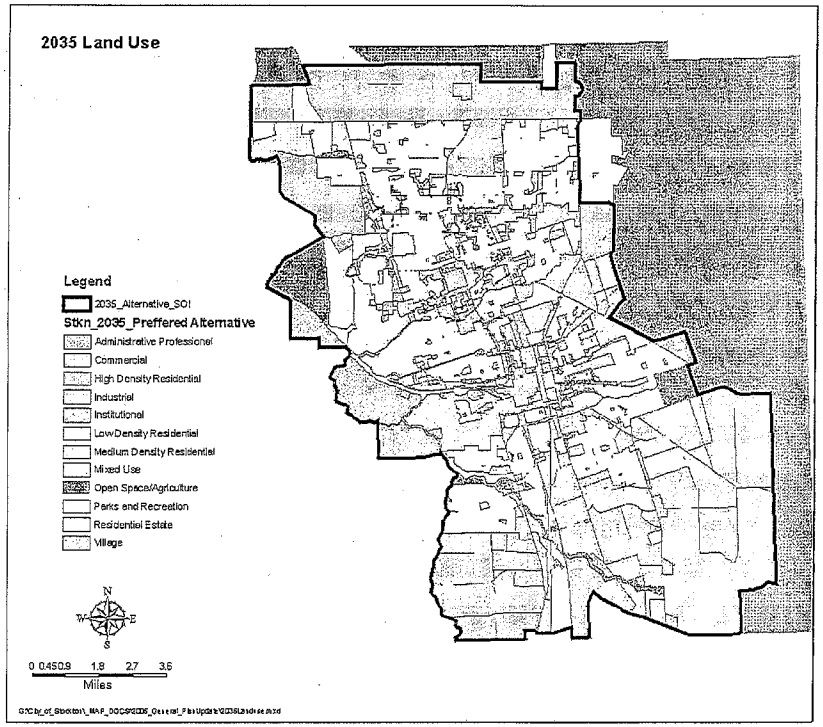
5 runs north-south near the western border of the City and State Route 99 runs north-south near the eastern border of the City. The primary zone of the Delta is located to the west of the City. Much of the City is located within the primary and secondary zone of the Delta.

The preferred land use alternative or GP Update encompasses all of the area inside the City Limits, the existing SOI Area, and additional unincorporated land areas that may influence future planning efforts. See **Figure 2** for location and extent of GP Update (based on GIS shape files) and **Exhibit "B"** for latest preferred land use diagram submitted by planning with the WSE request. These current boundaries extend to Armstrong Road and Live Oak Road on the north; portions of State Route 99 and the Stockton Diverting Canal, and Jack Tone Road to the east; and Roth Road on the south. The western boundary is formed by several features including a portion of the San Joaquin River, State Route 4, Burns Cutoff and Bishop Cut.

Current Water Supply Condition

Like many northern California communities, the City of Stockton Metropolitan Area (COSMA, see footnote 1) is experiencing substantial population growth and increasing water demands. At the same time, regulatory pressures, increased water usage in neighboring areas, and saline intrusion affecting groundwater supplies are straining the City's already limited water supplies. As a result, the COS has focused attention on the availability of existing surface water supplies from Stockton East Water District (SEWD), obtaining new surface water supplies from a new Delta diversion, demand management through water conservation practices, and the need to manage groundwater resources at a sustainable yield. The objective is to achieve a long-term reliable water supply for existing and future customers.

Figure 2. Preferred General Plan Update Alternative Land Use Diagram (May 2005 Version)



A product of the effort in obtaining new surface water supplies from the Delta is a water right application[2] to the State Water Resources Control Board (SWRCB) on January 6, 1996, that requested an increasing amount of surface water from approximately 20,000 acre-feet per year (AF/year) initially, up to 125,900 AF/year in 2050. To divert and deliver this surface water supply, COSMUD (on behalf of the City, Cal-Water, and San Joaquin County) is pursuing the Delta Water Supply Project (DWSP) which will achieve the following three objectives:

- To replace declining and unreliable surface water supplies.
- To protect and restore groundwater resources.
- To provide adequate water supplies to accommodate planned growth.

The DWSP is a multi-phased surface water project that is viewed as having two distinct phases. Phase 1 is the critical phase of the DWSP that has undergone CEQA evaluation and is depicted in all studies at the project level. Phase 1 achieves the following: 1) meets existing water demands that are threatened by reductions in existing surface water and groundwater supplies, 2) meets flexible and consistent groundwater management of the groundwater basin underlying the COS, and 3) meets growing water demands from new development in the COS from present to build-out of the 1990 General Plan. Phase 2 is viewed as the next increment of DWSP capacity when it is needed based on water demands and supplies beyond the 1990 General Plan and has been evaluated in the planning documents at the programmatic level only. The City will prepare a new and complete CEQA environmental review prior to seeking additional water rights from the SWRCB for water in addition to that provided pursuant to Water Code Section 1485.

On April 22, 2003, Stockton's City Council approved the DWSP Feasibility Report and directed the Municipal Utilities Department (COSMUD) staff to complete the necessary environmental studies to comply with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). An environmental impact report ("EIR") was prepared to satisfy CEQA with respect to the DWSP. On November 8, 2005, the Stockton City Council certified the EIR and also authorized the City staff to proceed with the project. The certified document was included as part of the water rights application package submitted to SWRCB, which issued a permit for a Delta diversion for Phase 1 in the amount of 33,600 AF/year on March 8, 2006 (See Exhibit "C").

With certification of the EIR and SWRCB issuance of the water right permit, the City will proceed with design and construction of Phase 1 of the DWSP. Upon start up of the Phase 1 DWSP, the urban water retailers will have a third source of supply in addition to the existing treated surface water supply from the SEWD

[2] The application claims two separate, cumulative water rights: a right pursuant to California Water Code Section 1485, and a right pursuant to the "watershed of origin" provisions of California Water Code Section 11460 and the Delta Protection Act, California Water Code Section 12200 et seq. These water rights are discussed in-depth starting on Page 41 under the Section titled, "Necessary DWSP Water Right Permits"

treatment plant and existing groundwater supply from wells located throughout the COSMA service area. The reliability of water supply resources for the COSMA will be greatly enhanced for the next 20 years while plans and agreements are secured for increased water supplies for the long-term build-out of the COS GP Update. Phase 2 DWSP will be pursued only when water demands and supplies require the additional supply capacity. As mentioned above, a separate approval process for Phase 2 will take place at that time.

Overview of COSMA's Future Water Demands

Determination of Water Demand for the GP Update

The water demands associated with new growth in the COSMA have been evaluated as part of the DWSP Feasibility Report. The findings of the DWSP report have been incorporated into the City of Stockton's 2005 Urban Water Management Plan (UWMP)[3]. The DWSP report evaluated current water demands and developed a land-use based water demand projection for build-out of the current City General Plan and then developed a population based demand for expected growth beyond General Plan build-out which was projected to be 2015.

Population and land use based water demand forecasting are two widely accepted methods of calculating water demands. Population methods use per capita water demand factors. Estimated per capita demands are generated through use of total water production records and census population data for the service area. One weakness of population-based projection methods is that the water demands are uniformly distributed over the service area, not accounting for land uses that have wide variations in demands. Another disadvantage is that it does not accurately reflect changes in the mix of residential and non-residential water demands over time. Using a water demand growth rate based on historic population growth rates is most appropriate for addressing water demands that extend beyond the planning horizon of the General Plan.

Because it reflects land uses planned for by a community and it better accounts for spatial demand variations, land-use based projections are typically preferred. Land-use based projections can be used when land uses and water demand data are available for specific land-use categories. Estimating a water demand factor for a land use category requires meter data specific to the category and a sample population of significant size. Land use based water demand factors are developed on an acre-feet per acre per year (AF/ac/year) basis.

Compliance with SB 610 is simplified greatly by utilizing the land use based methodology. In requesting assurance of a reliable water supply, development projects can be tracked by the General Plan land use map to determine if the lands were included in the water supply analysis and at what levels of assumed

[3] The information from the December 2005 UWMP must be included in the Conservation Element of the General Plan. See Government Code Section 65302(d).

water demand. For purposes of the DWSP Feasibility Report, land use based water demand factors were determined and applied to the current 1990 General Plan. This application of land-based unit demand factors totaled approximately 85,330 AF/year of water demand by 2015. The COSMA is currently producing 68,000 AF/year. The same factors are applied to the GP Update to consider the build-out water demand as shown in **Table 1** showing a build-out water demand of 156,083 AF/year in 2035.

The next level of analysis of water demand is the temporal buildup of demand. Both the water right application and the DWSP report assumed a constant population growth to 2050. The rate of growth increases slightly from both of these studies due to the expanded Sphere of Influence (SOI) of the GP Update. For consistency with these two documents, the same assumption will be made in this WSE. **Figure 3** provides both the population growth and water demand over the period from 1990 to 2000 (latest census data), and then to 2035 (build-out of the GP Update). Population is on the left y-axis and water demand is on right y-axis.

Based on **Figure 3**, water demands within the COSMA are projected to increase from the present 68,000 AF/year in 2004, to 85,330 AF/year in 2015 (build-out of 1990 General Plan) to156,083 AF/year by build-out of the GP Update. **Figure 3** is used to determine, describe, and evaluate the needed water supply resources to meet growth from 2005 to 2035. This figure indicates a total population at 2035 of 592,000 people assuming an average 2.4% growth rate, roughly equating to 235 gallons of water per day per capita.

The DWSP Feasibility Report used a 1.9 percent growth rate at an average of 241 gallons per capita per day. The growth rate and projected per capita water demand can be adjusted as General Plan information becomes available through customer usage and production data and information compiled as part of future updates to the UWMP. Regardless of either of the population growth or the per capita water usage, the water demand land use factors are the determining numbers used for calculating the water demand at build-out of the GP Update and will be used for this WSE.

Table 1. GP Update Build-out Water Demand Determination

Designated Land Use	Planning Area Acreage (acres)	Unit Water Demand Factor (AF/ac/year)	Water Demand AF/year
Residential Estate	2,460	1.5	3,690
Low Density Residential	26,220	1.5	39,330
Medium Density Residential	1,970	1.5	2,955
High Density Residential	1,150	3.0	3,450
Village	18,430	3.0	55,290
Administrative Professional	1,050	1.5	1,575
Commercial	4,780	1.5	7,170
Mixed Use	1,420	1.9	2,698
Industrial	17,070	1.5	25,605
Institutional	7,160	1.5	10,740
Parks and Recreation	1,790	2.0	3,580
Open Space/Agriculture	38,560	-	-
Total	**122,060**		**156,083**

Source: NOP of Draft EIR, May 2005 Table 2. Designated Land Uses...

Figure 3. Population and Water Demand Increase Over Time

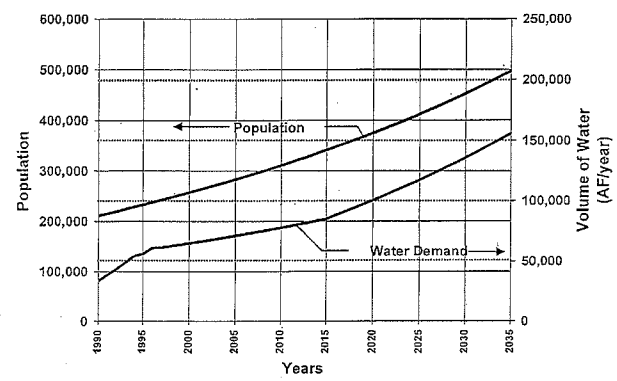
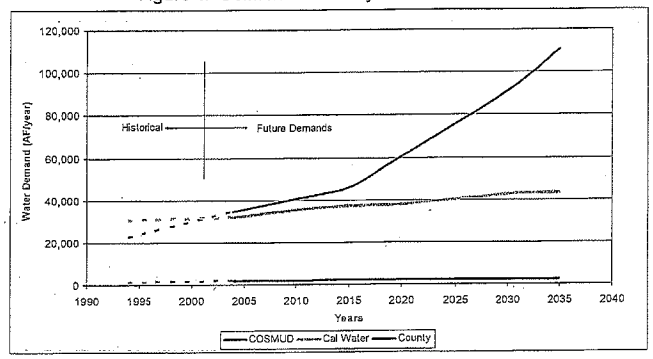


Table 2 and **Figure 4** show the past, current, and estimated projected demand to 2035 within the expanded Sphere of Influence (SOI) of the GP Update for each of the water retailers: COSMUD, Cal Water and San Joaquin County. The COSMUD is expected to experience the greatest increase in demand since most development will occur in its designated service areas. Cal Water's demand increase is projected to grow at a lower rate because much of its service area is developed. New development will either occur as infill or in areas east of Cal Water's existing service area which is not growing as rapidly as the areas in the northern and southern portions of COSMA (i.e., COSMUD service areas). Build-out of Cal-Water is assumed to occur by 2030. The County's demand is expected to be relatively static since the areas it serves are fully developed. Increases in demand would likely be due to redevelopment.

Table 2. Past, Current, and Projected Water Demands by Retail Service Provider

Year	Total Demand (AF/year)	COSMUD		Cal Water		County	
		Demand (AF/year)	Percent of Total Demand	Demand (AF/year)	Percent of Total Demand	Demand (AF/year)	Percent of Total Demand
1994	**54,204**	22,619	41.70%	30,345	55.90%	1,296	2.40%
2004	**68,714**	34,550	50.30%	32,070	46.70%	2,094	3.00%
2010	**81,250**	42,170	51.90%	36,940	45.50%	2,140	2.60%
2015	**85,330**	46,078	54.00%	37,076	43.45%	2,176	2.55%
2020	**106,250**	64,030	60.30%	40,000	37.60%	2,220	2.10%
2030	**137,500**	92,200	67.00%	43,000	31.30%	2,300	1.70%
2035	**156,083**	110,663	70.90%	43,079	27.60%	2,341	1.50%

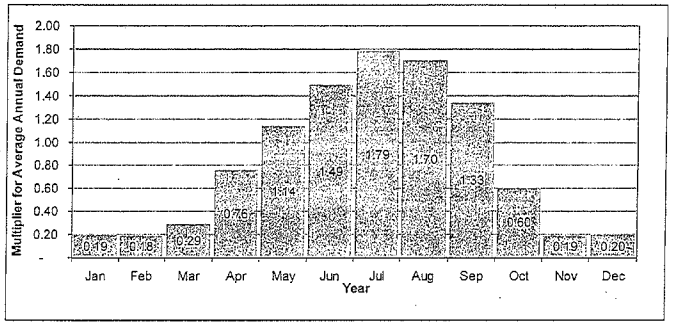
Figure 4. Demand Growth by Retail Service Provider



The above water demand projections are all based on an annual average volume of water expressed in AF/year. The use of an annual average is needed for the planning of water supply sources (e.g., surface water contracts, groundwater extraction yields, etc.) but does not address the facility side of whether the water supply facility capacity is available to convey raw surface water, extract groundwater, and treat water supplies, if necessary.

To arrive at the monthly variation in water demand, a multiplier is determined based on historical use of water in the region. For the Stockton area **Figure 5** presents the monthly multipliers that, when applied to the average annual water demand, results in the corresponding monthly water demand and needed water supply facility capacity. The month of July represents the highest water demand with a 1.79 multiplier. In million gallons per day (mgd), this results in a minimum total system capacity of 250 mgd at build-out of the GP Update. In addition, since surface water serves as the base supply, the peaking factor for surface water facilities is slightly different than for groundwater facilities. For instance, the surface water facility multiplier is 1.25 and the groundwater 1.43. When these two are multiplied together the 1.79 total system multiplier is obtained. Peak hour water facility capacity (highest water use) is met through in-system storage and is not evaluated in this WSE. Average annual sufficiency of supplies and maximum month sufficiency in water facility capacity are both evaluated in this WSE. In addition, since the COSMA is served through a conjunctive use system, there is some redundancy in system capacity to account for the dry years when surface water capacity may not be fully utilized due to supply constraints.

Figure 5. Monthly Multipliers for Annual Average Water Demand



Elements of a WSA

As mentioned in the introduction, it is the intent of this WSE to use Water Code Sections 10910 – 10915 as a template to address the elements of water supply that are of the utmost concern. This WSE is structured according to the same requirements of a WSA.

Determine if Project is Subject To CEQA [Section 10910(a)]

The City of Stockton Planning Department has made a determination that the Project is subject to CEQA.

Identify Responsible Public Water System [Section 10910(b)]

The City of Stockton Planning Department has identified COSMUD and Cal-Water as the responsible public water system purveyors for the GP Update. The Planning Department possesses information regarding existing development and other approved development applications within the GP Update SOI which should be considered in the preparation of this WSE.

Determine if UWMP Includes Water Demands [Section 10910(c)]

Projected annual water demands beyond the year 2020 are not specifically included in COSMUD's current UWMP. In Cal Water's UWMP, water demand forecasts based on population growth, not land use, are made to 2030. Although not specifically identified as such, the water demand factors adopted by the COS for water supply planning in the DWSP Feasibility Report are shown in **Table 1** in the column titled "Unit Water Demand Factor".

Identify Existing Water Supplies for the GP Update [Section 10910(d)]

Section 10910(d)(1)

Section 10910(d)(1) requires identification of existing water supply entitlements, water rights, or water service contracts and quantification of water obtained by the water purveyors pursuant to those water supply entitlements, water rights, or water service contracts in previous years.

Existing Surface Water Supplies

Stockton East Water District (SEWD) was organized as a public agency on June 7, 1948, under the provisions of the California Water Conservation District Act of 1931. Since 1978, SEWD has been treating and supplying treated surface water up to 45 mgd to the region's urban areas through its three urban contractors (water retailer providers or urban contractors): COSMUD, Cal-Water, and San Joaquin County. The historical water demands from 1994 to 2005 from each of the urban contractors are illustrated in **Figure 6**, **Figure 7** and **Figure 8**. The 2004 conditions are used as a baseline in this WSE because the hydrology and water use for 2004 are said to depict normal year conditions.

Figure 6. Historical COSMA Water Supply from Groundwater and Surface Water

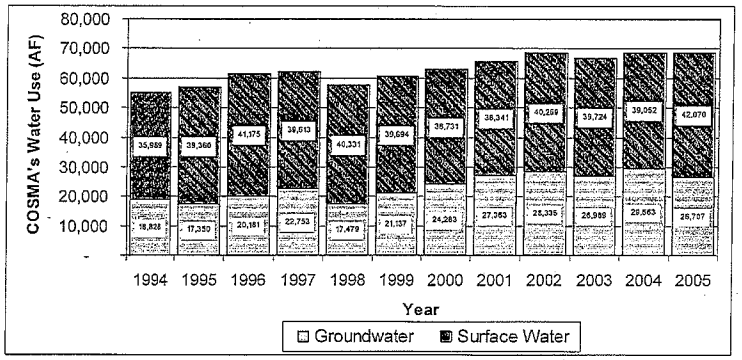


Figure 7. Historical Use of Water Supplies by Water Retailer

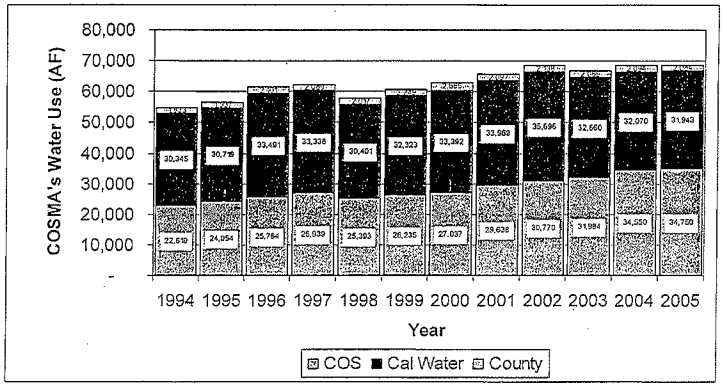
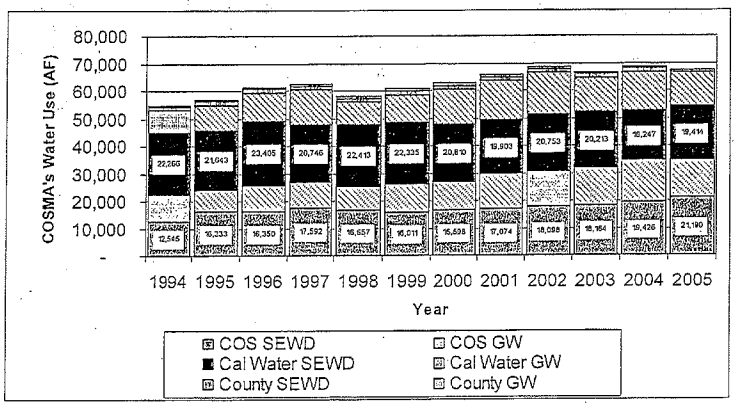


Figure 8. Historical Use of SEWD and Groundwater Supplies by Water Retailer



The existing (2004) water demand is approximately 68,714 AF/year. Both local groundwater in the urban contractors' service area and treated surface water from SEWD have met the urban contractors' water demands during this period.

The use of water by water retail provider is shown in **Figure 7** and the split between the two supplies (SEWD and groundwater) for each water retailer is illustrated in **Figure 8**. SEWD also provides surface water for agricultural irrigation to farmers within its District. This water is not considered in this WSE. Construction of improvements to the SEWD water treatment plant (WTP) are currently being made to increase plant flow capacity by 5 mgd for a rated WTP capacity of 50 mgd.

Groundwater extraction capacity within the General Plan Boundary has been designed to meet maximum day demands for COS, Cal Water and the County in the event that little or no treated surface water is available from SEWD in dry and critical years. Prior to construction of the DWSP (first phase assumed to be completed in 2010), water demands will exceed available surface water treatment capacity necessitating the construction of additional interim groundwater facilities until additional treated surface water capacity (SEWD expansion and DWSP construction) is brought on-line.

SEWD Surface Water Contract Entitlements

The COSMA currently receives surface water supplies (via SEWD) from five sources as shown in **Table 3**. Surface water supplies can come from many sources in the eastern Sierra Nevada foothills as shown in **Figure 9**. Total existing firm supplies for municipal and industrial (M&I) uses are approximated to

yield 104.1 thousand AF/year (TAF/year) under wet and above average hydrologic conditions. Their full entitlements including interim and future supply sources could yield 180 TAF/year. Currently, SEWD's ability to use its full water right amount is constrained by one or more of the following in any given year: 1) the hydrologic year type (i.e., dry year curtailment provisions in surface water contracts and reductions in surface water contracted from other agencies), 2) the COSMA M&I water demand, 3) the raw water delivery system to the SEWD WTP, 4) the rated SEWD WTP capacity, and 5) the treated water conveyance capacity from the WTP.

Existing firm surface water contracts held by SEWD include a Bureau of Reclamation (Reclamation) contract (New Hogan Reservoir) and a Calaveras County Water District (CACWD) contract on the Calaveras River based on appropriative water rights held by CACWD, and a Reclamation Central Valley Project (CVP) contract on the Stanislaus River (New Melones Reservoir). Contract documents, agreements, and applications for these surface water supplies are available for review in **Exhibit "D"**. A full description of each contract is provided below.

Table 3. Current and Future SEWD Water Sources and Critical Year Availability

Source	Annual Contract Amount Thousand Acre-feet (TAF)	Projected "Critical Year" Annual Availability (AF/year)			
		Planning Year			
		2000	2010	2020	2035
Current and Future "Firm" Sources of Supply					
Reclamation – New Hogan Water Supplies, CACWD and SEWD	Total Yield 84.1 TAF [1] SEWD Entitled to M&I or Ag **40.171 TAF**	20,000	12,000	12,000	12,000
CACWD Appropriative Water Rights	Unused CACWD Rights[2] (Currently at Approximately M&I **24 TAF** initially to **10 TAF** at build-out)	20,000	10,000	10,000	10,000
Reclamation – New Melones Interim Water Contract and Section 215 "Spill" Water	Total Contract 75 TAF (M&I **40 TAF**) (Ag & Recharge 20 TAF) (Losses 15 TAF)	Not Available in Dry Years			
SSJID Transfer - Stanislaus River	(Interim M&I **15 TAF**)	4,000	4,000	0	0
OID Transfer - Stanislaus River (includes contract renewal to 2025)	(Interim M&I **15 TAF**)	4,000	4,000	4,000	0
Future Appropriative Water Rights on the Calaveras River	(Not Yet Determined, Assumed to be M&I **50 TAF** in Wet and Above Normal years Only)	Not Available in Dry Years			
Total	**(Firm M&I 104.1 TAF initially to 94.1 TAF at build-out)** **(Approximate Max Future M&I 180 TAF)**	**48,000**	**30,000**	**26,000**	**22,000**

Notes:
1. SEWD has a right to 56.5 percent of the yield, and CACWD has rights to the remaining 43.5 percent. CACWD currently uses approximately 3,500 ac-ft of its allocation, and use of their appropriative water rights is 13,000 ac-ft.
2. Based on an agreement between CACWD and SEWD, SEWD currently has use of the unused portion of CACWD's appropriative water rights that yields approximately 24TAF.

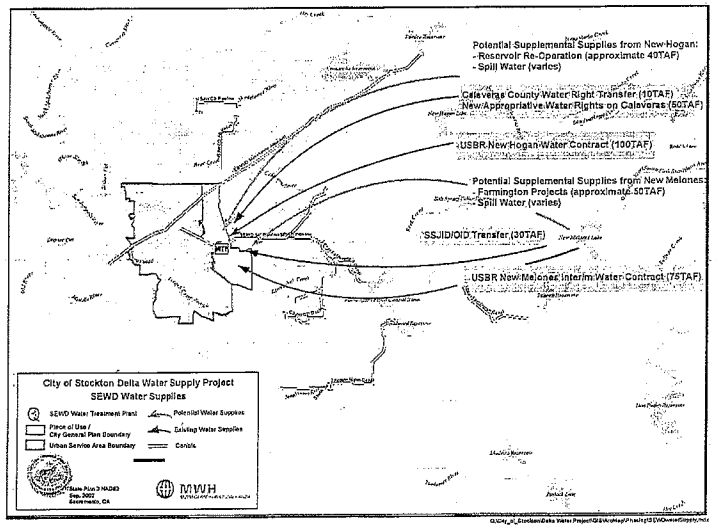
Calaveras River Contracts

The Reclamation contract for water stored in New Hogan Reservoir is a settlement contract that provides a firm supply of water in all hydrologic year types. The maximum amount available for M&I is approximately 40.171 TAF. The CACWD contract is also firm due to the contract being senior to most other water contracts on the river. However, as development continues in Calaveras County, less of the CACWD water will be available to SEWD and its customers. This contract currently yields 24 TAF and will ultimately be decreased to 10 TAF at build-out.

Stanislaus River Contracts

In 1983, SEWD contracted with the USBR for 75,000 acre-feet of surface water supply from the New Melones Project on the Stanislaus River to be delivered at Goodwin Dam. In 1987, SEWD agreed to provide a minimum of 20,000 acre-feet of treated water per year to the COS Place of Use in accordance with the contract entitled, "Second Amended Contract Among the Stockton East Water

Figure 9. SEWD Existing, Future, and Potential Surface Water Right



District, The California Water Service Company, The City of Stockton, The Lincoln Village Maintenance District, and The Colonial Heights Maintenance

District Providing For The Sale of Treated Water." For the coming year, this agreement allocates the quantity of treated surface water from the SEWD WTP that each urban water contractor (COS, Cal Water and the County) is to receive based on its percentage of total water used in the Stockton Metropolitan area during the previous year. In 2004-2005, SEWD WTP production was allocated as follows: COS – 49.75%, Cal Water – 46.72% and County – 3.53%. Because of COS' much more rapid growth in population and hence water demand during the past five years, its percentage of SEWD WTP output has increased by 6.9% from 2000 – 2001 while Cal Water's has declined by 7.0 % during the same period. The County's share has increased slightly from 3.41% to 3.53% during the same five-year period.

In 1994, SEWD completed construction of the Farmington Canal Project, connecting Goodwin Dam to SEWD's WTP expanding its raw water capacity. This provided access to SEWD's New Melones CVP Project Supply. However, in the mid 1990's implementation of the Central Valley Project Improvement Act (CVPIA) (P.L. 102-575) and other regulatory actions substantially reduced the volumes of water SEWD could expect to be delivered under its New Melones Project contract, especially in dry years.

Also included on the Stanislaus River are two interim contracts one from OID and the other from SSJID. SEWD and the urban water retailers have arrangements for interim water transfers from Oakdale Irrigation District (OID) and South San Joaquin Irrigation District (SSJID), which hold senior water rights on the Stanislaus River. The OID/SSJID water transfer contract includes an option to renew for a minimum of a ten-year period upon expiration in 2009, subject to mutually agreeable conditions. The OID/SSJID contract is currently for up to 30,000 AF/year, 15,000 AF/yr from each district. For the purposes of this WSE, it is assumed that mutually agreeable conditions will result in only one of the irrigation districts renewing to 2025. The projected variability of supply available to SEWD under the OID/SSJID contract is shown in **Table 4**.

Table 4. Availability of Water Under the OID/SSJID Interim Water Contract

Percentage of Years	Volume Available Annually (AF/year)	
	Prior to 2009	After 2009
85%	30,000	15,000
9%	12,500	6,250
6%	8,000	4,000

Existing Groundwater Supplies

The urban water retailers currently exercise (and will continue to exercise) their rights as overlying groundwater appropriators to extract groundwater from the groundwater basin underlying COSMA for delivery to its customers. Groundwater is an extremely important resource for the urban water retailers and can be managed for long term sustainability and use through conjunctive use with the surface water supplies described above.

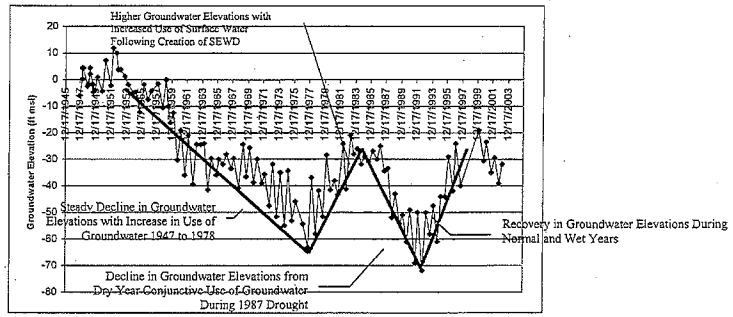
Conjunctive use implies that groundwater will be preserved as the last source of supply that is used if surface water supplies are insufficient to meet demands. Careful planning and study has taken place to insure that groundwater extraction yields, on average, do not pose any risk of salinity intrusion or undue risk to private domestic or agricultural wells in the City of Stockton area. In wet years, when surface water is more plentiful, the groundwater basin is allowed to recover through in-lieu recharge (i.e., allowing natural recharge to occur from streams and rivers and not pumping), and in the dry years, groundwater is extracted to meet the shortfall of surface water supplies in meeting M&I water demands. This WSE recognizes the need to protect this resource that is already threatened by salinity intrusion, and to provide a plan to protect the groundwater resources indefinitely. Groundwater use within the broader San Joaquin County region has resulted in a decline of groundwater elevations over the period from 1947 to 2004 as indicated by the three hydrographs shown in **Figure 10.** The figure illustrates groundwater elevations at wells located within and adjacent to the City (see **Figure 11** for well locations and recent groundwater elevations). The short duration fluctuations in **Figure 10** result from the seasonal wet and dry months and irrigation usage within each year. An overall decline in groundwater elevations from 1947 to 1978 is the result of agriculture and urban areas relying entirely on groundwater supplies.

WATER SUPPLY EVALUATION
General Plan Update Preferred Alternative
City of Stockton Municipal Utilities Department and California Water Service Company

Figure 10. Groundwater Elevation Hydrographs for Areas Near the City of Stockton

(See Figure 11 for Hydrograph locations)

a) Well 1 (State Well ID No. 02N06E26H001M) Hydrograph from 1947 to 2003

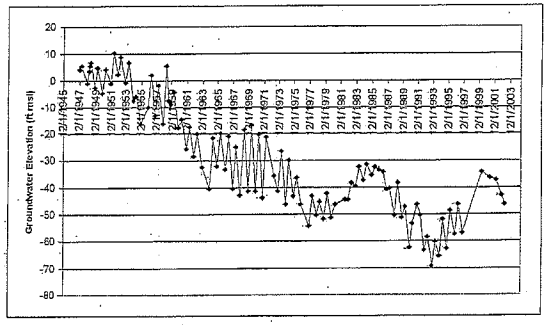


Data Source: State of California DWR State Well Monitoring Program as of November 18, 2005

In the late 1970's, SEWD began to provide supplemental supplies of surface water to the Stockton urban water retailers. The use of surface water in the COSMA resulted in an increase in groundwater elevations as shown in the hydrographs in **Figure 10**. Increases in the elevation continued until the drought of the late 1980's and early 1990s. The behavior of the groundwater basin during the drought and subsequent normal year hydrology of the late 1990's indicate that the basin is recovering and is stabilized and operating within a manageable range. The recent stabilization and improvement in groundwater elevations is the result of wet hydrology, active recharge projects, and increased surface water deliveries in areas historically served by groundwater.

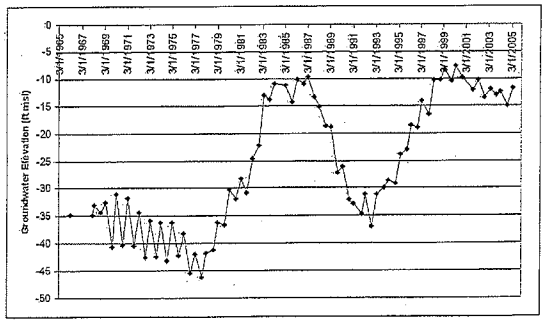
Over the period from 1947 to present, the change in slope of the groundwater surface in western San Joaquin County has created a condition that has allowed saline water to migrate east-northeast into a portion of the COSMA, degrading water quality and rendering it unsuitable for municipal or agricultural use in some areas.

b) Well 2 (State Well ID No. 02N07E15C001M) Hydrograph from 1947 to 2003



Data Source: State of California DWR State Well Monitoring Program as of November 18, 2005

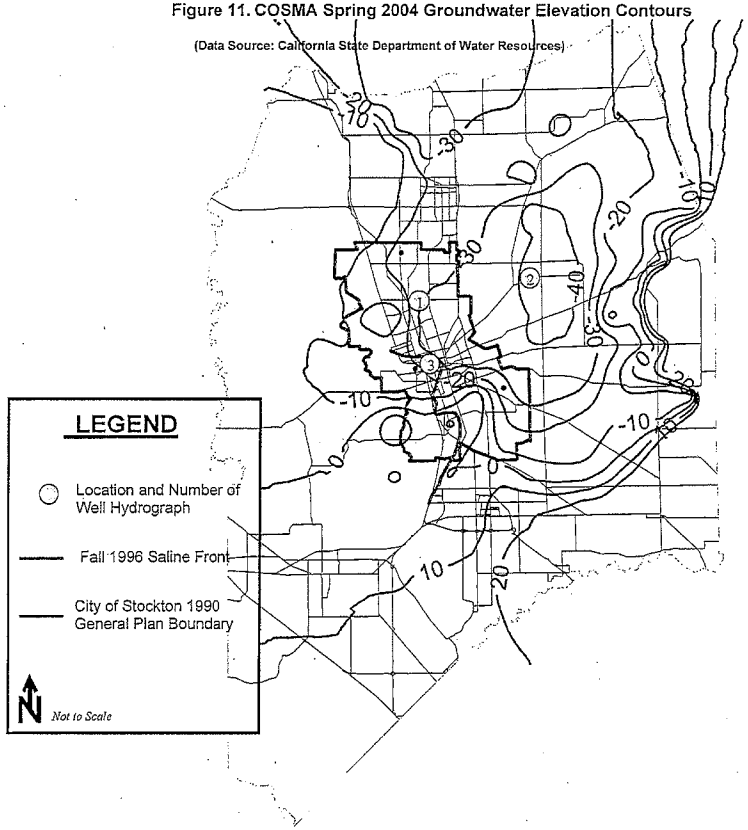
c) Well 3 (State Well ID No. 01N06E03K001M) Hydrograph from 1947 to 2005



Data Source: State of California DWR State Well Monitoring Program as of November 18, 2005

Figure 11. COSMA Spring 2004 Groundwater Elevation Contours

(Data Source: California State Department of Water Resources)



The sustainable yield of the groundwater basin is based on changes in the rate of movement of the salinity front. Over the years, there have been various estimates of the sustainable long-term yield from the groundwater aquifer. The February 1992 Supplemental Report for Water Supply prepared for the COS Special Planning Area Study states:

" about 40,000 acres and an average withdrawal of 0.75 AF/ac/year. ...groundwater can provide from 0.75 to 1.0 AF/ac/year on a long term basis."

Other references to sustainable groundwater yield are included in the COS 1995 Urban Water Management Plan Update, which uses a long term firm yield of 1.0 AF/ac/year, and from the North Stockton Master Plan in which 0.75 AF/ac/year is used. A principal objective of the COSMA urban water retailers is to reduce groundwater overdraft and protect the groundwater basin from further saltwater intrusion and water quality degradation. Thus, it is appropriate to use a reasonable but conservative assumption for groundwater extraction in the urban water retailer's long term water supply planning to insure that the long-term program is protective of the groundwater resources.

Existing Water Supply System Capacity

As shown in **Figure 1**, the City is separated into three distinct service areas. These service areas or water systems are described below and are based on 2004 conditions.

California Water Service Company System. The Cal Water service area is comprised of the older downtown portions of the City and makes up the middle one-third of the Planning Area. The existing distribution network is reflective of a groundwater-only system where multiple well sources have reduced the need for large transmission facilities. A single backbone transmission main originating from the east side of the Cal Water service area is used to convey treated surface water from the SEWD WTP. Cal Water currently has a maximum day demand of 64 mgd served by 58 wells, and 26.4 mgd of SEWD surface water capacity.

COSMUD North System. The COSMUD north system is bounded by Eight Mile Road on the North, the City Boundary on the east and west, and the large shipping channel and Cal Water Boundary on the south. Like Cal Water, the existing network is reflective of a groundwater-only system that has been upgraded with a series of backbone transmission mains to convey surface water from the SEWD WTP. The COSMUD north system currently has a maximum day demand of 39.8 mgd served by 23 wells, and 18.6 mgd of SEWD surface water capacity.

COSMUD South System. The COSMUD south system comprises the southern one-third of the Planning Area bounded by Cal Water on the north and the Urban Service Area Boundary on the east, west, and south. As of November 2005, the COSMUD south system had a maximum day demand of 9.5 mgd served by 6 wells. A pipeline project called the South Stockton Aqueduct was constructed in 2005 bringing treated surface water from the SEWD WTP to the COSMUD south system providing surface water capacity that could accommodate full build-out water demands of the service area. Currently and until operational experience is gained throughout the coming years, the amount of SEWD WTP capacity available to the system is uncertain and would likely require that less SEWD surface water be used by the COSMUD north system.

In addition to the three water systems above, there are small pockets within the COSMUD north system that are operated and maintained by San Joaquin County through the Lincoln and Colonial Hills Maintenance Districts. These service areas receive groundwater through wells located in both the maintenance districts and from the COSMUD north system. These areas also receive some surface water from SEWD conveyed through the COSMUD north system. The three water systems and their respective capacities of groundwater and surface water are provided in **Table 5** below. The total system capacity as of 2004 is approximately 160 mgd.

Table 5. Water System Capacity for Existing and Foreseeable Water Demands by Retail Water Service Provider

	Water System Capacity as of 2004 (mgd)			
	SEWD WTP	DWSP WTP	Groundwater	Total Supply
COSMUD North System	19		40	58
COSMUD South System	-		10	10
Cal-Water	26		64	90
County	-		2	2
Total	**45**	**-**	**115**	**160**

Notes:
1.) County service areas do receive surface water and groundwater wholesaled and wheeled by either COSMUD or Cal-Water. The amount of groundwater capacity shown is what is believed to exist within their service area. This number has not been confirmed with the County.

The total existing 2004 water demand is approximately 93 mgd (68,714 AF/year of existing demand converted to maximum day demand in mgd). The apparent oversizing of water facility capacity is due to much of the COS depending on groundwater prior to the SEWD WTP and more currently the need to operate the water system based on a conjunctive management program that accounts for dry year curtailments in surface water supplies treated at the SEWD WTP.

On-going Conjunctive Management Program

This section describes how the water supply sources in the COSMA are currently being operated in conjunction with each other to meet its demands. This

analysis includes modeling a complete conjunctive management program using all of the existing COSMA water supplies and applying those supplies against existing and reasonably foreseeable water demands.

For purposes of this WSE, reasonably foreseeable is defined as existing water demands plus all new development demands that have either been approved or have a completed Water Supply Assessment on file. The total existing water demand is calculated to be **77,965** AF/year as shown in **Table 6**. This table includes existing development, development under construction, approved tentative maps, and planning applications with completed WSAs on file with COSMUD. The analysis addresses the question of whether existing supplies can meet existing demands over the next 30 years. Especially, it addresses the concern if groundwater can sustain existing demands if curtailments in surface water occur in the dry years. Under existing conditions, groundwater extractions are targeted to not go above the long-term operational yield of the basin (0.75 acre-ft/acre/year).

Table 6. Existing, Approved Development and Proposed Projects Acreages and Water Demands

	Development	Existing, Approved Development and Proposed Projects Acreage	Water Demand (AF/year)
Existing	Existing Development[1]	46,300	68,810
Approved	Approved Development	1,613	2,581
Proposed Projects	Cannery Park	450	720
	Paradise Villages	683	1,093
	Origone Ranch	394	630
	North Stockton Phase III	237	379
	Bear Creek West	1,149	1,838
	Bear Creek East	318.17	509
	Tidewater Crossing	877.82	1,405
	Subtotal for Existing, Approved Development, and Proposed Projects	**5,722**	**9,155**
	Total COSMA	**52,022**	**77,965**

Notes: 1. Existing demands vary slightly from other references based on the value being normalized to hydrologic conditions considered for modeling purposes.

SEWD supplies and other groundwater facility supplies will meet average annual and maximum day municipal water demands. For this analysis, it is assumed that SEWD will maintain the current 50 mgd[4] surface WTP capacity until 2010. For modeling purposes, it is assumed that SEWD WTP capacity is expanded to

[4] The rated WTP capacity is based on the reliable output of the WTP under wet weather conditions with higher turbidity in the raw water supply. SEWD representatives have stated that the WTP can provide 64 mgd of maximum day output during the summer months if water supplies are available. For modeling purposes, the 50 mgd output is used.

60 mgd in 2016. CEQA environmental documentation will be needed for the SEWD WTP efficiency and upgrade work; however, it will most likely result in a negative declaration or a mitigated negative declaration due to all activities likely taking place within the existing WTP site. The financing of these improvements will be coordinated in a similar manner as the initial and on-going construction of SEWD capital facilities through state and federal grants, and contributions by COS rate payers.

The operation of the conjunctive use model assumes that water demand is met first by SEWD and lastly by groundwater. Additional enhancements to the design and operations of the SEWD WTP are assumed to minimize the impact of scheduled maintenance, and account for the impact of higher turbidity in the raw water supply especially in the wet months of the wet years.

Groundwater extraction capacity within the existing service area boundary is conservatively sized for a certain level of redundancy for service in critical years, to meet maximum day demands, and to meet fire flow requirements. In the event that surface water is curtailed by contract, especially in dry and critical years, groundwater will be a more significant portion of the urban water retailers' water supply. Under these conditions water demands will exceed available surface water treatment capacity output necessitating the on-going use of groundwater until normal levels of SEWD WTP production are restored.

The timing and amount of water assumed available from each SEWD source is based on conservative estimates of the reliable yield of each source and the probability of the various contracts being renewed (See **Figure 12** for 35 year projection of average surface water supplies and their sources).

The OID and SSJID are both renewable contracts. Negotiations for renewal can take place as late as 2009. It should be noted that in the DWSP EIR, the assumption for these contracts used 2009 as a conservative termination date for one of the two contracts and 2019 for the expiration date of the remaining contract. The change in this WSE to only one contract to 2025 is based on updated information and that one district, OID, in their draft Water Resources Plan, calls for long term transfer agreements (water sales) as a means to fund needed infrastructure improvements in their water delivery system.

After expiration of the OID contract water in 2025, it is assumed that additional and higher use of other SEWD supplies takes place because of a need for supply replacement and available capacity in the SEWD WTP. The supplies would come from the higher utilization of the New Hogan and New Melones CVP contracts. The New Hogan contract is assumed to be subject to CVP deficiencies which include shortages of up to 40 percent in critical years as well as provisions that make the New Melones CVP contract water available only in the wet years. Appropriative water rights on the Calaveras River are not assumed to be available in the existing scenario because the water right has not been obtained.

To simulate the variability of water supplies for differing hydrologic conditions, a 70 year historic model of hydrology was used to determine the adequacy of the sum total of water supplies in any given hydrologic year type. For instance, in dry years, surface water curtailments are considered, so groundwater and rationing are used to make up the difference. The objective is that over the 70 years, the groundwater use does not exceed the predefined sustainable yield of 0.75 AF/acre/year as described above. **Figure 13** shows the results at 2035 on how water demands are met from the above mentioned sources. This figure shows that, in even the driest historical hydrologic periods (say 1976 to 1978 or 1987 to 1992) there is sufficient water supply to meet existing water demands with 2035 surface water supply availability and use of groundwater.

Figure 14 shows the build-up of water demand as the top line, the safe sustainable yield as the dashed line and the modeled average yield as the bottom line. From this figure, it shows that during no time does the groundwater yield approach the safe sustainable yield of based on the 0.75 AF/ac/year.

Existing Water Supply Assessment

Given the reliability in surface water and the estimate of firm groundwater yield, the adequacy of water supplies can be evaluated for the existing condition and foreseeable projects. **Table 7** presents a comparison of normal, dry, and consecutive dry year supplies and demands based on a baseline year of 2004 for existing supplies and 2015 for foreseeable projects into the future. Water supplies and their availability are based on the forecasted conditions in 2035.

The average groundwater extraction yield over 70 years of historic hydrology at 2035 conditions is 30,394 AF/year. In dry years, slightly more groundwater is available to replace deficiencies in surface water as part of the existing conjunctive use program. The sustainable yield of groundwater is based on the amount of urban developed acreage. This developed area of 51,203 acres of existing and foreseeable acreage results in a maximum long-term average groundwater extraction rate of 40,609 AF/year based on the 0.75 AF/ac/year factor.

Table 7 presents the various water supply sources, the retail water providers and the two levels of water demand, existing and foreseeable. The table indicates that, over the 70-year period, average water supplies in 2035 meet existing water demands without exceeding the sustainable groundwater yield.

Figure 12. Projected Average Surface Water Contract Use from 2000 to 2035 Based on Existing Supplies and Water Demands

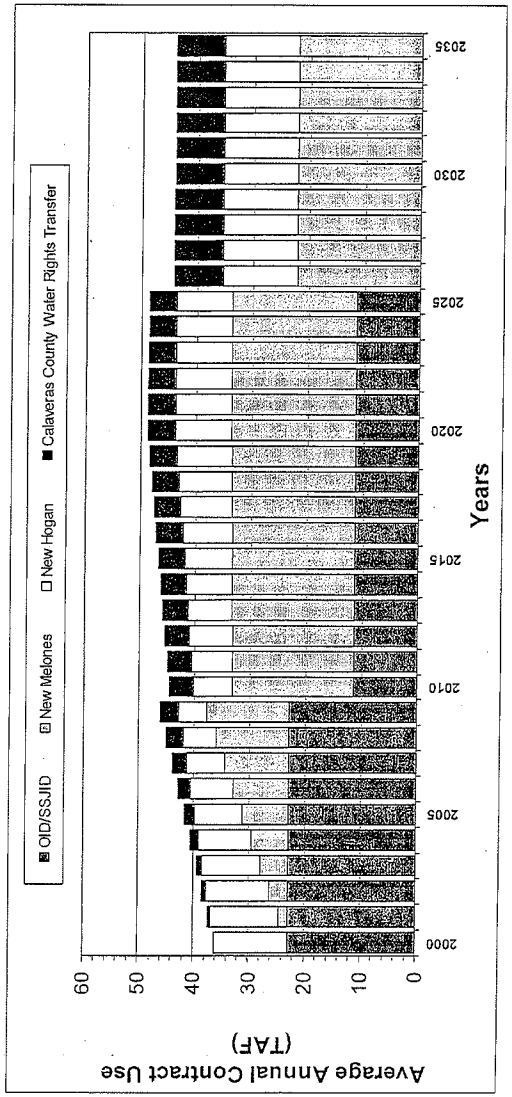


Figure 13. 70-year Historic Hydrologic Period Using Existing and Foreseeable Water Demands and Existing Water Supply Conditions

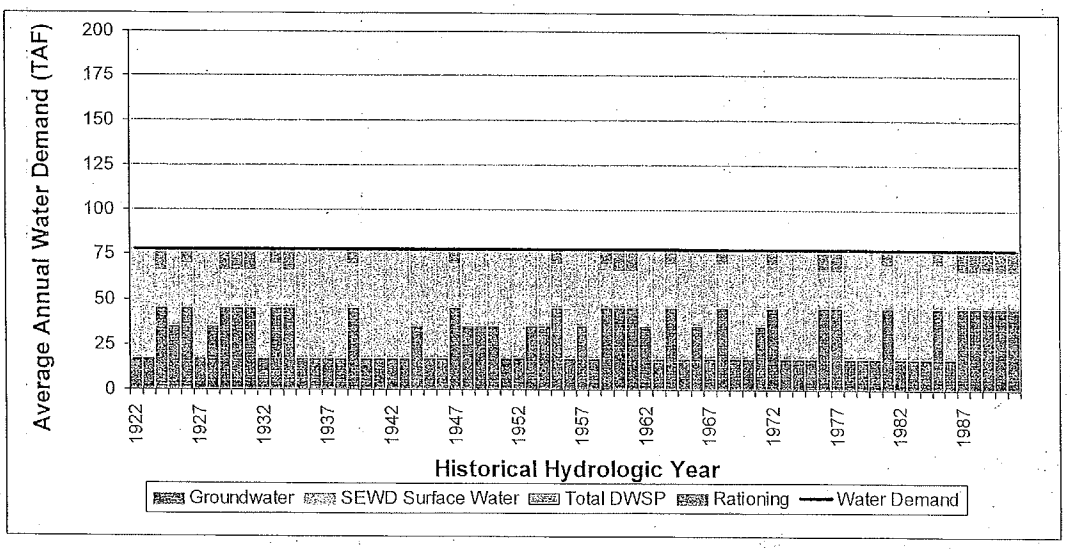


Figure 14. Average Groundwater Use vs. Existing Demand From 2000 to 2035 Using Average 0.75 AF/ac/year Groundwater Sustainable Yield

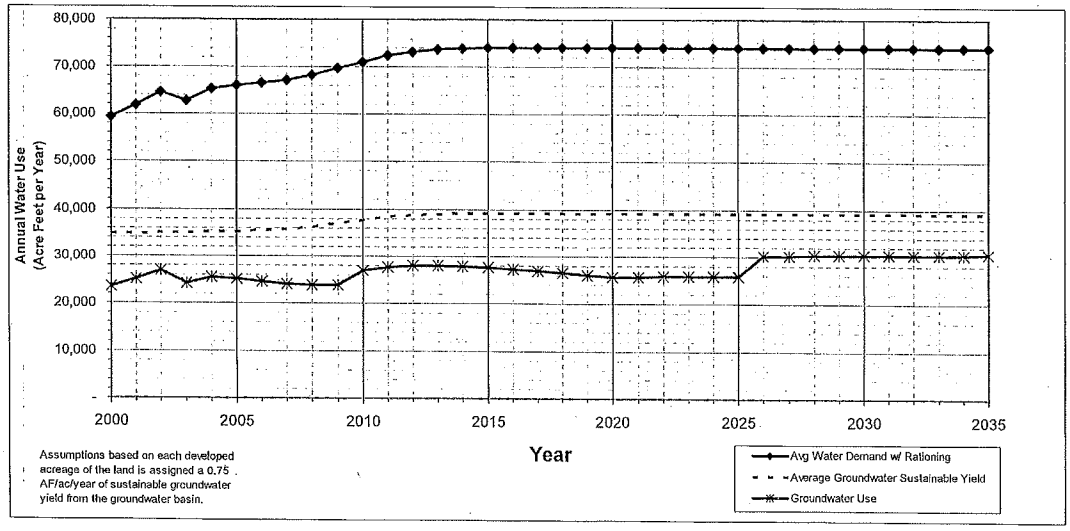


Table 7. Existing (2004) and Foreseeable Water Supplies and Demands for the COSMA by Retail Service Provider

Year Type		Demand Reduction	Existing (2004) (See Note 1)			Foreseeable (See Table 8 and Note 4, 5)			Total Existing (2004) and Foreseeable			Existing (2004) and Foreseeable Demands
			Surface Water (AF/year)	Groundwater (AF/year)	Total (AF/year)	Surface Water (AF/year)	Groundwater (AF/year)	Total (AF/year)	Surface Water (AF/year)	Groundwater (AF/year)	Total (AF/year)	(AF/year)
Normal (See Note 3)	COSMUD	0%	19,426	15,124	34,550	19,952	(11,498)	8,464	39,378	3,626	43,014	43,014
	Cal-Water		18,247	13,823	32,070	1,853	(1,057)	796	20,101	12,756	32,856	32,856
	County		1,378	716	2,094	-	-	-	1,378	716	2,094	2,094
	Total		39,052	29,663	68,715	21,805	(12,555)	9,260	60,857	17,108	77,965	77,965
Single Dry (See Note 4)	COSMUD	15%	16,512	12,855	29,368	(11,474)	16,838	7,194	5,038	31,524	36,562	36,562
	Cal-Water		15,510	11,749	27,260	(1,066)	1,734	668	14,444	13,484	27,928	27,928
	County		1,171	609	1,780	-	-	-	1,171	609	1,780	1,780
	Total		33,194	25,213	58,407	(12,540)	20,403	7,863	20,654	45,616	66,270	66,270
Multiple Dry (Hypothetical 3-year Drought Period Into the Future(using 1977 to 1980 Drought Sequence))	COSMUD	0% (1st Year)	19,426	15,124	34,550	19,952	(11,498)	8,464	39,378	3,636	43,014	43,014
	Cal-Water		18,247	13,823	32,070	1,853	(1,057)	796	20,101	12,756	32,856	32,856
	County		1,378	716	2,094	-	-	-	1,378	716	2,094	2,094
	Total		39,052	29,663	68,715	21,805	(12,555)	9,250	60,857	17,108	77,965	77,965
	COSMUD	10% (2nd Year)	17,484	13,612	31,095	(13,261)	17,311	4,051	4,223	30,923	35,146	35,146
	Cal-Water		16,423	12,441	28,863	(1,232)	1,608	376	15,191	14,049	29,239	29,239
	County		1,240	644	1,885	-	-	-	1,240	644	1,885	1,885
	Total		35,146	26,697	61,843	(14,493)	18,919	4,427	20,654	45,616	66,270	66,270
	COSMUD	10% (3rd Year)	17,484	13,612	31,095	(13,261)	17,311	4,051	4,223	30,923	35,146	35,146
	Cal-Water		16,423	12,441	28,863	(1,232)	1,608	376	15,191	14,049	29,239	29,239
	County		1,240	644	1,885	-	-	-	1,240	644	1,885	1,885
	Total		35,146	26,697	61,843	(14,493)	18,919	4,427	20,654	45,616	66,270	66,270
Average over 70-Years	COSMUD	5%	19,426	15,124	34,550	4,534	669	5,203	23,960	15,793	39,753	39,753
	Cal-Water		18,247	13,823	32,070	421	62	483	18,668	13,885	32,553	32,553
	County		1,378	716	2,094	-	-	-	1,378	716	2,094	2,094
	Total		39,052	29,663	68,715	4,955	731	5,686	44,007	30,394	74,400	74,400

Reference: City of Stockton Urban Water Management Plan 2000 Update, December 2000

Notes:
1.) Existing is actual 2004 calendar year usage of surface water and groundwater. The assumption is that 2004 depicts a normal year hydrologic and water supply availability condition.
2.) Dry year surface water amounts assume SEWD's New Hogan Central Valley Project water with deficiencies, and Oakdale Irrigation District and South San Joaquin Irrigation District deficiencies as stipulated in the contract for these water supplies.
3.) Normal year surface water amounts assume 2030 water demand and projected availability of SEWD conveyance and treatment plant capacity (not to exceed 60 mgd).
4.) Foreseeable includes all projects that have been approved or are in the process of being approved.
5.) Negative values imply a decrease in the amount of surface water or groundwater based on the use of both supplies in 2004.

Table 7 presents the average annual quantities of surface water and groundwater to make a positive determination of water supply availability. The facility capacity verification is needed to compare water supplies with their respective water facilities (e.g., can SEWD WTP deliver the volume of SEWD surface water and can it meet maximum month demand conditions in conjunction with groundwater?). This check is made based on maximum month demands or a multiplier of 1.51 times the average annual water demand. This verification is made in **Table 8.** The "Needed Capacity" is based on the maximum volume of surface water or groundwater converted to an equivalent maximum month demand shown in the given scenarios of hydrologic conditions shown in **Table 7**. This table shows insufficient SEWD water facility capacity for COSMUD but excess groundwater capacity makes up the difference so actual capacity exceeds needed capacity. Cal-Water and the County both have sufficient supply capacity to provide for existing and foreseeable water demands.

Table 8. Verification of Maximum Month Water Facility Capacity by Water Retail Service Provider

	SEWD WTP (mgd)		DWSP WTP (mgd)		Total Surface Water (mgd)		Groundwater (mgd)		Total Water Facility Capacity (mgd)	
	Needed Capacity	Actual Capacity	Needed Capacity	Actual Capacity	Needed Capacity	Actual Capacity	Needed Capacity	Actual Capacity	Needed Capacity	Actual Capacity
COSMUD	26.7	16.2	-	-	26.7	16.2	22.7	49.3	49.4	65.5
Cal-Water	26.9	26.9	-	-	26.9	26.9	15.2	64.0	42.0	90.9
County	1.9	1.9	-	-	1.9	1.9	1.9	2.0	3.8	3.9
Total	55.5	45.0	-	-	55.5	45.0	39.8	115.3	95.3	160.3

Notes:
1.) The actual capacities shown are based on 2004 conditions.
2.) SEWD WTP capacity assumes that surface water is used first and continuously throughout the year and has a maximum month peaking factor of 1.27; whereas groundwater is used for primarily for peaking and has a maximum month peaking factor of 1.43. The combined maximum month peaking factor is 1.60.

Section 10910(d)(2)(B)

This subsection requires a copy of the capital outlay program for financing the delivery of the identified water supply to the GP Update area. The financial program for development of surface and groundwater supplies in the COSMA has been done at a planning level with the DWSP Feasibility Report. This work included both existing and future capital outlays including the DWSP.

Currently, the three COSMA urban water retailers finance their respective capital costs for new and replacement facilities. Groundwater is provided by each water retailer to its respective service area. Surface water is purchased by COSMUD,

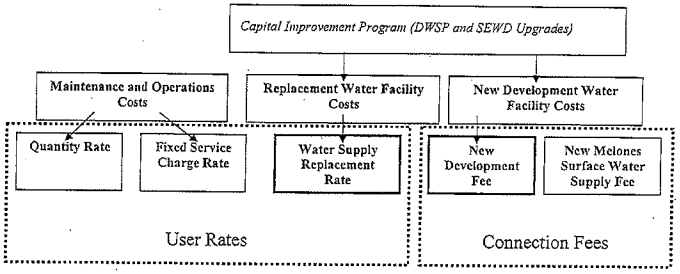
Cal Water and the County from SEWD. User fees and connection fees pay for each purveyor's water facilities and for each urban contractor's portion of SEWD facilities, water supply and services.

Cal Water and COSMUD rates are similar with both at approximately $29 per month based on two-thirds of an acre foot per year for a single family home. This analysis assumes that a uniform rate and connection fee are applied over the entire service area to provide for the needed capital improvements.

The current rate structure for COSMUD (see **Figure 15**) assumes that maintenance and operations costs are recovered from revenues generated from quantity and fixed service charge rates. Since replacement water supplies benefit existing customers, an additional fixed water supply replacement rate component is added to pay for facilities needed to replace lost supplies. Since new growth customers will also be paying this component, they will share in the replacement water supply costs. Costs of capacity constructed for new development is borne entirely by new growth through a development fee.

Rate studies completed for the DWSP indicate that the construction of the Phase 1 portion of the DWSP will be achieved through debt financing using a combination of user rates and development fees for debt recovery. The COS is also pursuing various federal and state grants to assist in offsetting the cost to existing rate payers. The financial program is not dependent on obtaining those grants.

Figure 15. Conceptual Rate Design of Water Retailers (COSMUD Model)



Section 10910(d)(2)(C)

This subsection requires identification of any federal, state, and local permits required for construction of the facilities identified for delivering the water supply to the project.

Any new wells for the GP Update will be added to each of the water purveyor's California Department of Health Services (DHS) permit to serve potable water supplies. The design of those facilities will require coordination with DHS. No other regulatory approvals are anticipated for meeting existing demands.

Section 10910(d)(2)(D)

This subsection requires identification of any regulatory approvals required for delivery of the water supply to the project.

The groundwater and surface water facilities to serve the areas of the GP Update not currently developed will be added to the DHS permit to serve potable water supplies in each of the urban water retailers' service areas. The design of those facilities will require coordination with DHS. No other regulatory approvals are anticipated.

Section 10910(e) states:

"If no water has been received in prior years by the public water system,..., under the existing water supply entitlements, water rights, or water service contracts [identified to serve the proposed project], the public water system, ... , shall also include in its water supply assessment pursuant to subdivision (c), an identification of the other public water systems or water service contract holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system, ... , has identified as a source of water supply within its water supply assessments."

The intent of this section is to identify any potential conflicts that may arise from the exercise of an existing water supply entitlement, water right, or water service contract to serve a proposed project if such water supply entitlement, water right, or water service contract has not been previously exercised.

Use of Groundwater:
The water demands of the COSMA will be met in part with groundwater. The COSMA urban water retail purveyors have previously exercised their rights as groundwater appropriators to serve the water demands of their customers and will continue to exercise those rights to provide treated water supplies.

Use of Surface Water:
The surface water supplies associated with the conjunctive use program fall into three categories: 1) water supplies derived from the CVP, 2) interim water supply contracts, 3) surplus supplies available on an intermittent basis.

The parties that could most directly be affected by exercise of these water rights are CVP contractors, State Water Project (SWP) contractors, water rights holders subject to Term 91 conditions, and riparian diverters downstream of the points of diversion for each contract.

Section 10910(f)
The water demands of the project will be met partially with groundwater. Consequently, Section 10910(f) requires specific additional information.

Section 10910(f)(1)
Section 10910(f)(1) requires a review of groundwater data contained in the UWMP.

The COSMUD December 2005 UWMP does identify past volumes of groundwater extracted by the COSMA urban water retailers. A graph of historical surface water and groundwater supplies from 1994 to 2005 is provided in Figure 6. The Cal Water September 2003 UWMP provides data on groundwater use from 1980 to 2002.

Section 10910(f)(2)
Section 10910(f)(2) requires a description of the groundwater basin and the efforts being taken to prevent long-term overdraft.

The groundwater basin underlying San Joaquin County is part of the contiguous Central Valley aquifer system, which supplies groundwater to agricultural, domestic, and industrial water users from Redding to Bakersfield. The basin consists of Pre-Tertiary igneous and metamorphic rocks of the Sierra Nevada that continue west beneath the valley floor. Marine sediments, thousands of feet thick, overlie the basement rocks. Continental deposits overlie the marine rocks and act as the primary freshwater aquifer in the study area. In local areas, fresh

water may be present in both marine and continental deposits, and saline water may be found in continental deposits.

DWR Bulletin 146 identifies the usable aquifer in the eastern portion of San Joaquin County as the continental deposits of Miocene and younger age. The usable aquifer is present within the boundaries of the county in distinct geologic formations that include the Mehrten Formation, the Laguna Formation, the Victor Formation, flood basin deposits, and alluvial fan and stream channel deposits. The thickness of the usable aquifer ranges from less than 100 feet in the eastern edge of the county to over 3,000 feet in the southwestern edge, and is approximately 1000 feet beneath Stockton.

Groundwater in the San Joaquin County area moves from sources of recharge to areas of discharge. Most recharge to the aquifer system occurs from the Delta and along active stream channels where extensive sand and gravel deposits exist. Consequently, the highest groundwater elevations typically occur near the Delta, the Stanislaus River, and the San Joaquin River. Other sources of recharge within the project area include subsurface recharge from fractured geologic formations to the east, as well as deep percolation from applied surface water and precipitation.

Municipal and agricultural uses of groundwater within San Joaquin County contribute to an overall average yield of groundwater estimated to be 867,000 AF/Y. Historically, groundwater elevations have declined from 40 to 60 feet. As a result, a regional cone of depression has formed in Eastern San Joaquin County creating a gradient that allows saline water underlying the Delta region to migrate northeast within the southern portions of the City. Groundwater underlying the City generally flows to the east due to the regional cone of depression.

In the past, the groundwater basin underlying San Joaquin County has been classified by DWR as being in overdraft, especially in the northeastern portion of the County. The COSMA, however, has been instrumental through its voluntary participation in funding the existing conjunctive use program for the portion of the basin underlying the COSMA that groundwater elevations have stabilized and no significant declines have been recorded since the late 1980's.

In addition to its historical contributions, the COSMA's long-term plan for preventing overdraft of the groundwater basin are embedded in the objectives of the proposed future DWSP to insure systematic, incremental implementation of the on-going conjunctive use program to provide a benefit to the groundwater basin. This benefit extends beyond the political boundaries of the COS.

Section 10910(f)(3)

Section 10910(f)(3) requires a description of the volume and geographic distribution of groundwater extractions from the basin for the last five years.

Data for municipal and industrial groundwater usage have been collected and are shown in **Figure 6**, **Figure 7** and **Figure 8**. The distribution of groundwater pumping is shown in **Figure 16** where existing well locations are shown. Historical groundwater demands and location of agriculture and private wells have not been identified, measured, and collated.

Section 10910(f)(4)

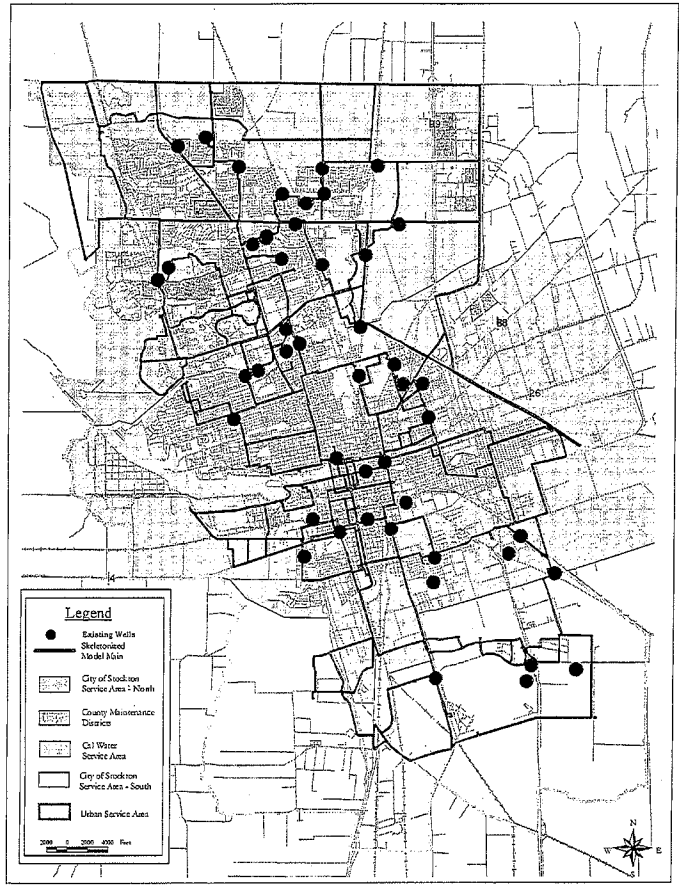
Section 10910(f)(4) requires a description of the projected volume and geographic distribution of groundwater extractions from the basin. For the existing supplies, this is presented in Section **10910(d)(1)** above and volume and location of groundwater wells are represented in **Figure 6** and **Figure 16**, respectively.

Section 10910(f)(5)

Section 10910(f)(5) requires an analysis of the sufficiency of the groundwater basin to meet the demands associated with the project.

This is presented in Section **10910(d)(1)** above and starting on **Page 18** under the heading of "Existing Groundwater Supplies".

Figure 16. Existing COSMA Well Locations



If Existing Water Supplies are Insufficient to Meet Project Demands [Section 10911(a)]

Section 10911(a)

Section 10911(a) requires that if existing water supplies are insufficient, the public water system shall provide to the city or county its plans for acquiring additional water supplies. In describing the plans, Section 10911(a) states

"*...the public water system shall provide to the city or county its plans for acquiring additional water supplies setting forth the measures that are being undertaken to acquire and develop those water supplies. If the city or county, if either is required to comply with this part pursuant to subdivision (b), concludes as a result of its assessment, that water supplies are, or will be, insufficient, the city or county shall include in its water supply assessment its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. Those plans may include, but are not limited to, information concerning all of the following:*

(1) The estimated total costs, and the proposed method of financing the costs, associated with acquiring the additional water supplies.

(2) All federal, state, and local permits, approvals, or entitlements that are anticipated to be required in order to acquire and develop the additional water supplies.

(3) Based on the considerations set forth in paragraphs (1) and (2), the estimated timeframes within which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), expects to be able to acquire additional water supplies.

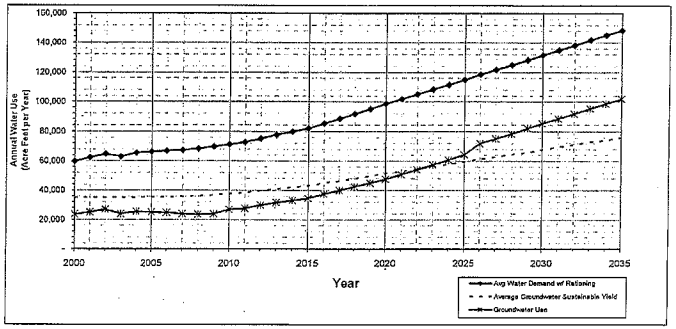
(b) The city or county shall include the water supply assessment provided pursuant to Section 10910, and any information provided pursuant to subdivision (a), in any environmental document prepared for the project pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.

(c) The city or county may include in any environmental document an evaluation of any information included in that environmental document provided pursuant to subdivision (b). The city or county shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses. If the city or county determines that water supplies will not be sufficient, the city or county shall include that determination in its findings for the project.

How Will GP Update Demands be Met?

When the GP Update demands are added to the existing water supply condition model, it becomes obvious as shown in **Figure 17** that existing supplies are inadequate to meet the expected water demand from the GP Update of **156,083** AF/year (equates to an average of **146,945** AF/year with mandatory rationing as explained in Summary of Conjunctive Use Model Findings Section on **Page 51**) at build-out without exceeding the sustainable groundwater yield. The increase in sustainable yield shown in **Figure 17** is a result of the increase in developed acreage; however, starting in year 2025, the need for groundwater exceeds sustainable yield. This finding makes it necessary to show some future supply source other than groundwater becoming available prior to 2025. The planned future water supply sources and future conjunctive use program is described in detail below. The significant underlying assumption is that under this WSE both the SEWD WTP and the DWSP WTP will be available for treatment of the various surface water entitlements by 2010.

Figure 17. Average Groundwater Use vs. GP Update Demand From 2000 to 2035 Using 0.75 AF/ac/year Groundwater Sustainable Yield and Existing Water Supplies



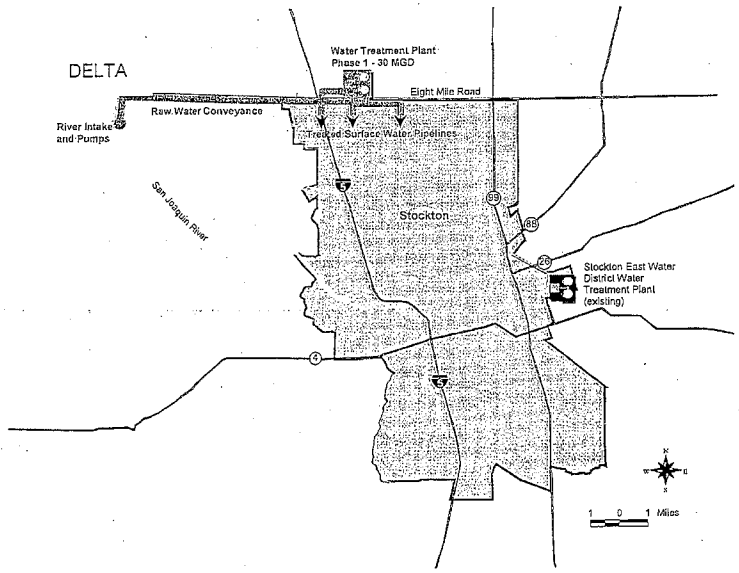
Implementation of the DWSP

Implementation of the DWSP will require a large diversion structure in the Delta and large raw and treated water conveyance facilities (surface water pipelines) to

convey water to the DWSP WTP and then to the distribution systems of the urban water retailers and ultimately to the retail customer. The size and location of the large surface water pipelines are based on serving the area defined by the Urban Service Area of the 1990 General Plan and beyond in terms of water demand. The size and location of the DWSP surface water pipelines are based on the ability to use as much of the existing treated water conveyance capacity as possible.

Figure 18 depicts the approximate location of the preferred DWSP site with the pipelines needed for the first 30 mgd phase and the existing location of the SEWD WTP. In order to achieve the required level of service, additional connections between the Cal Water and COSMUD north and south water systems will be made to move surface water from both SEWD and the DWSP WTPs among the three retail service areas.

Figure 18. COSMA DWSP and SEWD WTPs



Because portions of the COSMA fall within the legally-defined Delta and the area of origin, the City has rights to Delta water. To access water for the DWSP, the City has filed an application for the appropriation of surplus water in the Delta, plus water the City is entitled to pursuant to Water Code Sections 1485 and 11460-11465. Only Section 1485 water is required for the Phase 1 DWSP; whereas, both "Area of Origin" and Section 1485 water rights are necessary beyond Phase 1 DWSP.

Necessary DWSP Water Right Permits

Section 1485 Water Rights

California Water Code Section 1485 can be summarized as follows: any municipality disposing of treated wastewater into the San Joaquin River may seek a water right to divert a like amount of water, less losses, from the river or Delta downstream of the point of wastewater discharge.

Water losses associated with these discharges once they enter the river system can result from seepage, evaporation, or transpiration between the Regional Wastewater Control Facility and the diversion. The San Joaquin River (River) and associated Delta channels are in balance with the connected groundwater systems, therefore, seepage losses can be estimated at zero. Also, the incremental flow added at the Regional Wastewater Control Facility has no measurable effect on the top width of the River; therefore evaporation from the River surface is not increased. Similarly, transpiration is not measurably affected by the incremental flow since the top width of the water surface is not increased. Therefore, it is assumed that the volume of water loss between the wastewater plant and any diversion point downstream is negligible.

Area of Origin Water Rights

The California Water Code contains a number of sections addressing certain benefits and obligations of areas in which water originates. The "Area of Origin" provisions have not yet been thoroughly interpreted by the courts, so their operation and effect remain unclear.

For purposes of planning for a Delta surface supply, it is assumed that the ability to divert water under the California Water Code Sections 11460 et seq. may be limited by conditions similar to those contained in Water Right Standard Permit Term 91. California Water Code Section 11460 et seq. allows a water user within a watershed or other area of origin to appropriate water that otherwise would be exported and receive a priority senior to the rights of the federal Central Valley Project (CVP) and the State Water Project (SWP). Permits for the diversion of water from the Delta under the area of origin statute may be conditioned by the SWRCB to include standard permit Term 91 which prohibits diversions at times when the SWP and/or CVP are required to release stored water from their reservoirs in excess of export diversions, project carriage water,

and project in-basin deliveries[5]. Under these conditions, the City would be allowed to divert water only at times when Delta outflow is greater than regulatory minimum requirements, or when the CVP and/or SWP are exporting water that has no previously been stored in CVP-SWP reservoirs or imported to the basin by the CVP-SWP.

Financing of DWSP

The cost of the Phase 1 portion of the DWSP as is estimated to be $172 Million. This cost is apportioned based on benefits to existing customers and to new development. The financing of the project will be done through customer user rates, development fees, and federal and state grants as described in **Section 10910(d)(2)(B)** starting **Page 31**.

Regulatory Permitting for DWSP

Refer to section titled, "Current Water Supply Condition" on **Page 4** regarding the steps taken to date for implementing Phase 1 of the DWSP. Other regulatory approvals beyond the authorization of the water rights by the SWRCB, are the need for a Section 404 Clean Water Act and Section 10 River & Harbor permits from the Army Corps of Engineers, Section 1601 Streambed Alteration Agreement from the State Department of Fish and Game, and a California Department of Health Services Drinking Water Treatment Plant permit for including the DWSP in the COSMUD potable water system. The Army Corps of Engineers has been consulted on the Phase 1 project especially as it pertains to work in and around the levee and the Delta.

Necessary SEWD Water Right Permits/Contracts

SEWD is pursuing its own appropriative water rights on the Calaveras River that will likely yield some wet and normal year water but no dry or critical year supply is expected. To date, there is no known contract water right amount, so, for purposes of the WSE, up to 50 TAF/year is assumed in the wet and above normal hydrologic years, 15 TAF/year in below normal and dry years, and zero in critical year types. This is reflected in **Table 4** on **Page 17**.

Other supplies are anticipated through future appropriative water right permits on the Stanislaus River and Littlejohn's Creek. Both of these potential supplies are not accounted for in this WSE or reflected in **Table 3** on **Page 15**. Other potential water supplies shown in **Figure 9** on **Page 16** are also not accounted for in this WSE.

Summary of Surface Water Utilization for the GP Update

The COSMA has and will continue to meet annual demands during differing hydrologic periods with surface water, groundwater, water conservation, and other potential water supplies such as non-potable supplies from local communities, raw surface water from local irrigation districts, and water from

[5] The application of Term 91 to diversions under the area of origin statute has not yet been thoroughly interpreted by the courts, so the operation and effect of Term 91 and how it impacts area of origin diversions remains unclear.

active groundwater storage projects. Currently, the COS is pursuing raw surface water transfer agreements with local irrigation districts and municipalities and possible use of tertiary treated recycled water from the City of Lodi for use as a non-potable source for irrigation of public landscape areas. Potable surface water transfer supplies would be diverted for treatment at the SEWD WTP or the DWSP WTP. Water transfers would require mutually agreeable contract terms between the City and another entity transferring water and would require the approval of the Department of Water Resources. Water purchases, treatment facilities and conveyance infrastructure would be funded locally through a combination of rates and fees. Timing of water transfers would coincide with water demands that outpace current supplies through SEWD or the City's water right.

Water Facility Phasing

An important element of the DWSP Feasibility Report was looking beyond the current General Plan to begin to understand how water entitlements will be granted or be diminished over time to meet growing water demands. The certified EIR referenced the work completed in the Feasibility Report and provided a firm definition of the DWSP Phase 1 project and defined the programmatic nature of the Phase 2 project and its timing being associated with the build-up of demand as a result of new development.

In the DWSP Feasibility Report, population was used to assume growth and water demand beyond 2015 (build-out of the current 1990 General Plan) and assumptions for water supply entitlements were made in order to forecast the ultimate size of the DWSP project and needed upgrades to the SEWD WTP over time. As a result of this report, a scheduled phasing of the DWSP project, SEWD WTP upgrades, and groundwater facilities was made as shown in **Table 9** below.

In the sizing of the different water facilities, the modeling of operations of the DWSP and SEWD WTPs is assumed to occur simultaneously, and, if water supply is available, the water demand is met first by SEWD and then by the DWSP. This set of assumptions is used for modeling purposes to best reflect the operational goals of the City's current and future conjunctive use program. The timing of expansion of the two surface water WTPs is based on **Table 9** with the exception that the DWSP Phase 1 project is assumed to remain at 30 mgd until water demand can no longer be met with the available supplies.

Table 9. Phasing of COSMA Water Supply Facilities Based on 1990 General Plan[6]

Phasing	Year	SEWD WTP (mgd)	DWSP Diversion and WTP (mgd)	Groundwater (mgd)
Immediate Phase	2003	45	0	65
	2009	50	0	83
1-Build-out of General Plan	2010	50	30	83
	2015	50	30	83
2-Interim Milestone	2016	60	30	83
	2020	60	60	90
	2030	60	90	110
3- Build-out of 1990 General Plan Boundary/ POU	2031	60	90	110
	2040	60	135	140
	2050	60	135	140

As demands continue to increase out to 2035 or build-out of the GP Update, COSMUD will continuously evaluate the need for expanding the Phase 1 project. For purposes of the WSE, a separate analysis was performed based on the water supplies described for SEWD and groundwater to evaluate when an expansion may be needed. This is done primarily to rely upon the existing environmental documentation for the Phase 1 project to support the growth contemplated in the GP Update. Capacity above Phase 1 has been reviewed only at the programmatic level and will require additional study when those increases are necessary. Additional improvements in facilities and operations of the SEWD WTP are required to increase its reliable base load capacity to 50 and 60 mgd, respectively.

To protect larval delta smelt during April through June, when early life history stages of delta smelt and the eggs and larvae of other fish are likely to be in the project area, the potential of the fish screen and diversions to impact these life stages of fish would be reduced operationally (by reducing diversions and thus reducing approach velocities and diversion volume). This would also reduce the potential for juvenile fish of all sizes to be affected by the diversion and fish screen during the spring (April through June). Monitoring will be required from April through June to detect the presence of larval delta smelt in the vicinity of the project area and trigger the implementation of impact avoidance and minimization measures. Measures taken to protect delta smelt would also protect Chinook salmon and other fish and macroinvertebrates. In the modeling of the DWSP, curtailments occur in the month of May of each year.

[6] SEWD efficiency improvements accelerated the increase in rated WTP capacity from 45 mgd in 2009 to 50 mgd in 2005.

Groundwater Supplies

DWSP planning assumes a maximum long term operational yield objective of the basin underlying the Urban Services Area of the 1990 General Plan reflecting a conservative 0.60 AF/ac/year groundwater extraction rate. This is a 20 percent reduction in the amount of groundwater that the COSMA is currently using based on the 0.75 AF/ac/year extraction rate. The purpose of this reduction is to fulfill the COS's objective of managing the underlying groundwater basin for the protection of groundwater resources indefinitely.

A deviation from the lower extraction rate can occur if lands within the General Plan Planning Area Boundary are converted from agricultural uses irrigated with groundwater to urban uses. To account for the prior groundwater pumping, an agricultural credit is assumed based on not exceeding a 1.0 AF/ac/year maximum. This acknowledges that the groundwater basin was being used for agriculture prior to urbanization. The determination of how the agricultural credit concept is summarized below and a detailed technical memorandum is included as **Exhibit "F"** to this WSE.

Agricultural Groundwater Use Conversion

The approach taken to determine the validity of assuming agricultural credits is based on a proven theoretical approach of determining the agricultural water supply requirement and use of the integrated groundwater surface water model (IGSM) for San Joaquin County. The IGSM calculates agricultural supply requirements given the various parameters of agricultural crop types, their irrigation efficiencies, soil conditions, field capacities, root zones, etc. The IGSM is run first applying the agriculture to establish the baseline condition. The second run removes the agriculture to see how the basin rebounds as a result of no agricultural pumping in the urban services boundary. Urban land use and water demand (groundwater and surface water) are then applied and the impacts are evaluated as follows:

Constrained Impacts to the Groundwater

Impacts to the groundwater elevations can occur in three ways:

1. the gradient (or slope) of the groundwater piezometric surface (groundwater table) would not increase in the area of the salinity front (See **Figure 8** on **Page 19** for approximate location of salinity front),
2. groundwater elevations would not drop more than a foot in the agricultural area where the credit is applied, and
3. the lowest elevation of the regional cone of depression would not be impacted by the application of urban groundwater extractions in the agricultural areas.

Each IGSM scenario that includes urban extractions in areas where agricultural extraction are removed is measured against the three impact constraints listed

above. The lesser of the applied groundwater extractions is used as the incremental increase to account for agricultural credits. In no case should groundwater extractions exceed 1.0 AF/ac/year of urban developed area.

Future Conjunctive Management

This section describes how the water supply sources in the COSMA can continue to be operated in conjunction with each other to meet future water demands. This analysis includes modeling a complete conjunctive management program similar to conjunctive use program in-place today including all existing and foreseeable COSMA water supplies and projected demands. The analysis addresses the planning period from 2000 to 2035 to evaluate the adequacy of surface water entitlements and the necessary facility requirements to meet the GP Update water demands.

As mentioned above, groundwater extractions are targeted to not go above the long-term operational yield of the basin of 0.6 acre-ft/acre/year or beyond the 0.75 AF/ac/year maximum in any one given year. The concept of agricultural credits will also be considered, if applicable.

For this analysis, it is assumed that SEWD will maintain its existing 50 mgd surface WTP until 2010. After that, the analysis considers the option of expanding the SEWD WTP capacity to 60 mgd so that the combined capacity of COSMA, SEWD, and other groundwater facilities will meet maximum day municipal demands. For modeling purposes, it is assumed that SEWD WTP capacity is expanded to 60 mgd in 2016 as shown in **Table 9** on **Page 44**. SEWD will likely implement planned efficiency enhancements prior to 2016 to increase its rated WTP capacity sooner, however, for conservative modeling purposes the timeframe is extended to 2016. The funding of the enhancements will be from the water retailers and any grant funds that SEWD receives.

The operation of the DWSP and SEWD WTPs is assumed to occur simultaneously, and, if water supply is available, the water demand is met first by SEWD, then by the DWSP, and lastly by groundwater. Additional enhancements to the design and operations of the SEWD and DWSP WTPs are assumed to minimize the impact of scheduled maintenance, and account for the impact of higher turbidity in the raw water supply especially in the wet months of the wet years.

Groundwater extraction capacity within the General Plan Boundary is conservatively sized for a certain level of redundancy for service in critical years, to meet maximum day demands, and to meet requirements. In the event that surface water is curtailed by contract or by Endangered Species Act (ESA) mitigation requirements, especially in dry and critical years, groundwater becomes a significant portion of the urban water retailers' water supply. Prior to construction of the DWSP (first phase assumed to be completed in 2010), water demands will exceed available surface water treatment capacity necessitating

the on-going use of groundwater facilities within the urban retailers' service areas until the SEWD expansion and/or the DWSP is operational.

The timing and amount of water assumed available from each SEWD source is based on conservative estimates of the reliable yield of each source and the probability of the various contracts being renewed (See **Figure 20** for 35 year projection of average surface water supplies and their sources).

The OID and SSJID transfer contract is assumed to expire in 2025 and not be renewed. Once all of the OID/SSJID contract water is used, the New Hogan and then the New Melones CVP contracts are used. The New Hogan contract is assumed to be subject to CVP deficiencies which include shortages of up to 40 percent in critical years as well as provisions that make the New Melones CVP contract water available only in the wet years. Appropriative water on the Calaveras River is used next. Once the SEWD supplies are used, the model turns to DWSP supplies.

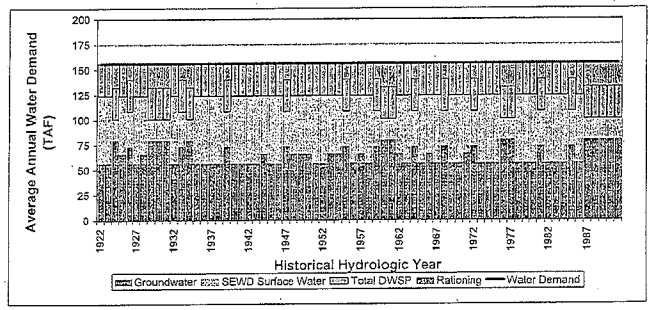
Sources of water supply for the DWSP include Section 1485 water and Area of Origin water, described in sections above. The amount of Section 1485 water depends on the discharge volume from the municipal wastewater treatment plant over time. For the purpose of this study, and to be consistent with the City's water right application, the amount of Section 1485 water available in a given year is assumed to be 41 percent of the total municipal water use within the 1990 General Plan POU. No reductions of Section 1485 water occur in dry years as a result of water rationing because rationing is assumed to affect only the outdoor uses of water that typically do not enter the wastewater system. The need for Area of Origin water is not expected until 2020 or beyond.

To account for the variation in water supplies as a result of annual hydrology, a 70 year historic model of hydrology was used to determine the sum total of water supplies in any given year type. For instance, in dry years, surface water curtailments are considered at both WTPs, so groundwater and rationing are used to make up the difference. The objective is that over the 70 years, the groundwater use does not exceed the predefined sustainable yield of the basin as described below. **Figure 19** below shows the results at 2035 on how water demands are met from the above mentioned sources. This figure shows that, in even the driest historical hydrologic periods (say 1976 to 1978 or 1987 to 1991) there is sufficient water supply to meet 2035 water demands. **Exhibit "E"** provides the tabular and graphic form for each five year increment from 2005 to 2035 to show the adequacy of water supplies throughout the 70 years of historical hydrology.

The operational yield objective of the groundwater basin is based on not allowing the groundwater elevations to drop to a point where impacts could occur as described above or that the annual yield in any given year over the 70-year hydrologic period will not exceed the 0.75 AF/ac/year plus an agricultural credit. The groundwater component is needed to make a final determination of the

adequacy of surface water supplies to be able to compare the allowable yield with the calculated yield from the 70-year hydrologic conjunctive use model.

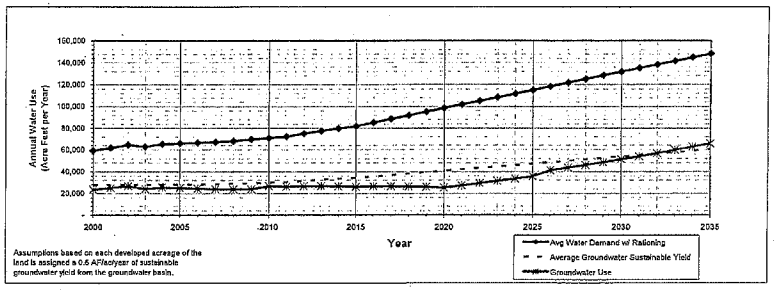
Figure 19. 70-year Historic Hydrologic Period Using 2035 Water Demand and Supply Condition.



Conjunctive Use Model Results

The impacts to the groundwater basin (The groundwater component is the bottom set of bars shown in **Figure 19**) are measured against the three criteria listed in the **Constrained Groundwater Use Impacts** section above and a finding of the maximum sustainable groundwater yield is made for each year of the simulation. The results of this study in five year increments are included in **Exhibit "E"** for reference. The average and maximum groundwater yield at GP Update build out is determined to be approximately 65 TAF/year and 102 TAF/year, respectively. **Figure 20** shows the build-up of water demand as the top line, the safe sustainable yield as the dashed line and the modeled average extraction yield as the bottom line. From this figure, it shows that during no time until 2033 does the groundwater yield approach the targeted goal of 0.60 AF/ac/year. After 2033 groundwater yields are at or slightly above the targeted goal. Any slight exceedence can be corrected by applying agricultural credits after 2015 as per **Exhibit "F"**.

Figure 20. Average Groundwater Use vs. Demand From 2000 to GP Update Build Out Using 0.60 AF/ac/year Groundwater Sustainable Yield

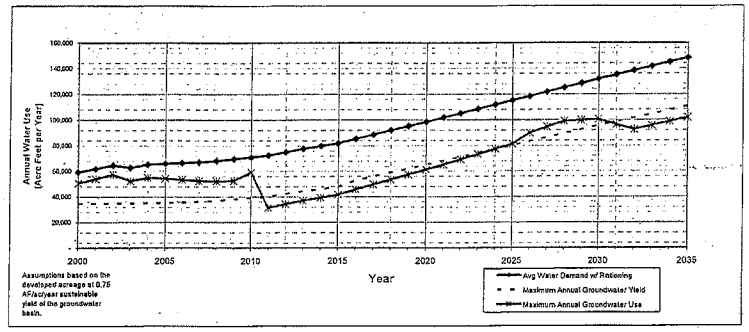


Groundwater Exceedence in Any One Year

The groundwater yield in any given dry year should not exceed the DWSP goal of having a maximum of 0.75 AF/ac/year plus the agricultural credits determined above. For the 70 years of historical hydrology, the maximum groundwater yield is extracted for each year of the GP Update model (i.e., 2010 to 2035, see tables in **Exhibit "E"** for maximum over 70 year period in five year increments). This is then compared to the maximum yield of the basin underlying the COSMA. The results of this analysis are shown in **Figure 21**. This graph is the "worst" case scenario and it is anticipated that beyond 2020 there will be active groundwater recharge programs (e.g., aquifer storage and recovery, recharge basins, in-lieu surface water irrigation to agriculture) to make up for the dry year dependency on groundwater. While these programs are very likely to occur, this WSE conservatively assumes that there will be no contribution to COS water supplies.

The exceedence shown in **Figure 21** of groundwater demand beyond 2010 going beyond the DWSP goal is of concern and can be addressed partially by permitting a higher groundwater yield to account for the agricultural lands that are currently irrigated with groundwater taken off-line and developed. **Exhibit "F"** provides a clear presentation of how an additional increment of urban groundwater use can be yielded from the basin and remain conservative in the approach to meet the ultimate objective or goal of the DWSP to reduce groundwater demands.

Figure 21. Maximum Single Year Groundwater Use vs. Demand From 2000 to GP Update Build Out



Applying the methodology in **Exhibit "F"**, the 0.75 AF/ac/year goal can be increased in the COS up to 0.87 AF/ac/year and maintain a net positive impact to the groundwater basin. Based on this higher amount, assumed to not occur until 2015 when agricultural lands begin to be fallowed and developed, the groundwater use compared to sustainable yield is shown in **Figure 22.**

Figure 22. Maximum Groundwater Use vs. Demand From 2000 to GP Update Build Out Using Ag Credit

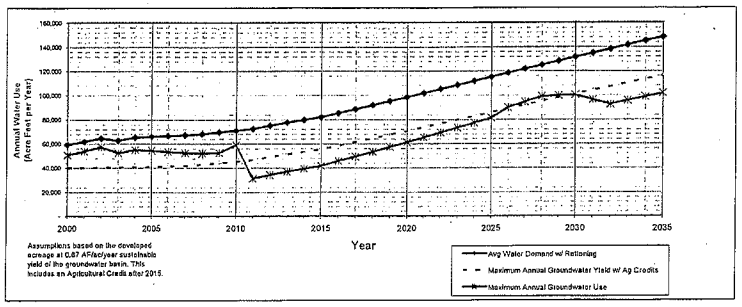


Figure 22 shows groundwater use exceeding the driest year groundwater goal in 2025 for a brief period. This is a result of the OID/SSJID contract termination. Beyond 2025 surface water supplies from SEWD continue to contribute to Section 1485 water in terms of treated wastewater to the Delta. This increase in Section 1485 water provides the additional water needed to reduce reliance on groundwater in the driest of years by build-out in 2035.

Summary of Conjunctive Use Model Findings

Figure 23 illustrates the increase and decrease in surface water supplies "on average" over the period from 2000 to 2035 based on the demands from 2000 to the 2035 of the GP Update and the conjunctive use program described above. Maximum surface water use is constrained by the SEWD or the DWSP conveyance and WTP capacity and by the various contract entitlements described above. For example, the set of bars for each contract for each year considers 70 years of historical hydrology (i.e., rainfall, stream flows, etc) from 1921 to 1991 and the limitations of the SEWD and DWSP WTPs to treat and deliver potable water supplies for that given year. For instance, the OID/SSJID contract is for a maximum of 30,000 AF/year, but results in 22,850 AF/year on average over the 70 years of hydrology and then ends in 2025. The decrease in overall surface water for SEWD throughout the planning period reflects the assumption that the annual volume of the CACWD Appropriative Water Right water will diminish slightly due to new water demands expected in the CACWD service area.

While **Figure 23** does not show the use of the COS's Area of Origin water, it is important to note that the COS will pursue Phase 2 of the DWSP with the completion and certification of the appropriate environmental documentation and approval of the Area-of-Origin water right by the SWRCB by 2025 or based on water demands, whichever occurs sooner. Access to Area-of-Origin water provides additional assurances in the event Appropriative Water Rights on the Calaveras or the Calaveras County Water Rights Transfer water to SEWD differs from the assumptions used in this WSE. In addition, while this WSE recognizes the strong possibility of obtaining additional interim surface water supplies, it does not rely upon those supplies for purposes of this WSE.

A similar table as **Table 7** on **Page 30** is provided for the future 2035 condition to compare the availability of water supplies with forecasted water demands. **Table 7** indicates that in the dry year conditions, there are adequate water supplies while achieving an average sustainable groundwater yield of approximately **65,000 AF/year** (slightly exceeding the average sustainable yield goal of 60,000 AF/year) while not exceeding the maximum groundwater yield in any one hydrologic year type.

Figure 23. Projected Average Surface Water Contract Use from 2000 to 2035

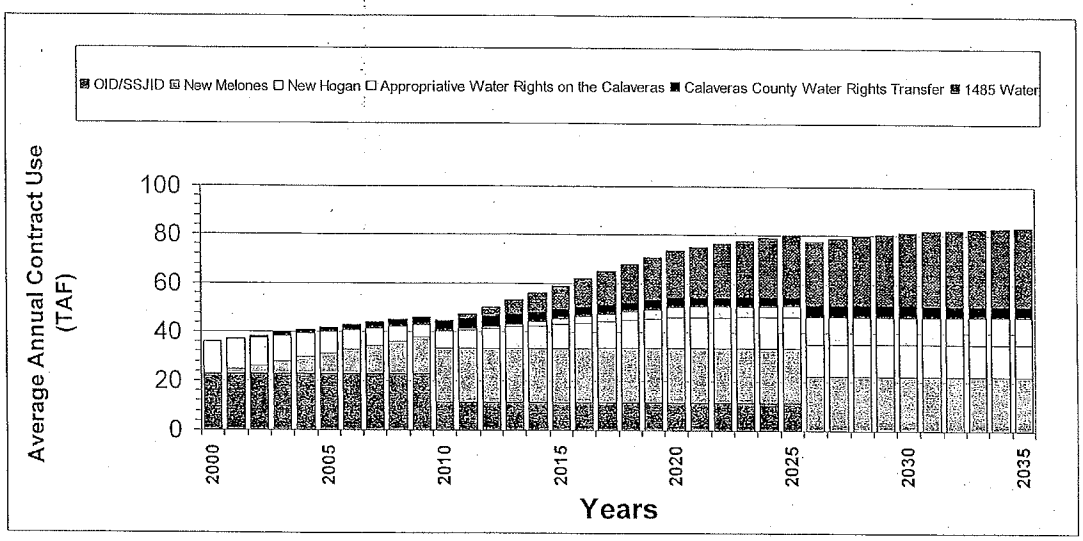


Table 10. Existing (2004), Foreseeable, and General Plan Update Water Supplies and Demands for the COSMA by Retail Water Service Provider

Year Type		Demand Reduction	Existing (2004) and Foreseeable			General Plan Update			Total Existing and Foreseeable and General Plan Update			Year 2004, Foreseeable Demands, and General Plan Update
			Surface Water (AF/year)	Groundwater (AF/year)	Total (AF/year)	Surface Water (AF/year)	Groundwater (AF/year)	Total (AF/year)	Surface Water (AF/year)	Groundwater (AF/year)	Total (AF/year)	(AF/year)
Normal	COSMUD	0%	39,378	3,636	43,014	32,473	35,157	67,630	71,851	38,793	110,644	110,644
	Cal-Water		20,101	12,756	32,856	5,679	4,468	10,147	25,780	17,224	43,003	43,003
	County		1,378	716	2,094	301	136	437	1,679	852	2,531	2,531
	Total		60,857	17,108	77,965	38,453	39,761	78,214	99,310	56,868	156,178	156,178
Single Dry	COSMUD	15%	5,038	31,524	36,562	28,500	28,985	57,485	33,538	60,509	94,048	94,048
	Cal-Water		14,444	13,484	27,928	3,512	5,113	8,625	17,956	18,598	36,553	36,553
	County		1,171	609	1,780	98	274	372	1,269	883	2,152	2,152
	Total		20,654	45,616	66,270	32,110	34,372	66,482	52,764	79,988	132,752	132,752
Multiple Dry (Hypothetical 3-year Drought Period into the Future(using 1977 to 1980 Drought Sequence))	COSMUD	5% (1st Year)	39,378	3,636	43,014	32,473	35,157	67,630	71,851	38,793	110,644	110,644
	Cal-Water		20,101	12,756	32,856	5,679	4,468	10,147	25,780	17,224	43,003	43,003
	County		1,378	716	2,094	301	136	437	1,679	852	2,531	2,531
	Total		60,857	17,108	77,965	38,453	39,761	78,214	99,310	56,868	156,178	156,178
	COSMUD	10% (2nd Year)	4,223	30,923	35,146	28,588	29,052	57,640	32,811	59,975	92,786	92,786
	Cal-Water		15,191	14,049	29,239	3,434	5,053	8,487	18,625	19,102	37,727	37,727
	County		1,240	644	1,885	88	266	355	1,328	911	2,239	2,239
	Total		20,654	45,616	66,270	32,110	34,372	66,482	52,764	79,988	132,752	132,752
	COSMUD	10% (3rd Year)	4,223	30,923	35,146	28,588	29,052	57,640	32,811	59,975	92,786	92,786
	Cal-Water		15,191	14,049	29,239	3,434	5,053	8,487	18,625	19,102	37,727	37,727
	County		1,240	644	1,885	88	266	355	1,328	911	2,239	2,239
	Total		20,654	45,616	66,270	32,110	34,372	66,482	52,764	79,988	132,752	132,752
Average over 70-Years	COSMUD	5%	23,960	15,793	39,753	33,919	30,761	64,680	57,879	46,554	104,433	104,433
	Cal-Water		18,668	13,885	32,553	5,104	4,454	9,557	23,772	18,339	42,111	42,111
	County		1,378	716	2,094	221	181	402	1,599	897	2,496	2,496
	Total		44,007	30,394	74,400	39,243	35,395	74,638	83,250	65,789	149,039	149,039

Reference: City of Stockton Urban Water Management Plan 2000 Update, December 2000
Notes:
1.) Dry year surface water amounts assume SEWD's New Hogan Central Valley Project water with deficiencies, and Oakdale Irrigation District and South San Joaquin Irrigation District deficiencies as stipulated in the contract for these water supplies.
2.) Normal year surface water deliveries are restricted to the projected availability of SEWD conveyance and treatment plant capacity (not to exceed 60 mgd).

Table 10 presents the average annual quantities of surface water and groundwater to make a positive determination of water supply availability. The facility capacity verification below is needed to compare water supplies and their respective facilities with the actual facility capacity. This check is made based on maximum month demands using a multiplier of 1.79 times the average annual water demand. This verification is made in **Table 11** based on the worst case hydrologic scenarios for surface water and groundwater (i.e., worst case for surface water is in normal to wet years and for groundwater in drought years) from **Table 10** and indicates the needed facility capacity in each of the service areas to meet existing and foreseeable water demands. The "Needed Capacity" is based on the maximum volume of surface water or groundwater converted to an equivalent maximum month demand shown in the given scenarios of hydrologic conditions shown in **Table 10**.

Table 11 shows that there is sufficient surface water facility capacity to provide for existing and foreseeable water demands within the COSMA by each of the water retail service providers. The distribution of DWSP WTP capacity is based on the best available data as to the adequacy of conveying potable water from the DWSP WTP to the COSMUD north system and Cal Water. The most significant assumption is that Cal Water will likely depend more on the SEWD WTP simply due to its geographic location. The southern COSMUD system with approximately 14,000 AF/year or 19 mgd of build-out maximum month water facility capacity is also placed into this category with the construction of the South Stockton Aqueduct essentially connecting the system directly to the SEWD WTP.

Table 11. Verification of Maximum Month Water Facility Capacity by Water Retail Service Provider

	SEWD WTP (mgd)		DWSP WTP (mgd)		Total Surface Water (mgd)		Groundwater (mgd)		Total Water Facility Capacity (mgd)	
	Needed Capacity	Actual Capacity	Needed Capacity	Actual Capacity	Needed Capacity	Actual Capacity	Needed Capacity	Actual Capacity	Needed Capacity	Actual Capacity
COSMUD	29.1	29.1	24.0	24.0	53.1	53.1	122.4	49.3	175.5	102.4
Cal-Water	29.1	29.1	5.7	5.7	34.8	34.8	34.6	64.0	69.4	98.8
County	1.8	1.8	0.3	0.3	2.1	2.1	1.9	2.0	4.0	4.1
Total	60.0	60.0	30.0	30.0	90.0	90.0	158.9	115.3	249.0	205.3

Table 11 indicates under the groundwater facilities portion of the table that approximately 73 mgd of additional groundwater facilities will be necessary to meet the water demands through the conjunctive use program in the COSMUD service area. This additional groundwater capacity will be constructed as new

growth areas develop and are necessary to fully exercise the basin in the manner described above based on hydrologic conditions. In no case does the additional groundwater capacity put the COSMA beyond its groundwater conjunctive use management goals.

Description of Change in DWSP Phasing

The findings of this WSE clearly deviate with the timing of phased increases in DWSP capacity with the phasing shown in **Table 9** on **Page 44**. **Table 9** depicts the phasing used in the DWSP Feasibility Report and the EIR. As mentioned directly above, the conclusion of this WSE is that the DWSP Phase 1 can continue to supply water to meet the build-out water demands of the GP Update. The COS will likely pursue Phase 2 and begin the environmental review process long before build-out of the GP Update occurs. This affords the COS to be prepared and to allow demands to dictate when Phase 2 becomes necessary. Time will be of the essence to get Phase 2 under construction once this occurs.

Beyond the Phase 2 requirement of preparedness, there are several reasons for differences between the findings of the WSE and the DWSP Feasibility Report and EIR.

Increased Reliability in SEWD Supplies

The underlying assumptions used in the DWSP reports were conservative but were based on the best available data. Since the time when research was undertaken for the DWSP, a significant amount of work has been completed in other venues. One significant change in assumptions is the amount of water available to Municipal and Industrial (M&I) uses through SEWD. According to SEWD (see Exhibit "G"):

"In wet years, the district currently has over 145,000 acre-feet ofwater supplies available, more water than it could deliver to its customers with its present facilities. Quantifying that 30,000 AFA in a dry year or 22,000 AFA in a critical year is inappropriate. In the first year of a dry cycle, the district would likely have over 100,000 acre-feet available. Only in the 2nd or 3rd year of a multi-year dry cycle the district could have less than 30,000 acre-feet. With the completion of Phase 1 of the Farmington Program (Peters Pipeline) in 2005, available supply to the district will increase by over 10,000 AFA. Banked groundwater stored when excess surface water is available will supplement surface water supplies in dry and critical hydrologic years."

Comparing the table excerpted from the Feasibility Report (See **Table 12**) with **Table 3** on **Page 15**, the WSE acknowledges that there is an approximate aggregate difference of 20,000 AF/year. This difference is shown in **Figure 24** over the planning period of the DWSP. DWSP supplies do not change from the original assumptions. Rather, the supplies the City will get from SEWD now appear firmer, more reliable, and more plentiful than when the DWSP Feasibility Study and DWSP EIR were prepared.

Table 12. Feasibility Report Existing SEWD Water Sources and Critical Year Availability

Source	Annual Contract Amount Thousand Acre-Feet (TAF)	Projected "Critical Year" Annual Availability (AF/year) Planning Year 2000	2010	2020	2035	2050
Current "Firm" Sources of Supply						
Reclamation – New Hogan Water Supplies	Total Yield 100 TAF [1] (M&I 15 TAF) (Ag & Recharge 75 TAF)	12,000	12,000	12,000	12,000	12,000
Calaveras County Water District Appropriative Water Rights	Unused Calaveras County Water Rights (M&I 10 TAF)	10,000	8,000	6,000	3,000	0
Reclamation – New Melones Interim Water Contract and Section 215 "Spill" Water	Total Contract 75 TAF (M&I 40 TAF) (Ag & Recharge 20 TAF) (Losses 15 TAF)	Not Available in Dry Years				
SSJID Transfer - Stanislaus River[2]	15 TAF	4,000	4,000	0	0	0
OID Transfer - Stanislaus River	15 TAF	4,000	4,000	4,000	0	0
Total	**Total 205 TAF (M&I 95TAF)**	**30,000**	**28,000**	**22,000**	**15,000**	**12,000**
FUTURE "POTENTIAL" SOURCES OF SUPPLY						
New Appropriative Water Rights on Calaveras	50 TAF	Not Available in Dry Years				
Farmington Projects Rights Transfer	50 TAF	Not Available in Dry Years				
Reoperation of New Hogan Reservoir[3]	25 TAF – 40 TAF	Not Available in Dry Years				
Total	**75 TAF – 100 TAF**	**0**	**0**	**0**	**0**	**0**

Source: City of Stockton Delta Water Supply Project Feasibility Report (January 2003, ESA and MWH)

Notes:
1. SEWD has a right to 56.5 percent of the yield, and Calaveras County Water District (CCWD) has rights to the remaining 43.5 percent. CCWD currently uses approximately 3,500 ac-ft of its allocation, and prior water rights demand is 13,000 ac-ft. Based on an agreement between CCWD and SEWD, SEWD currently has use of the unused portion of CCWD's allocation.

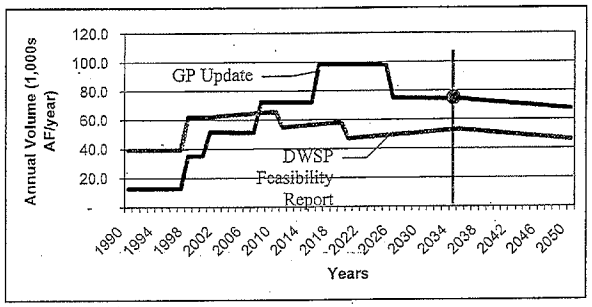
2. For planning purposes, it is assumed that SSJID may not continue its water transfer to SEWD past 2010.

3. Very preliminary analyses suggest that "reoperation" of New Hogan Reservoir, together with some form of conjunctive use water banking, could increase the average annual yield (but not the dry year yield) of New Hogan Reservoir. SEWD is currently not pursuing reoperation water since the water rights that SEWD is applying for on the Calaveras River will capture the same water and store in groundwater bank. The status of the SEWD's Water Right application is uncertain.

From the set of modeling assumptions, the majority of this increase results from the inclusion of more Calaveras County Appropriative Water Rights Transfer water for M&I and having it taper off at a slower rate than assumed in the DWSP Feasibility Report. The other surface water entitlement is the SEWD Appropriative Water Rights on the Calaveras River for which they have submitted an application and will likely receive water in the wet years. No water is assumed in the dry years. **Table 3** also shows that the senior water rights of the Calaveras County Appropriative Water Rights Transfer will yield some "critical" year supply to increase the minimum of 12,000 AF/year used in the DWSP Feasibility Report to 22,000 AF/year (does not include SSJID/OID contracts after 2025).

This difference is shown in **Figure 24** over the planning period of the DWSP. DWSP supplies do not change from the original assumptions. Rather, the supplies the City will get from SEWD now appear firmer, more reliable, and more plentiful than when the DWSP Feasibility Study and DWSP EIR were prepared.

Figure 24. SEWD Water Supplies (Weighted Average of Hydrologic Period)



Additional Area Contemplated in the GP Update

The water demand at 2035 in the DWSP Feasibility Study Report and in this WSE is approximately the same at approximately 156,000 AF/year. The amount of urban developed acreage under the GP Update is 103,000 acres out of the total GP Update area of 122,060 acres. The existing General Plan at 2050 was estimated to have 82,000 acres within the POU with no acreage accounting beyond 2015 or build-out of the General Plan. The increase in developed acreage results in a significant increase in available groundwater yield. This is due to the conservative policy of basing sustainable groundwater yield for the COSMA on the urbanized area of development. Using the goal of 0.60 AF/acre/year identified in the DWSP Feasibility Report applied to the GP Update, approximately 61,800 AF/year of groundwater can be used; whereas, under the

DWSP Feasibility Report, the resulting groundwater yield was only 48,000 AF/year. This adds another 13,800 AF/year of water to the GP Update.

Use of Agricultural Credits

In the WSE, a slightly different approach was taken regarding converting agricultural lands to urban. In the WSE, it was assumed that the groundwater elevations today are a result of groundwater extractions from agriculture and urban uses within the basin. If an agricultural property is extracting greater than the goal of 0.60 AF/acre/year (i.e., agriculture irrigation requirements average anywhere from 3 to 5 AF/acre/year depending on crop type) that some credit should be provided to the City of Stockton if the land is converted to urban uses with only a 0.6 AF/acre/year average groundwater use. A detailed groundwater analysis was performed in support of the GP Update and a conservative increase in the goal of 0.75 for the driest year pumping was increased to 0.87 AF/acre/year. This permitted more pumping in the driest year but not exceeding the self-imposed cap to minimize any concerns from over pumping the basin in the drier years.

Conclusion of Changes

In all, there is approximately 34,000 AF/year (i.e., 20,000 AF from SEWD and 14,000 AF from GW) of more water than what was assumed for the DWSP in year 2035. **Figure 25** is extracted directly from the DWSP Feasibility Report to illustrate the change this amount of water has on the phasing of the DWSP. The surface water requirement governs the need for either more SEWD capacity or more DWSP capacity. Based on the phasing in the Feasibility Report at 2035 the surface water requirement is approximately 90,000 AF/year as shown in **Figure 23**. This figure is based on the information known at the time of writing the DWSP Feasibility Report. A 90,000 AF/yr DWSP requirement equates to approximately the Phase 2 capacity of 90 mgd for DWSP WTP. If the more current SEWD surface water amounts and higher groundwater use is added, the resulting phase, if applied in the same manner as Figure 23, the end of Phase 1 or the 30 MGD capacity of the DWSP is at approximately 2035 as shown in **Figure 26**. Under the original set of conditions Phase 3 would be needed by 2030. With the change in conditions, Phase 1 can extend beyond the 2015 to a time when Phase 2 is needed based on demand. This may be at 2035 build-out of the GP Update or sooner.

WATER SUPPLY EVALUATION
General Plan Update Preferred Alternative
City of Stockton Municipal Utilities Department and California Water Service Company

Figure 25. DWSP Feasibility Report Phasing Diagram

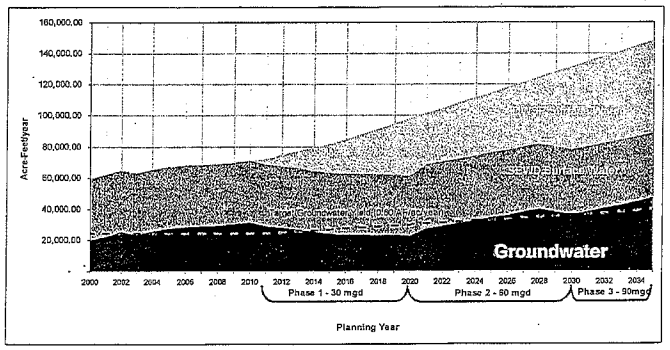
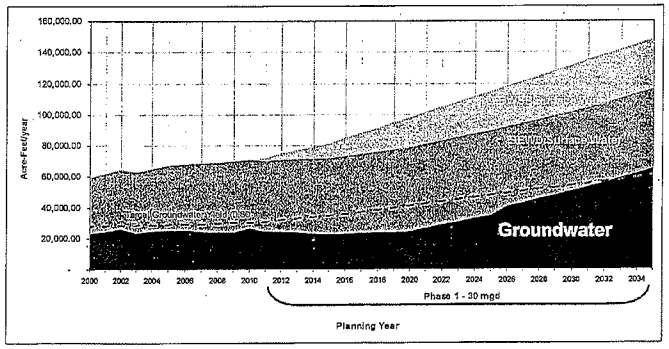


Figure 26. GP Update WSE Phasing Diagram



DETERMINATION OF SUFFICIENCY

This WSE determines that the COSMA urban water retailers currently cannot support the GP Update without the DWSP Phase 1 project and associated water supplies and continuation of the on-going groundwater use and management program with self-imposed goals becoming effective when the DWSP becomes operational. In consideration of the significant steps in the environmental review, permitting, and financing of the DWSP, the construction and operation of the DWSP by 2010 is considered to be a viable water supply for meeting the GP Update's build-out water demand and meets the goals of the DWSP as stated in the Current Water Supply Condition section starting on **Page 4**.

The urban retail water purveyors make this determination based on the information provided in this WSE and on the following specific facts:

- The existing near-term and long-term reliable supplies of SEWD surface water supplies, non-potable water supplies, and indigenous groundwater supplies can deliver a sustainable reliable water supply without impacting environmental values and/or impacting the current stabilization of the groundwater basin underlying the COSMA.
- The existing and future conjunctive use program of using surface water and each of the urban water retailer's groundwater supplies has been extensively analyzed as part of the DWSP Feasibility Report and EIR and as part of this WSE. All studies show that sufficient water rights and available groundwater supplies will exist for the level of water demand contemplated under the GP Update.
- The GP Update area will be served by water supplies made available through the existing and planned future conjunctive use program within the COSMA urban water retailer's service areas.
- The diversion structure, raw water pipeline, treatment plant and treated water pipeline elements of the DWSP are necessary water supply elements in meeting the GP Update water demands.
- New groundwater facilities are necessary to fully implement the conjunctive use program that is currently in effect and contemplated with operation of the DWSP. The use of new wells will take place only in the dry and critical years when SEWD surface water supplies are curtailed, and in no case do groundwater extractions impact the long term sustainability of the groundwater basin and existing wells.

Letter 32

SAN JOAQUIN COUNCIL OF GOVERNMENTS

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RECEIVED
FEB 06 2007
CITY OF STOCKTON
PERMIT CENTER/PLANNING DIVISION

January 31st, 2007

Stockton Community Development Dept.
Planning Division
345 N El Dorado St
Stockton, CA 95202

Upon attending the Open House and reviewing the Draft EIR, there is an important issue that I would like to bring to your attention: the desperate need for a Park-and-Ride Lot in the Weston Ranch Community. 32-1

According to the 2000 US Census, 58% of Weston Ranch commuters work outside San Joaquin County. Over 55% of those commuters have a commute that is over forty-five minutes each way. Traffic congestion and poor air quality continue to plague our county, in large part due to long distance commuters. These commuters also spend thousands of dollars a year on the cost of fuel, vehicle maintenance, and other commute related costs. Because of all these factors, over 30% of Weston Ranch residents use alternative transportation, such as carpools and vanpools, to get to work. 32-2

As Weston Ranch is a development that targets Bay Area commuters, a Park-and-Ride lot was called for in the development of the community. However, the plan for the lot was dropped and there are currently no Park-and-Ride lots in Weston Ranch. This is a major issue for over 10 vanpools and countless carpools that are leaving the community every morning. Many of these commuters are leaving their cars in front of the driver's home, causing tension with the neighbors, or parking along the frontage road, leaving their cars vulnerable to break-ins or theft. 32-3

As the project manger for the Park-and-Ride Lot program, I often receive calls from Weston Ranch commuters wondering why a park-and-ride lot has not been established for them to use. Since I took this position seven months ago, not a week has gone by that the Weston Ranch Park-and-Ride issue has not been brought to my attention by commuters and other stakeholders. Some examples of concerns I have received include:

> "I would like to know why there are no Park-and-Ride lots anywhere in the Weston Ranch Area. Is there some way we could petition to establish one?" 32-4
>
> "I am in a vanpool that commutes to San Francisco everyday. We are currently parking our cars on Manthey Road and are very worried about vandalism. Can you help us establish a Park-and-Ride in Weston Ranch?"

In March of 2006, concerned commuters brought this issue to the attention of their Councilwoman, Rebecca Nabors. Ms. Nabors contacted the City of Stockton on behalf of her constituents, in hopes that their concerns would be appropriately addressed. The City in turn contacted the San Joaquin Council of Governments. Unfortunately, SJCOG does not have the authority to establish a Park-and-Ride lot. It is the responsibility of the City of Stockton to take action on this matter. 32-5

The proposed Weston Ranch Towne Center is an ideal location for a Park-and-Ride lot that will benefit both commuters and retailers. It is close to the commuters homes and, once the new interchange is established, will provide easy access to the major commuter corridors. Retailers will benefit by having potential customers dropped off in their parking lots every morning and evening. Studies show that commuters who use Park-and-Ride lots located in shopping centers frequent the stores more often than they would have had they not been parking there. One commuter mentioned that parking in a shopping center would be great because commuters could pick up food for lunch or snacks in the morning or pick up dinner or run errands easily on the way home. 32-6

As more and more Bay Area residents relocate to the area and the cost of commuting continues to rise, the need for a park-and-ride lot is only going to grow. I ask that you take action now and establish the lot that residents are desperately waiting for. Please do not put this off and hope that another location will become available in the future. This is a great opportunity for commuters as well as the City and potential retailers to show their dedication to the residents they are serving. 32-7

If you have any question, please do not hesitate to contact me. 32-8

Sincerely,

Lesley Miller

Lesley Miller
Regional Planner
San Joaquin Council of Governments
(209)468-3913
lmiller@sjcog.org

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

Letter 33

February 8, 2007

Mark Martin
City of Stockton
Community Development
Planning Division
345 N. El Dorado St.
~~Modesto~~, CA 95202
STOCKTON

Project: Weston Ranch Towne Center Project

Subject: CEQA comments regarding the Draft Environmental Impact Report (DEIR) for the Weston Ranch Towne Center Project, EIR No. 5-04 (SCH# 2005012056)

District Reference No: C200602691

Dear Mr. Martin:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the project referenced above and offers the following comments: 33-1

Findings of Significance

Section 4.8 Air Quality of the DEIR adequately describes the regulatory environment and existing air quality conditions, addresses short-term, long-term and cumulative effects on air quality, discusses applicable District regulations, and identifies mitigation measures to reduce air emissions. 33-2

Impact 4.8.1 – The District concurs with the DEIR that the development of the project would produce construction emissions that exceed the District's Thresholds of Significance of 10 tons per year for ROG and NOx. The District also concurs that even with the implementation of the mitigation measures identified, these emissions may not be lowered to a level of insignificance. However, as described below, off-site mitigations are available to the project proponent to lower net emissions to a level of insignificance. 33-3

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

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1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061
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Southern Region
2700 M Street, Suite 275
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Printed on recycled paper.

Impact 4.8.2 – The District concurs with the DEIR that implementation of appropriate asbestos measures and compliance with District Rule 4002 (National Emission Standards for Hazardous Air Pollutants) would reduce the short-term emissions of suspended asbestos to a level of insignificance. 33-4

Impact 4.8.3 – The District concurs with the DEIR that the development of the project would produce operational emissions that exceed the District's Thresholds of Significance of 10 tons per year for ROG and NOx. The District also concurs that even with the implementation of the mitigation measures identified, these emissions may not be lowered to a level of insignificance. However, as described below, off-site mitigations are available to the project proponent to lower net emissions to a level of insignificance. 33-5

Impact 4.8.4 – The District concurs with the DEIR that the development of the project would not have a significant impact on localized carbon monoxide concentrations. 33-6

Impact 4.8.5 – The District concurs that diesel particulate matter would not pose a significant risk to sensitive receptors if all mitigation measures identified in the DEIR are strictly abided by and enforced. 33-7

Impact 4.8.6 – The District concurs with the EIR that because the project, as described, will have significant impacts on air quality, the project will have a cumulative air quality impact. However, as described below, off-site mitigations are available to the project proponent to lower net emissions to a level of insignificance. 33-8

Applicable District Rules

In addition to District rules identified in the DEIR, the project will also be subject to the following regulations. This project may be subject to additional District Rules not enumerated below. To identify additional rules or regulations that apply to this project, or for further information, the applicant is strongly encouraged to contact the District's Small Business Assistance Office at (209) 557-6446.

Rule 2010 (Permits Required) This rule applies to any person who plans to or does operate, construct, alter, or replace any source operation, which may emit air contaminants or may reduce the emission of air contaminants. Dependent upon the nature of service that future tenants will provide, some may be subject to District permitting requirements. If District permits are required, the tenants should submit permit applications to the District as soon as possible to avoid delays in the project. For further information or assistance regarding permitting, the District's Small Business Assistance Office can be reached at (209) 557-6446. 33-9

Rule 4103 (Open Burning) This rule regulates the use of open burning and specifies the types of materials that may be open burned. Agricultural material shall not be burned when the land use is converting from agriculture to non-agricultural purposes (e.g., commercial, industrial, institutional, or residential uses). Section 5.1 of this rule prohibits

the burning of trees and other vegetative (non-agricultural) material whenever the land is being developed for non-agricultural purposes. In the event that the project applicant burned or burns agricultural material, it would be in violation of Rule 4103 and be subject to District enforcement action.

Rule 4601 (Architectural Coatings) This rule limits volatile organic compounds from architectural coatings by specifying architectural coatings storage, clean up and labeling requirements and applies to any person who supplies, sells, offers for sale, applies, or solicits the application of any architectural coating. 33-9 cont.

Mitigation Measures

Mitigation measures are adequately identified in the DEIR. As stated above, these measures alone do not lower emissions to a level of significance. Although current technology limits the amount of on-site reductions possible, off-site reductions are available. The project proponent may enter into voluntary Air Quality Mitigation Agreements with the District. These agreements require the District and the applicant to quantify operational emissions, and identify on-site mitigation to reduce the proposed project's impact on air quality. The applicant commits to providing funding on a per-ton of emissions basis to the District to purchase emission reductions through its grant and incentive programs to mitigate the net emissions. The District commits to reduce the emissions and to manage and monitor the emission reduction projects over time. District staff is available to meet with project proponents to discuss Mitigation Agreements for specific projects. For more information, or questions concerning this topic, please contact Mr. Arnaud Marjollet, Permit Services Manager, at (559) 230-6000. 33-10

District Recommendations

The District recommends the following changes for clarification and to improve the document's accuracy:

- Table 2-1, Mitigation Measure 4.8.3b should be amended to correctly cite District Rule 9510 requirements. The rule requires PM10 emissions to be reduced by 45% during construction and 50% during operations. The rule was correctly cited in other areas of the DEIR. 33-11
- Page 3-9 should be amended to reflect that estimated floor areas are found in Table 3-2 Proposed Land Uses, not in Table 3-1 as the DEIR indicates. 33-12
- Footnote 3 on page 4.8-16 should be amended to reflect the District's current Regulation VIII requirements. Regulation VIII was amended on August 19, 2004, and limits visible dust emissions to 20% opacity. 33-13

To expedite future review of development (i.e. permit applicability, Indirect Source Review, etc.) within the project, the District recommends that project descriptions for 33-14

those developments be identified as being part of the Weston Ranch Towne Center project. 33-14 cont.

District staff is available to meet with you and/or the applicant to further discuss the regulatory requirements that are associated with this project. If you have any questions or require further information, please call Jessica Willis at (559) 230-5818 and provide the reference number at the top of this letter. 33-15

Sincerely,

David Warner
Director of Permits Services

Jessica R. Willis
for Arnaud Marjollet
Permit Services Manager

DW:jrw

cc: File

Letter 34

Weston Ranch Towne Center

Comments

Name (Please print): EZELLE A. ELAHI **Date:** 1-24-07

Mailing address: 1047 CYPRESS HILL LN

Resident, Business, Organization, etc.: RESIDENT

Phone: (209) 234-1523 **Email:** EAELAHI@SBCGLOBAL.NET

Comments: I WOULD LIKE TO HAVE A TOWNE CENTER EQUAL TO SPANOS PARK AT 8 MILE ROAD, WEST VALLEY MALL IN TRACY, + THE OTHER TOWNE CENTERS AROUND THE STATE OF CA. WE SHOULD HAVE ~~HORD~~ HIGH END RESTAURANTS, STORES LIKE STARBUCKS, JAMBA JUICE, HEALTHY FOOD ORIENTED, ETC. STORES LIKE TARGET, KOHLS, MERVYN WOULD BE PREFERED. IT WOULD ALSO BE NICE TO HAVE A PARK N' RIDE STATION/ PARKING LOT FOR THE WESTON RANCH COMMUTERS. 34-1
WALMART IS NOT A PREFERED CHOICE. BESIDES, THEY HAVE A WALMART IN MARTINEZ (15 MINUTES AWAY) AND NORTH STOCKTON WITH A SUPER WALMART ON HAMMER LANE ONLY 20 MINUTES AWAY.

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Public Outreach Coordinator
P.O. Box 773, Stockton, CA 95201-0773
Hotline@buethepr.com

OVER ON BACK

Vestar

WESTON RANCH RESIDENTS DESERVE BETTER!!!

Weston Ranch Towne Center

Comments

Name (Please print): Angela Elahi **Date:** 1-23-07

Mailing address: 1047 Cypress Hill Lane

Resident, Business, Organization, etc.: Home Owner

Phone: 209-234-1523 **Email:** AndersonElahi@SBCGLOBAL.NET

Comments: When the Weston Ranch Towne Center was originally proposed, it was proposed as a "High End" open-air center.

Now that development is commencing, it is now being promoted as any thing but an "High-End" center. I do not care how many palm trees ~~you~~ that you plant around it, "Walmart" is not a high-end store. It will attract around the clock noise pollution and undesired traffic to the area. 34-2

I like Walmart, I shop at the one that is already in Stockton as well as the one in Manteca, (both equal distances from my home) I do not see a need for an additional one in Weston Ranch, besides greed. Just in case it has not been noted. A high-end center is the one located off-of eight-mile road and Spanos Park. (over) →

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Also, my husband and I have worked very hard to obtain and to up-keep our home. Please honor your original plan of an "High-End" market place, ie. without a Walmart.

I ~~have~~ am taken this opportunity to list, again just as I did in the original survey, some stores that are high-end and still anchor the center.

1) Nordstrom (Rack)
2) Macy's
3) Gottchalks
4) Dillards
5) Star-Bucks
6) Jumba juice
7) See's Candies
8) T.J. Max
9) Toys R us
10) Best Buy
11) Marshals
12) Disney store
13) Childrens Place
14) The Gap
15) Old Navy
16) american outfitter
17) Bath + Body works
18) Gymborree
19) Hallmark
20) Build a Bear
21) Trader Joe's
22) Whole Foods
23) Black Agnus
24) Apple Bees
25) Marie Callendars

I believe you get the picture.

Please take your "Walmart Super Center" elsewhere.

Angela Elahi
Concerned Home owner
209-2341523

Fall 2008 project
2010 for all plans

Weston Ranch Towne Center

Comments

Name (Please print): Z. Booth **Date:** 1/24/2007

Mailing address: 4144 Blake Circle Stockton CA 95206

Resident, Business, Organization, etc.:

Phone: 234.2217 **Email:**

Comments: In reference to your enviromental study with 5000+ (& still building) homes located in Weston Ranch, it would be a major fiascal to get out of this area in case of an emergency since we are losing two roads.. Henry Long & Manthey Blvd. 34-3

In regards to walmart, how many walmarts does a city need? There is one currently on Hammer Lane a few miles down the road. The city should be concerned about growing Stockton in a profitable way, by bringing in quality stores, not stores that attract crime and are ~~are~~ known for devalving a community. The mindset of the leaders in city council need to be changed to look at the bigger picture than just profit at the moment. Letting walmart come into this area is a problem that is waiting to explode and once it does >

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where will city council & the mayor be. I-5 needs to have an ~~interested~~ attractive choice of stores coming into Stockton.
The community of Weston Ranch deserves better than a wal-mart, as well as the city of Stockton.
Just look at Food 4 Less ... by adding a wal mart will make the area worse.

Weston Ranch Towne Center

Comments

Name (Please print): Shirley Graves Date: 1/24/07

Mailing address: 4111 E. W.S. Woods Blvd Stkn

Resident, Business, Organization, etc.: Same

Phone: (209) 234-2565 Email:

Comments: The shopping center looks nice. Hopefully it will be kept up this end next. We do not need a Ross store. They are always a mess inside. We need to have lots of security for the area. We do not want the homeless to hang out there. We really need a decent shopping center here.

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Weston Ranch Towne Center

Comments

Name (Please print): Maria (Lulu) Corona-Flores Date: 1-24-07

Mailing address: 4317 Giselle Lane Stockton Ca. 95248

Resident, Business, Organization, etc.: Resident

Phone: 982-1324 Email: M.flores17@Comcast.net

Comments: I don't want a 24 hour Super Wal-Mart - It brings more crime, more homeless. Lower Income Shoppers that don't care about our Community - I would like to see Something like 8 mile Road Shopping Center or Pleasanton. We have already a terrible Shopping Center with 24 Food-4-Less There is more Crime, homeless people drug dealings right in the parking lot. 34-4

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Weston Ranch Towne Center

Comments

Name (Please print): MARTIN CARDOZA Date: 1-24-07

Mailing address: P.O. BOX 1058 FRENCH CAMP, CA 95231

Resident, Business, Organization, etc.: RESIDENT.

Phone: 209 983-2796 Email:

Comments: MY CONCERNS ARE ABOUT INCREASED TRAFFIC, THE BLOCKING OF HENRY LONG BLVD, POLLUTION (GARBAGE) (AIR) BECAUSE OF THE SHOPPING CENTER, WAL-MART'S HISTORY OF UNFAIR COMPETITION, LACK OF FULL SERVICE GROCERY STORE SUCH AS SAVE-MART OR SAFEWAY. SECURITY AT THE SHOPPING CENTER. I WOULD LIKE TO SEE THE TYPE OF RETAIL STORE THAT HAVE OPENED AT SPANOS PARK WEST HERE IN STOCKTON, I FEEL THAT WESTON RANCH DESERVES THE SAME TYPE OF SHOPPING AND RESTAURANT CHOICES. 34-5

THANK YOU
Martin Cardoza

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Weston Ranch Towne Center

Comments

Name (Please print): Julius Suero Date: 1/25/06

Mailing address: 1739 Bartlett Ct, Stockton, CA 95207

Resident, Business, Organization, etc.:

Phone: 209-9799 Email: jssuero@netzero.net

Comments:

- Since there's a lot of Asians in the community, pls. also provide an oriental store or market.

- My family & relatives is against the Super Walmart Store - it will kill the business of the small stores & could create more crime. 34-6

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Weston Ranch Towne Center

Comments

Name (Please print): MICHELLE SWAIN Date: 1/24/07

Mailing address: 1929 BLACK ROSE LANE STOCKTON, CA 95206

Resident, Business, Organization, etc.:

Phone: 209-234-1864 Email: MyShell97@AOL.COM

Comments: THIS COMMUNITY WOULD BENEFIT AND NEED A BANK i.e WUMU, UNION BANK OF CA, OR CREDIT UNION i.e GOLDEN-ONE. GAS STATION(S), FITNESS CENTER i.e BALLY'S, 24 HR'S NATURALS, WINGSTOP, KOHL'S TARGET!!! RESTURANTS → ELEPHANT BAR, JOE'S CRAB SHACK (SOMETHING NICE)!!! GAS STATION(S), NO WAL-MART BECAUSE OF TOO MUCH TRAFFIC AND UNDESIRED ACTIVITIES W/ THE YOUTH. THIS WILL BE A HANG-OUT PARKING SPACE. WE WANT QUALITY STORES. PLEASE RECONSIDER WAL-MART FOR SOMETHING ELSE. 34-7

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Vestar

Weston Ranch Towne Center

Comments

Name (Please print): ARMIDA CADENA, TOM ARELLANES Date: 1/

Mailing address: 3356 Buttrick Ln

Resident, Business, Organization, etc.:

Phone: Email: ARMIDACALLING@AOL.COM

Comments: Extreme concern over the proposed development. We do not need another Wal Mart in Stockton! We need higher end shopping choices. More police presence & surveillance. Don't want empty spaces in the shopping center trash, traffic, graffiti, vandalism, drug trafficking. 34-8

Shops similar to Eight Mile Rd Development, we're not spoiled but we deserve same if not better.

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Vestar

Weston Ranch Towne Center

Comments

Name (Please print): Marilyn Jones Date: 1/24

Mailing address: 3854 Ramalho Ln, Stkn 95206

Resident, Business, Organization, etc.: Resident

Phone: 925 224-2587 (day) Email:

Comments: I would like to see quality stores on our end of town. Stores like they have on Eight Mile Rd in Stockton or stores like they have @ the shopping center recently built in Dublin. We need nice family style restaurants. I would like to know whether or not Manthey Road is going to be expanded between French Camp & William Moss. I would also like to know about this company's committment to maintaining a safe, well run facility. 34-9

No Walmart

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Vestar

Weston Ranch Towne Center

7

Comments

Name (Please print): Letha Bradley Date: 1/24/07

Mailing address: 3868 Ramalho Ln.

Resident, Business, Organization, etc.:

Phone: 983-8224 Email:

Comments: I do not want a Wal-Mart for many reasons. Too much traffic, crime and undesirables. 34-10

Safeway would be acceptable or Albertsons.

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Weston Ranch Towne Center

Comments

Name (Please print): Abraham Lockbee Date: 1-24-07

Mailing address: 3302 Jonathan St.

Resident, Business, Organization, etc.:

Phone: (209) 234-0410 Email:

Comments: We need more police to stop the crime that happens when you put in a Wallmart — Tracy opened a wallmart 3yrs ago and their has been 965 calls to the police for crimes. 34-11

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Weston Ranch Towne Center

Comments

BRAD VENABLE

Name (Please print): ANNA LEE Date: 1/24/07

Mailing address: 1752 Ericksen Circle, Stockton, CA 95206

Resident, Business, Organization, etc.:

Phone: (209) 406-1141 Email:

Comments: Having Wal Mart Super Store will inevitably create ↑ noise, ↑ crime, ↑ erosion of environment, ↑ traffic & ↓ property value. I'm against having Wal Mart Store in this area; we already have three Wal Marts nearby, and don't need another on. Manteca, Stockton in Hammer Lane & Tracy all have Wal Mart superstore / Wal Mart Store. Don't ruin our neighborhood by bringing in another giant chain store that will certainly ruin the area. No to WalMart!! 34-12

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Weston Ranch Towne Center

Comments

Name (Please print): SHEILA DOCTER Date: 1/24/07

Mailing address: 1160 RIVER CREST CT.

Resident, Business, Organization, etc.:

Phone: (209) 983-9683 Email: MACHELLEDR@COMCAST.NET

Comments: *I DON'T WANT A WALMART SUPERCENTER* WHAT I THINK THIS COMMUNITY NEEDS IS A GROCERY STORE THAT HAS BETTER QUALITY FOOD. HAVING A COSTCO WOULD BE NICE. A DRUG STORE WITH A 24-HOUR DROP OFF/PICK-UP WOULD BE NICE. *WALMART ALLOWS RV TO PARK OVERNIGHT AND I USUALLY SEE PEOPLE HANGING AROUND OUTSIDE. THIS COMMUNITY ALREADY HAS A 24 HOUR FOOD 4 LESS.*

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Weston Ranch Towne Center

Comments

Name (Please print): Tatum Family Date: 1-24-2007

Mailing address:

Resident, Business, Organization, etc.: Resident

Phone: Email: mhdtatum@clearwire.net

Comments: I do not agree with the entire project. I moved here from the Bay Area to get a quiet peaceful neighborhood w/o shopping centers on the nearby corners.

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Weston Ranch Towne Center

Comments

Name (Please print): Robert + Cheryl Varela Date: 1-24-07

Mailing address: 1011 Henry Long Blvd Stockton Ca 95206

Resident, Business, Organization, etc.: Resident

Phone: 982 9504 Email: ibturtle58@hotmail.com

Comments: "No WALMART!"

I do not like the fact the you are closing Henry Long. When we bought our house 7 years ago no one ever let us know that this road could be slated to close. I like having a straight out access to leave the area. Letting developers build more houses on 3500 sq. foot lots shows the people that the planning is for (City + developers) your comfort, money + business, not for our (Residents) comfort + Quality of life. When will decision be made for the people not for corporate, political, business advancement. I thought I was moving to a new community with a possibility of having some family atmosphere, not a business community! 34-13

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Weston Ranch Towne Center

Comments

Name (Please print): Sherra Henard Date: 1/24/07

Mailing address: 4239 Roma Ln Stockton, CA 95206

Resident, Business, Organization, etc.:

Phone: Email:

Comments: I do not want a Walmart Supercenter in my neighborhood. Especially if it is open 24 hours. More than 90% of our neighborhood would like to see an upscale store such as Target. I do not want a store that will attract low-income non-residents into our neighborhood especially at night. A lot of us are hardworking high-income residents and we deserve better. Our property value will suffer. I have seen the horrible upkeep of the Walmart on Hammer Lane; and do not want to come home everyday to sight like that. We already have a Food-4-Less that is open 24 hours we don't need another 24-hour store in the neighborhood. We would rather Sams Club!

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Weston Ranch Towne Center

Comments

Name (Please print): Joyce Bell Date: 1-24-07

Mailing address: 1824 Erickson Circle

Resident, Business, Organization, etc.:

Phone: 209-423-3031 Email:

Comments: We deserve better No Supercenter. No Walmart, This will bring more Traffic into our quiet neighbor. Centers like the proposed one will look nice approximately one year, after that it will look like the hang out area. As a homeowner I want my neighborhood to be an area that I can enjoy and appreciate living in. I don't want a Walmart. 34-14

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Weston Ranch Towne Center

Comments

Name (Please print): Valerie Jackson Date: 1/24/07

Mailing address: 1162 Henry Long Blvd

Resident, Business, Organization, etc.:

Phone: 209234-8725 Email: Vjackson@hotmail.com

Comments: It will be a nice shopping center if it was kept clean. That is my main concern usually Wal mart Shopping Centers are unclean

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Weston Ranch Towne Center

Comments

Name (Please print): STANLEY HULY Date: 1-23-07

Mailing address: 714 WILLIAM MOSS BLVD. STOCKTON, 95206

Resident, Business, Organization, etc.:

Phone: 209-983-1336 Email: STANLEYHULY@SBCGLOBAL.NET

Comments: THE STORE WALMART IS REALLY BEING PROMOTED. THEY SAY THE CITY IS FOR IT. YES IT WILL BRING A GOOD TAX BASE. BUT IT IS NOT GOOD FOR THIS COMMUNITY, IT BRINGS TOO MUCH TRAFFIC, CRIME & UNWANTED PEOPLE HANGING OUT. 34-15

IT IS JUST NOT GOOD FOR THIS COMMUNITY

Thank You

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Comments

Name (Please print): KEITH L GLEASON Date: 1/24/2007

Mailing address: 4490 ABRUZZI CIRCLE STOCKTON, CA 95206

Resident, Business, Organization, etc.: WESTON RANCH RESIDENT

Phone: 209-982-4469 Email: KEITHGLEASON1980@HOTMAIL.COM

Comments: NICE PLAN, ONLY CONCERN IS THE LIMITED ACCESS. APPEARS THAT MOST TRAFFIC FLOW WILL BE DIRECTLY OFF OF FRENCH CAMP RD. 34-16

WOULD LIKE TO SEE SOME UPPER-SCALE RESTAURANTS, NOT JUST FAST FOOD. ALSO, AN AUTO-PARTS STORE & BOOKSTORE, AND A GOLF STORE.*

WHAT WE REALLY NEED IS ENTERTAINMENT VENUES – MOVIE THEATRES, ETC. PLEASE HURRY, WE DON'T WANT CATHEDRAL TO GET THEIR BIG SHOPPING CENTER BEFORE US!

* A GOLF STORE WOULD BE A NATURAL W/ A MUNI. GOLF COURSE JUST UP THE ROAD!

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Weston Ranch Towne Center

Comments

Name (Please print): Adolph Cavanza III Date: 1-24-07

Mailing address: P.O. Box 971 Lathrop Ca. 95330

Resident, Business, Organization, etc.:

Phone: Email: Sandsavanza@Hotmail.com

Comments: Please keep it clean and safe. (only like Food 4 Less!)

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Weston Ranch Towne Center

Comments

Name (Please print): REX HOLIDAY Date: 01/24/07

Mailing address: 3823 LADY JANE LANE, STOCKTON, CA 95206

Resident, Business, Organization, etc.:

Phone: 209-982-1005 Email: rexholiday@comcast.net

Comments: THE PROJECT LOOKS VERY PROMISING, AND I HOPE THERE WILL BE A MOVIE THEATER AND HARDWARE STORE. I'M HAPPY TO SEE THAT THERE WILL BE A TRAFFIC LIGHT INSTALLED AT THE EXIT/ENTRANCE AT FRENCH CAMP ROAD AND I-5.

MY RESERVATION IS THAT THE FOOD 4 LESS CENTER WILL BECOME AN ABANDONED EYESORE, AND THAT THE TRAFFIC WILL BE INCREASED PASSED THE HIGH SCHOOL AT EWS WOODS AND FRENCH CAMP ROAD WITH MANTHEY AND HENRY LANE GONE OR CUT OFF RATHER. 34-17

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P.O. Box 773, Stockton, CA 95201-0773
Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): David Silva Date: 01/24/07

Mailing address: 5002 Jetty Drive

Resident, Business, Organization, etc.:

Phone: (925) 344-4305 Email: davidsilva30@aol.com

Comments: JUST want to make that the TOWN Center WILL be Maintained Clean.

GOOD Mexican Restuarant

Contact Information
Project Hotline
(209) 464-4350

Write or send email:
Judith Buethe
Public Outreach Coordinator
P.O. Box 773, Stockton, CA 95201-0773
Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): Pamela Valenzula Date:

Mailing address: 4161 Kassady Ct.

Resident, Business, Organization, etc.:

Phone: Email: pamvalenzuela@sbcglobal.net

Comments:

I'm disappointed to find your company will just do what is needed to get by and not above and beyond. To propose a 10' wall & have to change to a higher wall only because the city requires it. This tells me you as a Company do not Really care about the community you plan to be part of! The pretty pictures I can not trust! Have you though of the affects you will have on the exsisting shopping center.

Contact Information
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Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): Vic Bernsdorff Date: 1/24/07

Mailing address: 4413 Felicitia ct

Resident, Business, Organization, etc.:

Phone: 209-982-5976 Email: Vbernsd@Comcast.net

Comments: The residential area behind Walmart will have constant noise with trucks going in an out all Day/Night. 34-18a
Residents of Weston Ranch will have longer to travel since Henry Long Rd will be gone. I dont see any upscale retail dining or shopping. I was expecting something more like 8 Mile road retail shopping. 34-18b
Walmart as an anchor will degrade the neighborhood, please get another anchor

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Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): Ryann Greenberg Date: 1/24/2007

Mailing address: 828 Woodstream Street

Resident, Business, Organization, etc.: Resident

Phone: (209) 234-4331 Email: RLGREENBERG@SBCGLOBAL.N

Comments: The overall appearance of the Towne Center looks beautiful and I think that it would be a POSITIVE addition to our community. I don't feel that having a Walmart in the center would add value to our community. If anything it would devalue it. There are plenty of Walmart's within a decent driving distance. Having a Target, Lowes/Home Depot, would add value to this community. I am STRONGLY AGAINST having a Walmart Supercenter in the Towne Center.

Contact Information
Project Hotline
(209) 464-4350

Write or send email:
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Public Outreach Coordinator
P.O. Box 773, Stockton, CA 95201-0773
Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): Dennis Anderson Date: 1/24/07

Mailing address: 1653 Henry Long Blvd Stockton

Resident, Business, Organization, etc.:

Phone: 209 234 2848 Email:

Comments:

No $ proper roads off from I-5 for our 10 years 34-19

No Wal Mart Big Boxes

We need a Safeway or Save Mart

Contact Information
Project Hotline
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Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): Helga Flores Date: 1/24/07

Mailing address:

Resident, Business, Organization, etc.: Resident

Phone: (209) 234-4801 Email:

Comments:

We don't want a walmart because it brings more problems, than we already have with vandalism and lack of police patroling to keep our neighborhood safe, clean & beautiful. So please we can do better than this. We deserve better than this, how about what you did in 8 miles Road we are as good as anybody else so we deserve the same quality of service. We demand and will not take any less. 34-20

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Vestar

Weston Ranch Towne Center

Comments

Name (Please print): EARNEST THOMPSON Date: 1-24-07

Mailing address: 741 BRITTANYANN LN

Resident, Business, Organization, etc.: RETIRED

Phone: 982 9841 Email:

Comments: NO WAL MART BECAUSE OF CRIMMAL RATE 34-21

Contact Information
Project Hotline
(209) 464-4350

Write or send email:
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Public Outreach Coordinator
P.O. Box 773, Stockton, CA 95201-0773
Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): Chelsea Bowman Date: 1/24/07

Mailing address: 429 Giselle Lane

Resident, Business, Organization, etc.: Resident

Phone: (209) 234-1299 Email:

Comments: It is a main concern of my family and I have a safe and friendly community to live in. Although I enjoy shopping at Wal-mart and Ross, i truly believe that these stores are low class and non sufficient. No matter how new, or how nice Wal-mart and Ross may look, it still is a low-quality development. Yes, kids will be provided with employment, but not a place for union laws. Why not have a Safeway, or a Target. Walmart and Ross are simply bad businesses for a safe and friendly environment.

Contact Information
Project Hotline
(209) 464-4350

Write or send email:
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Public Outreach Coordinator
P.O. Box 773, Stockton, CA 95201-0773
Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): Alexis Glasper Date: 01/24/07

Mailing address: 4235 Giselle lane

Resident, Business, Organization, etc.: Resident

Phone: Email:

Comments: Would rather have a Safeway than a Walmart. it could put some of our local stores out of business. Weston Ranch is not the place for a Walmart. As for other stores a Target would be nice. Some more dining restaurants such as Olive Garden, Macaroni Grill and Strings. 34-22

Contact Information
Project Hotline
(209) 464-4350

Write or send email:
Judith Buethe
Public Outreach Coordinator
P.O. Box 773, Stockton, CA 95201-0773
Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): Lynette Simerley Date: 1-25-07

Mailing address: 1619 ALCIRA NUNEZ ST.

Resident, Business, Organization, etc.:

Phone: 983-0744 Email: HSimerley@SBCGlobal.net

Comments: I feel that we need an upgraded shopping center here. We already have a budget shopping center. I have lived here since 1989 and I own 2 homes here I have watched it grow. I am very disappointed in the food 4 less center. The crime, the drug sales, car racing, garbage, Hookers ect. Not a pleasant place. We shop at Save Mart, Safeway and ect. Please don't distroy our comunity with another Budget Center. If Nothing else give us a mini golf Coarse or Bowling Alley for the kids instead of walmart.

Contact Information
Project Hotline
(209) 464-4350

Write or send email:
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Public Outreach Coordinator
P.O. Box 773, Stockton, CA 95201-0773
Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): Juan Ramos and Teresa Prieto Date: @ 1/24/07

Mailing address: 3849 Steve Little Cir, Stockton

Resident, Business, Organization, etc.: resident of Weston Ranch

Phone: Email:

Comments: houses, Office Depot, Kaileys, Safeway, Target, Olive garden, PF Changs.

No Walgreens No Walmart!!

No Ross

No McDonalds / Burger King

Traffic doesn't sound like it is well thought out. Not enough thru streets / control of traffic. 34-23

Contact Information
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Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): Dennis Thomas Date:

Mailing address: 634 Brittanpark Cir

Resident, Business, Organization, etc.: Home Owner / Protect Weston Ranch

Phone: 209 983 3022 Email: dfreyes78@yahoo.com

Comments: My house is located on the very corner of the weston ranch closely located to the planned town center. Town Center is a great idea and will benifit the whole community. I just do not approve of any 24 hr store operation. I also would like to see better stores than big boxes like ie Walmart

Contact Information
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Write or send email:
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Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): Velma Simmons Date: 1-24-07

Mailing address: 1761 Erickson Cir

Resident, Business, Organization, etc.:

Phone: 209-401-5321 Email:

Comments: I am opposing this because of the area, easily access to the freeway. And additional crime to the Western Lincoln Area. 34-24

Contact Information
Project Hotline
(209) 464-4350

Write or send email:
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Public Outreach Coordinator
P.O. Box 773, Stockton, CA 95201-0773
Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): BENJAMIN FLORES Date: 1-24-07

Mailing address: 2230 PICASSO WAY STOCKTON CA 95206

Resident, Business, Organization, etc.: RESIDENT

Phone: 209 234 8271 Email: BFLORES@CALDSL.COM

Comments:

I FEEL THAT THE PRESENCE OF WALLMART BEING A SUPERCENTER OPERATING 24 hrs a day will contribute to CRIME, TRAFFIC, HAVEN OF HOMELESS PEOPLE. WORST ARE THE SCHOOLS CLOSE TO IT, THEY WILL BE THE ONES AFFECTED MUCH SO NO TO WALMART! 34-25

Contact Information
Project Hotline
(209) 464-4350

Write or send email:
Judith Buethe
Public Outreach Coordinator
P.O. Box 773, Stockton, CA 95201-0773
Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): FERNANDO H. ALONSO Date: 01/24/07

Mailing address: 4108 ROMA LN STOCKTON, CA 95206

Resident, Business, Organization, etc.:

Phone: 209 234 6806 Email:

Comments: I OPPOSE BUILDING A WAL-MART BECAUSE IT WILL CAUSE NOT ONLY AIR POLLUTION, but also NOISE POLLUTION DAYS AND NIGHTS. DAY TIME BY THE PEOPLE PATRONIZING W.M AND AT NIGHT BY THE DELIVERY TRUCKS. 34-26

Contact Information
Project Hotline
(209) 464-4350

Write or send email:
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Public Outreach Coordinator
P.O. Box 773, Stockton, CA 95201-0773
Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): C. H. Nives Date:

Mailing address: 4118 Peron Ct.

Resident, Business, Organization, etc.:

Phone: Email:

Comments: I don't want Walmart
bad for our (WR) economy
bad for it's employees

can't understand your EIR
NOT "Accessible" 34-27

WE DESERVE BETTER
NO SUPERCENTER

Judith Buethe
Public Outreach Coordinator
P.O. Box 773, Stockton, CA 95201-0773
Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

WE DES
BETT
NO
SUPERCE

Comments

Name (Please print): Angela Flores Date: January 24, 2007

Mailing address: 2230 Picasso Way Stockton CA 95206

Resident, Business, Organization, etc.: Resident

Phone: 209-234-8297 Email: gigi.flores79@gmail.com

Comments: NO TO WALMART! I think Wal-Mart does not promote fair employment; market to small businesses that homeowners are building themselves, 34-28a
I also think Wal-Mart does not sell quality products nor prod. Also, Wal-Mart invites more crimes and "questionable" people within our community. Vestar should not depend nor be biased to Wal-Mart as we all know Vestar has built a lot of Walmart store. What Weston Ranch needs is a high quality grocery store such as Safeway and boxstore such as Target, Home depot or Lowes. NO NO NO TO WALMART!!! 34-28b

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Write or send email:
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Vestar

Weston Ranch Towne Center

Comments

Name (Please print): Rosemarie Quirante Date: 1/24/07

Mailing address: 4951 Moraga Ln Stockton CA 95206

Resident, Business, Organization, etc.:

Phone: 209 982-9872 Email:

Comments: Please NO on Wal Mart
I do not want the Value of my House to go Down
I do not want my Kids 1, 4, 7 years of age to Grow up in a Bad area with more crime 34-29
Please anything else How about Safe Way, Mervyn's anything
thank Rosemarie Q

Contact Information
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Write or send email:
Judith Buethe
Public Outreach Coordinator
P.O. Box 773, Stockton, CA 95201-0773
Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): ANITA Glasper Date: 1/24/07

Mailing address: 4235 Giselle LN, STKN, CA 95206

Resident, Business, Organization, etc.: Resident

Phone: 982-4133 Email: agl665@comcast.net

Comments: I'm glad to see ~~the~~ some of the shops we asked for are coming to the Towncenter with the except of WalMart. No Walmart my reasons why are exactly how the majority of Weston Ranch residents feel - Crime, decrease in home value). I dont like how the traffic will flow into the Towncenter. If Walmart stays the area will become too congested, even with the road upgrades. 34-30a 34-30b

Additional Tenants I'd like to see:

- Trader Joe's
- Safeway
- Sitdown dining restaurants
- (Olive garden, Red Lobster) etc

Contact Information
Project Hotline
(209) 464-4350

Write or send email:
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Public Outreach Coordinator
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Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): LaVonne Hall Date: 1-25-07

Mailing address: 2047 Sandpebble St

Resident, Business, Organization, etc.:

Phone: 209-981-9889 Email:

Comments: I don't think it is wise to put a Walmart in our neighborhood. And would like information on how to stop the construction

Contact Information
Project Hotline
(209) 464-4350

Write or send email:
Judith Buethe
Public Outreach Coordinator
P.O. Box 773, Stockton, CA 95201-0773
Hotline@buethepr.com

Vestar

Weston Ranch Towne Center

Comments

Name (Please print): Edward C Wiemken Date: 1-24-07

Mailing address: 1200 Gorin Ave Hayward Ca 94544

Resident, Business, Organization, etc.: Hayward Trees

Cell 510-427-7663

Phone: 510-886-5369 Email:

Comments: See Attached Info.

Contact Information

Project Hotline
(209) 464-4350

Write or send email:
Judith Buethe
Public Outreach Coordinator
P.O. Box 773, Stockton, CA 95201-0773
Hotline@buethepr.com

Vestar

STOCKTON INTERSTATE CALIFORNIA 5 French Camp Road Interchange Reconstruction and Sperry Road Extension

District 10
1976 Charter way
www.ca.dot.gov

Comment Card

(Please note that this document will become part of the public record)

Date: Wednesday, April 5, 2005
Location: Great Valley Elementary School
4223 McDougald Boulevard, Stockton

Name (Please print): EDWARD C. and BIRDIE L. WIEMKEN

Mailing address: P.O. BOX 55816, HAYWARD, CA 94545-0816

Resident, Business, Organization, etc.: BUSINESS MAILING ADDRESS

Comments: THIS FORM IS SENT TO MARK D. MARTIN, Project Manager II WITH ATTACHMENTS IN RESPONSE TO MEETING AT GREAT VALLEY ELEMENTARY SCHOOL, ON APRIL 05, 2006 IN REGARDS TO RE CONSTRUCTION OF THE INTERCHANGE AT I-5 AND FRENCH CAMP ROAD.

SEE ATTACHMENTS:

A. Response letter
B. Map of Reconstruction
C. SITE MAP.

Edward C Wiemken
Birdie L Wiemken

Completing and signing this document is voluntary. The California Department of Transportation may use this information for statistical purposes, to notify you of any future hearings or to assist in providing you with further information. This document is a public record and may be subject to inspection and copying by other members of the public.

CITY OF STOCKTON

City of Stockton
Community Development Dept
Planning Division
Attn: Mark Martin
Project Manager II

RE: Comment Card
Reconstruction of the Interchange at I-5 and French Camp Road

Dear Mr. Martin,

After attending the meeting at the Great Valley Elementary School, in Stockton on April 5, 2006, we are dismayed to find that the preliminary plans for the interchange will block access to the property we had purchased for our long time established Christmas Tree, Pumpkin and Flower business.

In the prior meeting about the interchange, after speaking with the officials there, including the Stockton City Planner, we were left with the understanding that the construction would still allow us access to our property from French Camp Road at the present Manthey Road intersection and that a cul-de-sac would be built to stop through traffic from Manthey Rd into French Camp Rd; however, it would be set back from our entrance far enough to still allow ingress and egress to our property for business. Our customers would have little impact on French Camp Rd as the business is seasonal with little rush if any. 34-31

We established our family business 54 years ago and wanted to purchase a permanent location such as we now have at French Camp & Manthey Rd. Properties that we had leased in the past are no longer available therefore, we needed to choose a permanent location and chose this site for that purpose. We own and maintain a Christmas Tree Farm in the State of WA which is our family business. We depend on the retail lot at French Camp (parcel number 193-060-38) for our livelihood. There is always talk in America about the family run small business, this is the American way.

A.

In summation:

We were told at the first meeting that we would retain access to our business.

The business would have little or no impact on traffic on French Camp Rd.

The family business is the American Way of life and much of our livelihood depends on the French camp location. 34-31 cont.

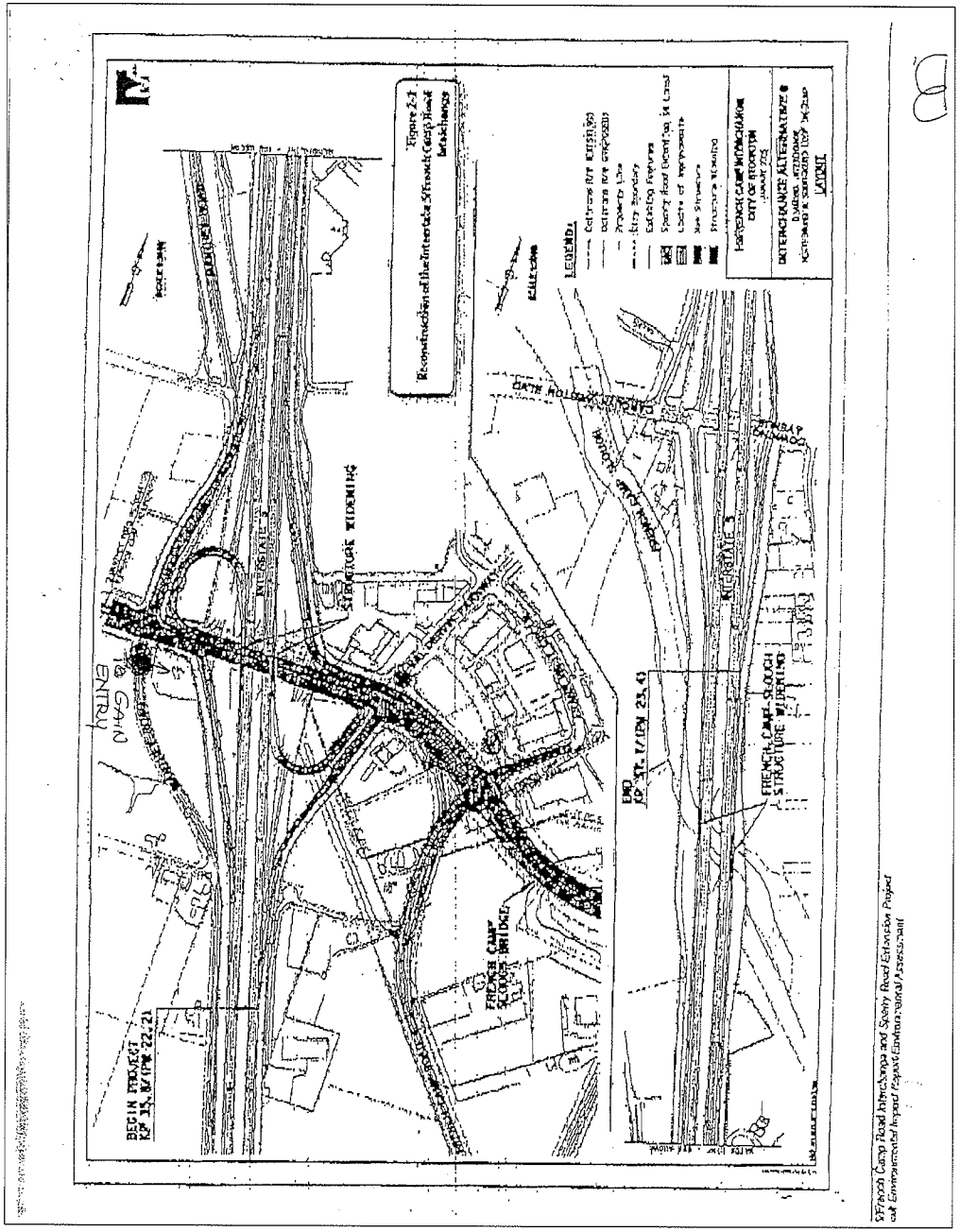
To landlock our Retail Sales site and make it unavailable to us would be a grievous loss to our business, to our employees, to our farm, to our customers and to us as well as to the community.

We can be reached at:
510 - 886-5369 home
510 - 427-7663 cell
510- 427-7664 cell
510 - 733-5904 CA FAX
360 - 944-1687 WA res
360 - 835-2877 Office
360 - 835 - 3418 WA FAX

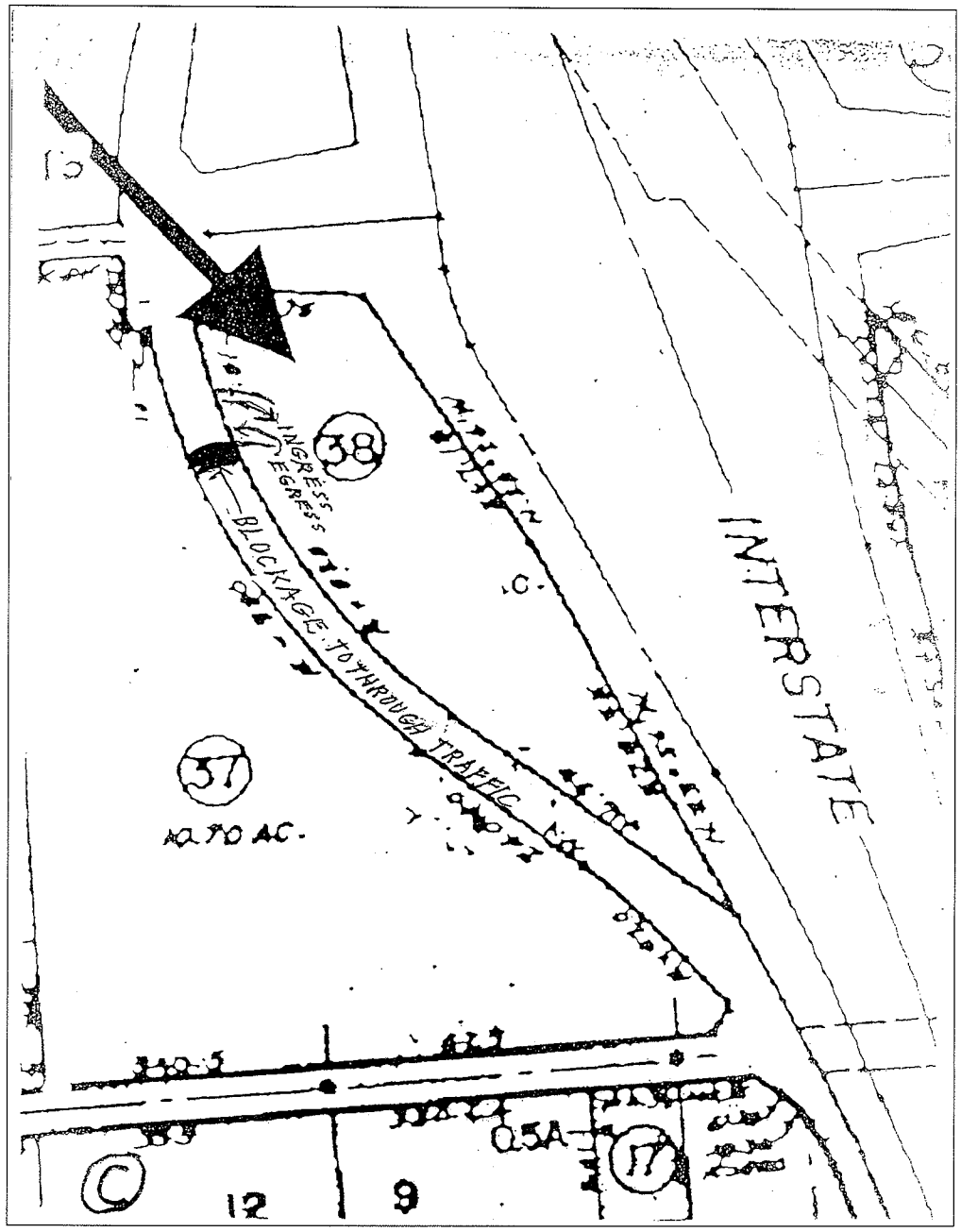
Your favorable consideration is requested.

Sincerely,
Edward C. Wiemken
Birdie L. Wiemken
Jeffry D. Wiemken
David E. Wiemken

cc: Public Outreach Coordinator
Ray Deyto Engineering Aspects
Carl Haack HDR Engineering Inc



5/French Camp Road Interchange and Spotts Road Extension Project
Draft Environmental Impact Report/Environmental Assessment



CHAPTER 2
Comments on the Draft EIR

Introduction

This chapter provides a list of all the written comments received during the public review period.

List of Commenters

The public agencies, organizations, and individuals that submitted comments on the Draft EIR are listed below in Table 2-1. As shown in the table, each comment letter has been designated by a number that will be used to refer to particular comments and responses.

Comment Letters

Each of the comment letters identified above are provided on the following pages, with individual responses to each of the comment letters provided in Chapter 3 "Responses to Comments on the Draft EIR". The content of each letter has been divided into individual comments. To assist in referencing comments and responses, each comment letter has been assigned a number and each individual comment within the letter a corresponding number. The responses to each comment are formatted in a similar fashion.

Where changes to the Draft EIR text result from these responses to comments (and as a result of the project modifications since the release of the Draft EIR), those changes are presented in Chapter 4 "Minor Changes and Edits to the Draft EIR" of this document, with changes shown by underlining new text (e.g., new text) and striking out text to be deleted (e.g., ~~deleted text~~). Comments which present opinions about the project unrelated to environmental issues or which raise issues not directly related either to the substance of the Draft EIR or to environmental issues are noted without a detailed response.

Neither the comments on the Draft EIR, the responses thereto, nor the project revisions made since release of the Draft EIR and consistent with the Reduced Density Alternative analyzed in the EIR raise any "significant new information" within the meaning of Public Resources Code Section 21092.1 and CEQA Guidelines Section 15088.5; therefore, the City of Stockton, as the CEQA Lead Agency, directed that a Final EIR be prepared rather than recirculating the Draft EIR.

TABLE 2-1
PERSONS AND AGENCIES COMMENTING ON THE DRAFT EIR

Commenter	Date Received	Letter Code	Page
California Department of Water Resources	December 18, 2006	1	2-3
SJCOG, Inc	December 26, 2006	2	2-5
Department of California Highway Patrol	December 26, 2006	3	2-6
San Joaquin County Environmental Health Department	January 14, 2007	4	2-7
California Department of Transportation	January 17, 2007	5	2-8
Pacific Gas & Electric	February 5, 2007	6	2-10
San Joaquin County Public Works	February 5, 2007	7	2-11
Eugene Erfe, resident	February 5, 2007	8	2-12
John S. Cook Sr. , resident	February 5, 2007	9	2-12
Abelardo Molano Jr. , resident	February 5, 2007	10	2-13
Gustavo Vera, resident	February 5, 2007	11	2-13
William Oreiro, resident	February 5, 2007	12	2-14
Sandra Hormigas, resident	February 5, 2007	13	2-14
Ron Mediana, resident	February 5, 2007	14	2-15
Gurpal Srai, resident	February 5, 2007	15	2-15
Joaquin Acosta, resident	February 5, 2007	16	2-16
Ruben Modesto, resident	February 5, 2007	17	2-16
Ralph Guzman Jr. , resident	February 5, 2007	18	2-17
Curtis Johnson, resident	February 5, 2007	19	2-17
Maria Rodriguez, resident	February 5, 2007	20	2-18
Astrid & Miles Watterson, residents	February 5, 2007	21	2-18
Vincent Hudson, resident	February 5, 2007	22	2-19
Robin Thornton, resident	February 5, 2007	23	2-19
Earnest Thompson, resident	February 5, 2007	24	2-20
Jason Kidd, resident	February 5, 2007	25	2-20
Lester Bradshaw, resident	February 5, 2007	26	2-21
Sukhwant K. Bath, resident	February 5, 2007	27	2-21
Michael Leonard, resident	February 5, 2007	28	2-22
Matab Singh, resident	February 5, 2007	29	2-22
Charles L. Miller, resident	February 5, 2007	30	2-23
Law Office of William J Yeats	February 5, 2007	31	2-24
San Joaquin Council of Governments	February 6, 2007	32	2-162
San Joaquin Valley Air Pollution Control District	February 15, 2007	33	2-163
Public Workshop Comments	January 24, 2007	34	2-165

CHAPTER 3
Response to Comments on the Draft EIR

Introduction

Individual responses to each of the comment letters identified in Chapter 2 "Comments on the Draft EIR" are included in this chapter. Neither the comments on the Draft EIR nor the City's responses thereto raise any "significant new information" within the meaning of Public Resources Code Section 21092.1 or CEQA Guidelines Section 15088.5, therefore, the City of Stockton, as the CEQA Lead Agency, has directed that a Final EIR be prepared. Comments that do not directly relate to the analysis in this document (i.e., that are outside the scope of this document) are not given specific responses. However, all comments are addressed in this chapter so that the City of Stockton Planning Commission and City Council will know the opinions of the commenters.

In some cases, multiple comments were received with respect to several planning and/or environmental issues raised in the Draft EIR. In order to provide the commenter with a complete picture regarding his or her concern, the City prepared a master response to all comments regarding a given subject. These master responses provide some background regarding the issue, identify how the issue was addressed in the Draft EIR, and provide additional explanation to address the commenters' concerns. In some cases, these responses have also been prepared to address specific land use or planning concerns (i.e., requests for land use/zoning changes, etc.) related to the Project but unrelated to the EIR or environmental issues associated with the Project. Comments which present opinions about the project unrelated to environmental issues or which raise issues not directly related either to the substance of the EIR, the General Plan Update, or to environmental issues are noted without a detailed response.

Response to Comments

The following responses correspond to the numbers for each comment presented in Chapter 2 "Comments on the Draft EIR". The section begins with the master responses that have been prepared to address multiple comments related to a single given subject.

Master Response #1: Climate Change

Comment Letter 31 (Comments 31-14, 31-16, 31-17, 31-70, and 31-71) includes comments concerned with global warming, greenhouse gas production, and various hazardous conditions associated with these issues. Issues raised include sea-level rise, weather pattern changes and weather intensity changes, water quality and water supply changes, exacerbation of air quality

problems, human-health problems, and damage to marine ecosystems and the natural environment. Comments were also received that asked about compliance with recent State of California global warming legislation. This Master Response addresses those comments.

Applicability of Public Resources Code Section 21083.3 and CEQA Guidelines Section 15183

The City responds to these comments by relying upon the analysis of climate change in the EIR certified in connection with the adoption of the City's General Plan. The reliance on the General Plan EIR for this purpose is particularly appropriate in light of the fact that climate change and greenhouse gas emissions are cumulative effects. That is, the effects of a particular project cannot readily be traced to a particular project; the effect is instead the result of the cumulative impact of global emissions over many years.

CEQA provides the City with a mechanism to rely upon the analysis in the General Plan EIR. Where an EIR has been prepared for a general plan, Public Resources Code section 21083.3 and its parallel Guideline section 15183 provide for streamlined environmental review for site-specific approval of projects consistent with the general plan. For such site-specific approvals, CEQA generally applies only to impacts that are "peculiar to the parcel or to the project" and that have not been disclosed in the general plan EIR, except where "substantial new information" shows that previously identified impacts will be more significant than previously assumed. In order to fall within the partial exemption created by Public Resources Code section 21083.3, "all public agencies with authority to mitigate the significant effects shall undertake or require the undertaking of any feasible mitigation measures specified in the prior environmental impact report relevant to a significant effect which the project will have on the environment." (Pub. Resources Code, § 21083.3, subd. (c).)

According to the CEQA Guidelines, "'[C]onsistent means that the density of the proposed project is the same or less than the standard expressed for the involved parcel in the general plan, community plan or zoning action for which an EIR has been certified, and that the project complies with the density-related standards contained in the plan or zoning. Where the zoning ordinance refers to the general plan or community plan for its density standard, the project shall be consistent with the applicable plan." (CEQA Guidelines, § 15183, subd. (i)(2).)

In December 2007, the City of Stockton approved the Stockton 2035 General Plan Update and certified a Final EIR for the Update (SCH No. 2004082066). Although the 2035 General Plan Update EIR is currently being challenged in court on CEQA grounds, the EIR is presumed adequate (Pub. Resources Code, § 21167.3, subd. (b)) and the 2035 General Plan Update remains in place as of the date of publication of this Final EIR.

The 2035 General Plan Update EIR evaluated the potential impacts resulting from implementation of the 2035 General Plan Update. Among other things, the EIR for the General Plan Update comprehensively analyzed the Update's cumulative contribution to global warming conditions through the increase of greenhouse gas emissions. (City of Stockton, 2007b) The General Plan Update EIR found a significant and unavoidable cumulatively considerable net increase of greenhouse gas that would contribute to global warming. Master Response # 3 in the Final EIR provided further information on the impacts of global warming, including information on recent

regulations, the impacts of global warming on California water supply and operations, impacts of global warming and information on Stockton's water supplies. Mitigation measures proposed in the General Plan Update EIR took the form of new policies and implementation measures to be included in the General Plan Update. The Stockton 2035 General Plan Update EIR's analysis of global warming (City of Stockton, 2007b) is hereby incorporated into this EIR for the Weston Ranch Towne Center project as though set forth herein in full. (CEQA Guidelines, § 15150.) The incorporated portions of 2035 General Plan Update EIR are available for review at the City of Stockton Community Development Department, Planning Division, located at 345 N. El Dorado Street, Stockton, CA and online at: http://www.stocktongov.com/CD/2035generalplan/.

In this case, for the purposes of Public Resources Code section 21083.3 and its corresponding CEQA Guidelines section 15183, the proposed project is consistent with the Stockton 2035 General Plan Update. The 2035 General Plan designates the site for Commercial uses. The building intensity standard for the project site, which is outside the downtown area, is a maximum floor area ratio (FAR)[1] of 0.3. All buildings will comply with the 0.3 FAR, pursuant to the General Plan Update. All uses will be "commercial" in character. Accordingly, the project is consistent with the uses established in the 2035 General Plan, and no General Plan amendments are required.

The impact of global greenhouse gas emissions, the associated global warming and its effects, which by their very nature are cumulative, are not peculiar to the Weston Ranch Towne Center project or its site. The 2035 General Plan Update EIR comprehensively considered the cumulative effect of buildout of the General Plan on climate change and the effects of climate change on the City's water supply. There is nothing unique or peculiar about the Weston Ranch Towne Center project with respect to the cumulative global impact of climate change or its impacts on the City of Stockton. Indeed, given the global scope of climate change, a single development project, such as the proposed project, would be unlikely to have an individually discernable effect on global climate change (i.e., that any increase in global temperature or sea level could be attributable to global temperature or sea level). Analysis of climate change can be found in the 2035 General Plan Update EIR in the following locations: pages 15-31; 11-35 through 11-48; Table 14-5 (General Plan Update EIR p. 14-11); Master Response #3 (General Plan Update Final EIR (Final EIR) pp. 3-4 through 3-12); response to comment A10-5 (Final EIR pp. 3-34 through 3-35); responses to comments O5-48 through O5-49 (Final EIR pp. 3-91 through 3-92); response to comment I1-1 (Final EIR p. 3-97); responses to comments I10-51 through I10-54 (Final EIR pp. 3-139 through 3-140); response to comment I10-56 (Final EIR p. 142); responses to comments I10-62 through I10-64 (Final EIR p. 3-144); and response to comment I17-20 (Final EIR p. 174).

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[1] / FAR, or "floor area ratio" is defined as the ratio of the amount of building square footage permitted on a lot to the net size of the lot. For example, a FAR of 1.0 on a 10,000 square foot lot would allow 10,000 square feet of building area. A developer may be able to comply with a FAR of 1.0 on a 10,000 square foot lot through various means: a one-story building covering the entire lot; a two story building covering one-half of the lot; or a four-story building covering one-fourth of the lot, etc., depending upon additional non General Plan standards such as setbacks as described in various City ordinances (i.e., Development Code).

Because the cumulative impact of global warming was previously addressed in the 2035 General Plan Update EIR, this project EIR need not address the issue of global warming. (Pub. Resources Code, § 21083.3; CEQA Guidelines, § 15183.) There is no substantial new information showing that the significant cumulative impact of increased greenhouse gas emissions and global warming is more significant than as assessed in the 2035 General Plan Update EIR certified in December 2007. As further explained below, the City and/or the applicant will adopt any and all feasible previously-identified mitigation measures and policies addressing the impact of global climate change. Accordingly, no further review of global climate change is required. (*Ibid*.)

Nevertheless, in recognition of the serious and potentially devastating effects of global warming on such resources as water supply, agriculture, fish and wildlife habitat, coastlines, energy resources, and human health, this Master Response provides:

- A description of the relevant state regulations on global climate change;
- Background on the causes and effects of global climate change;
- Information on the effects of climate change on Stockton's waters supplies;
- A quantitative assessment of the proposed project's greenhouse gas emissions.

State Regulations

Two recent state actions have provided direction on global warming. The first action was Executive order S-3-05. The second was the passing of Assembly Bill 32 in 2006 (California Global Warming Solutions Act of 2006).

Executive Order S-3-05

Executive Order S-3-05 (EO) was signed by Governor Schwarzenegger on June 1, 2005. This EO established emission reduction targets for California. Specifically, the EO established the following targets:

1. By 2010, reduce greenhouse gas emissions to 2000 levels;
2. By 2020, reduce greenhouse gas emissions to 1990 levels; and
3. By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

The EO additionally ordered that the Secretary of the California Environmental Protection Agency (Cal EPA) would coordinate oversight of the efforts among state agencies made to meet the targets and report to the Governor and the State Legislature biannually on progress made toward meeting the greenhouse gas emission targets. Cal EPA was also directed to report biannually on the impacts to California of global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry, and prepare and report on mitigation and adaptation plans to combat these impacts.

In response to the EO, the Secretary of Cal EPA created the Climate Action Team (CAT), composed of representatives from the Air Resources Board; Business, Transportation, & Housing; Department of Food and Agriculture; Energy Commission; California Integrated Waste Management Board

(CIWMB); Resources Agency; and the Public Utilities Commission (PUC). The CAT prepared a recommended list of strategies for the state to pursue to reduce climate change emission in the state (Climate Action Team, 2006).

Executive Order S-1-07

Executive Order S-1-07, the Low Carbon Fuel Standard (LCFS) (issued on January 18, 2007), calls for a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020. It instructed the California Environmental Protection Agency to coordinate activities between the University of California, the California Energy Commission and other state agencies to develop and propose a draft compliance schedule to meet the 2020 target. Furthermore, it directed CARB to consider initiating regulatory proceedings to establish and implement the LCFS. In response, ARB identified the LCFS as an early action item with a regulation to be adopted and implemented by 2010.

Assembly Bill 32: California Global Warming Solutions Act of 2006

AB 32 (California Health and Safety Code Section 38500 et seq.) requires the California Air Resources Board (CARB) to adopt regulations to require the reporting and verification of statewide greenhouse gas emissions and to monitor and enforce compliance with this program. The bill directs CARB to adopt a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions levels in 1990 to be achieved by 2020. The bill also requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective greenhouse gas emission reductions. The bill authorizes CARB to adopt market-based compliance mechanisms. The bill additionally requires the state board to monitor compliance with and enforce any rule, regulation, order, emission limitation, emissions reduction measure, or market-based compliance mechanism adopted by the state board, pursuant to specified provisions of existing law.

The bill also authorizes CARB to adopt a schedule of fees to be paid by regulated sources of greenhouse gas emissions. Because the bill requires CARB to establish emissions limits and other requirements, the violation of which would be a crime, this bill would create a state-mandated local program.

Under AB 32, by June 30, 2007, CARB was to identify a list of discrete early action greenhouse gas reductions that will be legally enforceable by 2010. By January 1, 2008, CARB must also adopt regulations that will identify and require selected sectors to report their statewide greenhouse gas emissions. By January 1, 2011, CARB must adopt rules and regulations to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas reductions. CARB is authorized to enforce compliance with the program that it develops.

In April, 2007, CARB released its draft recommendations for discrete early emissions measures to reduce global warming emissions (CARB, 2007a).

In June 2007, CARB directed staff to pursue 37 early actions for reducing greenhouse gas emissions under the California Global Warming Solutions Act of 2006 (AB 32). The broad spectrum of

strategies to be developed – including a Low Carbon Fuel Standard, regulations for refrigerants with high global warming potentials, guidance and protocols for local governments to facilitate greenhouse gas reductions, and green ports (CARB, 2007b).

In addition to approving the 37 greenhouse gas reduction strategies, CARB directed staff to further evaluate early action recommendations made at the June 2007 meeting, and to report back to CARB within six months. The general sentiment of CARB suggested a desire to try to pursue greater greenhouse gas emissions reductions in California in the near-term. Since the June 2007 CARB hearing, CARB staff has evaluated all 48 recommendations submitted by several stakeholder and several internally-generated staff ideas and published the Draft List of Early Action Measures To Reduce Greenhouse Gas Emissions In California Recommended For Board Consideration in September 2007 (CARB, 2007b). Based on its additional analysis, CARB staff is recommending the expansion of the early action list to a total of 44 measures, which are listed below in Table 3-1. Three of these early action items were approved by the Board at its June 2007 hearing, listed as ID# 15, 16 and 17 in Table 3-1.

The 2020 target reductions are currently estimated to be 174 $MMTCO_2E$ (million metric tons of carbon dioxide equivalents). In total, the 44 recommended early actions have the potential to reduce greenhouse gas emissions by at least 42 million metric tons of carbon dioxide (CO_2) equivalent ($MMTCO_2E$) emissions by 2020, representing about 25% of the estimated reductions needed by 2020. CARB staff is working on 1990 and 2020 greenhouse gas emission inventories in order to refine the projected reductions needed by 2020 and expects to present its recommendations to the CARB by the end of 2007. The 44 measures are in the sectors of fuels, transportation, forestry, agriculture, education, energy efficiency, commercial, solid waste, cement, oil and gas, electricity, and fire suppression.

In addition to adopting a list of early action items, in December 2007, CARB adopted mandatory reporting and verification regulations pursuant to AB 32. The regulations require annual reporting by approximately 800 of the largest stationary emitters in the state, which account collectively for approximately 94 percent of the state's GHG emissions from commercial and industrial stationary sources. These sources include oil refineries, electrical generating facilities, electrical retail providers and power marketers, cement plants, cogeneration facilities, hydrogen plants and industrial sources that emit over 25,000 tons of carbon dioxide each year. This reporting limit is consistent with European Union reporting requirements. The regulations will become effective January 1, 2009, with the first reports covering 2008 emissions. As shown in Table 3-2, in the Methodology section of this response, the proposed project would result in less than 22,000 MT CO_2/yr for construction year 2009 and future year 2025, which is below the 25,000 MT CO_2/yr threshold. In addition, the proposed project is not a facility that is covered under the mandatory reporting for AB 32 and therefore this limit does not apply.

TABLE 3-1
RECOMMENDED AB32 GREENHOUSE GAS MEASURES TO BE INITIATED BY CARB BETWEEN 2007 AND 2012

ID #	Sector	Strategy Name
1	Fuels	Above Grouond Storage Tanks
2	Transportation	Diesel – Offroad equipment (non-agricultural)
3	Forestry	Forestry protocol endorsement
4	Transportation	Diesel – Port trucks
5	Transportation	Diesel – Vessel main engine fuel specifications
6	Transportation	Diesel – Commercial harbor craft
7	Transportation	Green ports
8	Agriculture	Manure management (methane digester protocol)
9	Education	Local gov. Greenhouse Gas (GHG) reduction guidance / protocols
10	Education	Business GHG reduction guidance / protocols
11	Energy Efficiency	Cool communities program
12	Commercial	Reduce high Global Warming Potential (GWP) GHGs in products
13	Commercial	Reduction of PFCs from semiconductor industry
14	Transportation	SmartWay truck efficiency
15*	Transportation	Low Carbon Fuel Standard (LCFS)
16*	Transportation	Reduction of HFC-134a from DIY Motor Vehicle AC servicing
17*	Waste	Improved landfill gas capture
18	Fuels	Gasoline disperser hose replacement
19	Fuels	Portable outboard marine tanks
20	Transportation	Standards for off-cycle driving conditions
21	Transportation	Diesel – Privately owned on-road trucks
22	Transportation	Anti-idling enforcement
23	Commercial	SF_6 reductions from the non-electric sector
24	Transportation	Tire inflation program
25	Transportation	Cool automobile paints
26	Cement	Cement (A): Blended cements
27	Cement	Cement (B): Energy efficiency of California cement facilities
28	Transportation	Ban on HFC release from Motor Vehicle AC service / dismantling
29	Transportation	Diesel – offroad equipment (agricultural)
30	Transportation	Add AC leak tightness test and repair to Smog Check
31	Agriculture	Research on GHG reductions from nitrogen land applications
32	Commercial	Specifications for commercial refrigeration
33	Oil and Gas	Reduction in venting / leaks from oil and gas systems
34	Transportation	Requirement of low-GWP GHGs for new Motor Vehicle ACs
35	Transportation	Hybridization of medium and heavy-duty diesel vehicles
36	Electricity	Reduction of SF_6 in electricity generation
37	Commercial	High GWP refrigerant tracking, reporting and recovery program
38	Commercial	Foam recovery / destruction program
39	Fire Suppression	Alternative suppressants in fire protection systems
40	Transportation	Strengthen light-duty vehicle standards
41	Transportation	Truck stop electrification with incentives for truckers
42	Transportation	Diesel – Vessel speed reductions
43	Transportation	Transportation refrigeration – electric standby
44	Agriculture	Electrification of stationary agricultural engines

*Note: ID# 15, 16, and 17 were approved by CARB at its June 2007 meeting.
Source: CARB, 2007b

Senate Bill 1368

Senate Bill (SB) 1368 is the companion bill of AB 32, also signed by Governor Schwarzenegger in September 2006. SB 1368 requires the California Public Utilities Commission (CPUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. The California Energy Commission (CEC) must establish a similar standard for local publicly-owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC. On May 28, 2007 the Energy Commission adopted regulations pursuant to SB 1368 establishing and implementing a GHG emission performance standard for baseload generation of local publicly owned electric utilities. The final rulemaking package was submitted to the Office of Administrative Law (OAL) on June 1, 2007 with a request for expedited review. On June 29, 2007 OAL issued a decision disapproving the rulemaking action. Revised regulations have not been submitted as of the writing of this Final EIR (Published June, 2008).

Senate Bill 97

Governor Schwarzenegger signed Senate Bill (SB) 97 (Sutton), a CEQA and greenhouse gas emission bill, into law on August 24, 2007. SB 97 requires the Governor's Office of Planning and Research ("OPR") to prepare CEQA guidelines for the mitigation of GHG emissions, including, but not limited to, effects associated with transportation or energy consumption. OPR must prepare these guidelines and transmit them to the Resources Agency by July 1, 2009. The Resources Agency must then certify and adopt the guidelines by January 1, 2010. OPR and the Resources Agency are required to periodically review the guidelines to incorporate new information or criteria adopted by ARB pursuant to the Global Warming Solutions Act, scheduled for 2012.

Climate Change

As noted in the Climate Action Team Report to Governor Schwarzenegger and the Legislature ("CAT Report") (Climate Action Team, 2006), the Earth's climate has always changed and evolved. This is most clearly exemplified in the 100,000-year ice-age cycles that have occurred. As described in the CAT Report, the last 10,000 years, and more specifically the last millennium, has been warm and one of the most stable climates observed (Climate Action Team, 2006). Yet the CAT Report states that during the 20th century, a rapid change in the climate and climate change pollutants has occurred and these changes are attributable to human activities. Climate change is described by the CAT Report as a "shift in the 'average weather' that a given region experiences" (Climate Action Team, 2006), and that this can be measured by changes in temperature, wind patterns, precipitation, and storms.

The CAT Report describes the "greenhouse effect" as the way in which the Earth's temperature is regulated:

> Naturally occurring climate change pollutants, primarily water vapor, CO_2, CH_4, and N_2O, absorb heat radiated from the Earth's surface. As the atmosphere warms, it in turn radiates heat back to the surface to create the greenhouse effect.

According to the CAT Report, human activities including the burning of coal, oil, and natural gas, and the destruction of forests have contributed to an increase in CO_2 in the atmosphere by approximately 30 percent since the late 1800s, and that the increase in CO_2 and other greenhouse gases, and change in land surface has had a major influence on some of the "key factors that govern climate change…"

The CAT Report (Climate Action Team, 2006) identifies fossil fuel combustion as accounting for 98 percent of gross California CO_2 emissions during 2002. During 2002, California's total CO_2 emissions from fossil fuel combustion were 360 million metric tons, accounting for approximately 7 percent of the U.S. emissions from this source.

The City of Stockton recognizes that greenhouse gas emissions from human activities are contributing to global warming and that the State of California and has begun to take steps to address this challenge for projects and activities within the State.

Agriculture

Regarding the assertion that current use of the project site as agricultural land would result in a negative CO_2 emission situation (a CO_2 "sink"), the commenter is directed to the following information from the Office of Policy and International Affairs of the United States Department of Energy document entitled *Technical Guidelines Voluntary Reporting of Greenhouse Gases (1605(b)) Program* (2006). This document states:

> "Greenhouse gas (GHG) emissions may occur from livestock and/or crop production. GHG source categories from livestock include enteric fermentation and livestock waste [including manure and urine], and from crop production include residue burning, rice cultivation, nutrient applications, and lime applications. Crop production and grazing land management can also be a source or sink of carbon dioxide (CO_2): the oxidation of organic matter in soil causes carbon dioxide emissions from soils. Land management practices including tillage, rotations, fallowing, and cover crops influence the rates of organic soil matter oxidation. Carbon sequestration occurs when management practices increase the amount of organic carbon contained in soil and/or promote growth of long-lived perennial biomass (e.g., trees and permanent grasses)."

In addition to the sources of CO_2 emissions noted in the 1605(b) document, agricultural operations often include the use of off-road vehicles and equipment that contribute to CO_2 and other GHG emissions through the combustion of fuel. It is infeasible to determine the current agricultural emission baseline at the project site because there is little information available about recent and planned agricultural use (crop types, equipment usage, management practices, etc.). However, based on the emissions information available regarding agricultural land use, it is likely that agricultural production on the project site would not be a negative GHG emitter (reducing GHG

emissions), but would likely be a positive emitter (increasing GHG emissions). Because quantitative data is not available to confirm either a positive or negative GHG emission, our analysis assumes a baseline agricultural emission of zero. Using this baseline, potential CO_2 and other GHG emissions are calculated.

California Water Supply and Operations

Several groups and institutions are studying climate change impacts on California's water supplies and operations. At a general level, the probable effects of climate change on California's water include some level of the following:

- Losses to the Sierra snow pack;
- rising sea levels;
- increased salt water intrusion in the Delta;
- increased chances of levee failure;
- changes in future water demand; and
- changes in the timing, amount, and form of precipitation.

Of particular relevance to the project are projections of future regional climate change that suggest potential changes to the Delta and the benefits it provides for the people of California. The effects of ongoing future changes in climate on the Delta have not been well documented, but are the subject of much research efforts (PPIC, 2007). In general terms, shifting precipitation and runoff patterns could affect Delta exports; decreases in water inflows could implicate significant water quality costs; and increased winter flood frequency and magnitude could compromise the levee network, thereby raising the costs of maintenance and the likelihood of multi-island floods.

The recent 2035 Stockton General Plan EIR (City of Stockton, 2007b) provided the following description of impacts of global warming on Stockton's water supply:

> Rising sea levels are also expected to impact the Delta. Over the past century, sea level at Golden Gate has risen more than 8 inches. Sea level is expected to rise over the next century as global warming causes thermal expansion of the ocean and the melting of glaciers and polar ice caps. Nearly all projections of future climate changes show increases in global sea levels, though predictions differ as to how much and how fast. Higher water levels could threaten island levees and increased saltwater intrusion from the ocean could degrade freshwater quality, requiring greater freshwater releases from upstream reservoirs to offset these increases and maintain Delta water quality standards. Increases in sea level rise could also increase the risks of floods in the Delta, especially when combined with short-term or episodic increases in water levels (such as El Niño's storm surges) or long-term land surface subsidence (DWR, 2006).
>
> It is difficult – or, more accurately, impossible – to predict exactly how these potential future conditions will affect the City of Stockton, including the proposed project,

within the 2035 time horizon of the proposed new General Plan. This uncertainty makes it very difficult for policy-makers, particularly at the local level, to know how to react, particularly when certain constituents are advocating very extensive (and expensive) changes based on predictions at the more pessimistic end of the spectrum of expert opinion, while other constituents, more inclined to believe less extreme predictions, are counseling caution, and are urging the local agencies to let higher levels of government take the lead in setting new policies. Experts are generally unified in predicting future changes, but consensus has been elusive with respect to details dealing with the extent and timing of predicted changes.

No one knows to what degree, between now and 2035, California's water systems, including the Sacramento- San Joaquin Delta, will experience global warming effects similar to those reported by the Department of Water Resources study cited by the commentators, and other studies. To date, studies addressing these impacts have not produced results that are sufficiently quantitative and specific for detailed planning and risk assessment by local governments. The Department of Water Resources July 2006 report, Progress on Incorporating Climate Change into Planning and Management of California's Water Resources cautions that the results presented in its report "are preliminary, incorporate several assumptions, reflect a limited number of climate change scenarios, and do not address the likelihood of each scenario. Therefore, these results are not sufficient by themselves to make policy decisions." (DWR, 2006) Other crucial unknowns and research needs identified by researchers include, but are not limited to, a better understanding of climate change impacts and variability at local and regional levels; improvements in flood forecasting and response; and improved understanding of the effect of climate change on plant yield and plant health (See e.g., Smith, J. B. et al., 2001b).

One example of the uncertainty is reflected in the projections of sea level rise. The Intergovernmental Panel on Climate Change projects worldwide average sea level to rise between 0.3 of a foot to 2.9 feet from 1990 to 2100. Because the City lies at the upper end of the Delta and flood levels are higher than sea level, an increase in sea level would not translate into an equal increase in flood stage levels at the City. Any increase in flood levels at the City would be less than the overall sea level rise. As a result, it is unlikely that a 0.3 foot rise in sea level would result in a significant increase in flood stage levels in the waterways serving the City, while an increase of 2.9 feet could cause a significant increase that would encroach on levee freeboard.

There are currently no quantitative predictions of the potential increase in flood flows due to higher snow levels and potentially higher rainfall intensities. However, historical trends indicate that peak flood flows in California have been increasing over the last 100-years. The California Department of Water Resources, Division of Flood Management, plans to continue evaluating the potential increases in flood flows due to climate change.

The City of Stockton General Plan Update included several policies, goals and implementation measures that would decrease the risks associated with changing Delta

conditions, including rising sea levels and increased salinity, as well as risks associated with California's water supply in general, including changes in future water demand and changes in precipitation. These include the following policies and implementation measures:

LU-1.12 Commuting Distances	HS-4.2 Regional Agency Review
HS-4.10 Travel Demand Measures	HS-4.3 Regional Air Quality Project Review
HS-4.13 Location of Support Services	HS-4.4 Support Regional Air Quality Attainment Plans
HS-4.14 Parking Controls	HS-4.16 Planning Programs
HS-4.15 Infill Near Employment	Implementation Measure #7
HS-4.8 Transportation Demand Management Programs	HS-4.5 City Review of Development Proposals
HS-4.12 Employment-Intensive Development	HS-4.6 CEQA Compliance
HS-4.17 Street Design	HS-4.7 Air Quality Mitigation
HS-4.18 Design for Transportation Alternatives	HS-4.19 Transportation Management Associations
Implementation Measure #13	Implementation Measure #8
TC-3.9 Programs for Smart Growth/Transit-Oriented-Development	Implementation Measure #12
TC-4.1 Support and Plan for Bus and Rail Transit	NCR-8.6 Tree Planting Informational Packet.
TC-4.3 Clustering of Land Uses in Transit-Serving Areas	NCR-8.7 Shade Tree Planting.
TC-4.13 Support Heavy Rail Passenger Connections	NCR-8.8 Alternative Fuels Vehicle Parking.
Implementation Measure #9	NCR-8.9 Passive and Active Solar Devices.
Implementation Measure #10	NCR-8.10 Solar Orientation and Building Site Design.
Implementation Measure #11	NCR-8.11 Energy-Efficient Buildings.
HS-4.1 Cooperation with Local and Regional Agencies	NCR-8.12 Solar Photovoltaic Systems.
	NCR-8.13 California Title 24 Energy Efficiency Standards

Table 3-4 explains how each of the above listed policies pertinent to the Weston Ranch Towne Center project would be incorporated into the project.

City of Stockton Water Quality

As mentioned above, rising sea levels will impact the Delta's water quality and move the higher saline water more to the east, potentially degrading municipal or agricultural water diverters in the Delta and the Sacramento and San Joaquin Rivers. The Safe Drinking Water Act (SDWA) was enacted by Congress in 1974. Through the SDWA, the U.S. Environmental Protection Agency (EPA) has authority to set maximum allowable levels of contaminants in drinking water supplies. Historically, the first step EPA takes in establishing regulations for contaminants is to establish a maximum contaminant level goal (MCLG). A MCLG is the estimated level at which no adverse human health risks are expected. The EPA then attempts to establish either a maximum contaminant level (MCL) or a treatment technique that will reduce the presence of the contaminant in drinking water to a level that is as close to the MCLG as is technically and economically feasible.

Once a MCL has been established, EPA is then required to designate a Best Available Technology (BAT) to meet the new MCL. With respect to SDWA regulations, California is a primacy state, which means the State is responsible for implementing these regulations within California. The California Department of Health Services (DHS) has been designated as the State agency to enforce SDWA regulations. Under primacy rules, DHS must enforce regulations that are at least as stringent as those promulgated by EPA, and may also promulgate and enforce additional regulations not mandated by the EPA. All large municipal diverters are regulated by DHS to meet primary and, in some cases, secondary drinking water standards set forth in Title 22 of the California Code of Regulations.

A degradation of water quality to levels below the regulated MCL require BAT for achieving the MCL. The options are reasonably limited when there is high salinity or high Total Dissolved Solids (TDS) in the raw water source. However, the use of low-pressure reverse osmosis (RO) membranes will reject most ions contributing to TDS. Since RO membranes offer very high rejection of salts, it is neither necessary nor desirable to treat the entire flow to reduce salt levels to applicable drinking water standards. Only a portion of the plant production would be treated with RO to bring the blended product to comparable levels with other supplies. The impact of using RO is higher energy costs that will likely raise the cost of the water to the consumer.

However, it is anticipated that the statewide impact of such a climate change effect will result in State programs to offset the cost of retrofitting existing surface water treatment plants and the resultant higher cost of operations that translates into higher consumer's water rates.

Discussion of Impacts of Project on Climate Change and Significance

AB 32 includes the declaration by the Legislature that "global warming poses a serious threat to the economic well being, public health, natural resources, and environment in California." Section 38501(a) of AB 32 also states that "The potential effects of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snow pack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damages to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems." Section 38598(b) directs that "nothing in this division shall relieve any state entity of its legal obligations to comply with existing law or regulation." These legislative findings have been used to challenge the adequacy of environmental and planning documents that do not address global climate change. However, in the absence of standards of significance, or legislative direction to lead agencies, the piecemeal analysis and assignment of mitigation that may not meet the "roughly proportional" standard established by CEQA case law (*Ehrlich v. City of Culver City* (1996) 12 Cal.4th 854). If an accurate means to measure and determine a project's significance is not available, then making a conclusion whether the mitigation measures applied to a project mitigate the project's impact cannot be reached. (See CEQA Guidelines, § 15145.)

Strategies to reduce greenhouse gas emissions are currently being devised by State, federal, and regional agencies. However, currently there are no greenhouse gas thresholds identified by the California Air Resources Board (CARB), the San Joaquin County Air Pollution Control District (SJVAPCD), or any other jurisdictional agency. Additionally, the CEQA Guidelines do not provide any methodology for the analysis of global warming or greenhouse gas emissions, including CO_2 emissions. Although it is not possible to assess the significance of the project's contribution to climate change, if any, this Master Response provides a quantitative assessment of the project's contribution of greenhouse gas emissions.

Notably, it is well recognized that conventional air pollution controls measures have the co-benefit of reducing greenhouse gases and precursors to greenhouse gases, such as ROGs. For example, CARB's draft recommendations for discrete early emissions measures lists the 10 conventional

air pollution control measures that are scheduled for rulemaking in 2007, 2008, and 2009 as measures that will reduce greenhouse gas emissions. The CARB included these measures in the report based on its determination that "conventional air pollution controls make an important contribution to climate protection." According to the draft report, these control measures will have concurrent climate co-benefits through reductions in carbon dioxide and or non-Kyoto pollutants, such as diesel particulate matter, other lightabsorbing compounds and ozone precursors that contribute to global warming. CARB's "Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration" (2007) confirms that the co-benefits of conventional pollution control on GHG emissions has been established. As such, implementation of policies targeted at reducing conventional air pollutants such as NOx, a traditional greenhouse gas, and ROGs, a precursor to greenhouse gases, will help reduce greenhouse gas emissions for the Proposed Project.

Methodology and Quantified Greenhouse Gas Emissions Estimates

The air quality modeling that was undertaken for this project followed the guidelines and methodologies set out by the EPA, the CARB and the SJVAPCD. Impacts to air quality were quantified and significance was determined based on set thresholds and significance criteria. Although the air quality thresholds and significance criteria do not include CO_2, the air quality model (URBEMIS 2007) is capable of modeling CO_2 for mobile and area sources. The modeling results for CO_2 emissions for the proposed project are shown in Table 3-2. The factors for mobile sources are based on "net new trips." As shown in the table, the proposed project would result in an increase in CO_2 emissions by 21,506.7 tons/year in year 2009 and 21,384.24 tons/year in year 2025.

Mobile Sources

As discussed above, mobile source CO_2 emissions are based on the revised "net new trips" previously identified in the transportation and circulation section of the DEIR (see Section 4.7), but updated along with the updated site plan. The revised "net new trips" information is provided in the revised transportation and circulation section of Chapter 4.0, "Minor Changes and Edits to the Draft EIR." When assessing the impacts of traffic on the transportation system, including local streets and intersections used by project-related traffic, net new trips is an appropriate measure. Similarly, air quality and noise impacts based on increases in local traffic are analyzed based on net new trips. However, when discussing an issue that is global in nature, and is being assessed and regulated on the state, federal and international level, the concept of net new trips does not translate easily into a project-level impact. It is not reasonable to assume that most of the future customers of the proposed retail project are not currently shopping elsewhere. Weston Ranch currently has few nearby shopping opportunities. Anecdotal evidence, provided by residents, indicates that Weston Ranch residents are currently driving several miles to shop. In other words, in a regional sense, the "net new trips" are probably far lower than indicated in the traffic analysis. The proposed project would undoubtedly change the length and frequency of many shopping trips. However, since some shopping trips are already occurring, it is an over-estimation to state the baseline vehicle trips as zero for purposes of greenhouse gas emissions. Nevertheless, for informational purposes the analysis assumes that the number of baseline trips is zero.

TABLE 3-2
CO_2 EMISSIONS YEAR 2008 AND YEAR 2025

Source	Factor	Year 2009 Carbon Dioxide (CO_2)	Year 2025 Carbon Dioxide (CO_2)
Mobile Sources	11,140 trips/day	17,499.52 tons/year	17,377.11tons/year
Area Sources	N/A	1,018.53 tons/year	1,018.53 tons/year
Indirect Sources	8,177,000 kWh/yr	2,988.6 tons/year	2,988.6 tons/year
	Total	**21,506.7 tons/year**	**21,384.24 tons/year**

TABLE 3-3
TOTAL EMISSIONS FROM INDIRECT ELECTRICITY USE

Total CO_2 emissions (metric tons)		Electricity use (kWh)		Electricity Emission Factor (lbs CO_2/kWh)		2,204.62 (Lbs/metric ton)
Total CH_4 emissions (metric tons)	=	Electricity use (kWh)	X	Electricity Emission Factor (lbs CH_4/kWh)	/	2,204.62 (Lbs/metric ton)
Total N_2O emissions (metric tons)		Electricity use (kWh)		Electricity Emission Factor (lbs N_2O /kWh)		2,204.62 (Lbs/metric ton)
Total CO_2 emissions (metric tons)		8,177,000 (kWh/yr)		.80450(lbs/kWh)		2,204.62 (Lbs/metric ton)
Total CH_4 emissions (metric tons)	=	8,177,000 (kWh/yr)	X	.0000067 (lbs/kWh)	/	2,204.62 (Lbs/metric ton)
Total N_2O emissions (metric tons)		8,177,000 (kWh/yr)		.0000037 (lbs/kWh)		2,204.62 (Lbs/metric ton)
Total CO_2 emissions (metric tons/yr)				=	2983.9	
Total CH_4 emissions (metric tons/yr)					0.025	
Total N_2O emissions (metric tons/yr)					0.014	

Converting Non- CO_2 Green House Gases to Carbon Dioxide Equivalent

Metric Tons of CO_2e	=	Metric tons of non CO_2e GHG	X	Global Warming Potential
Metric Tons of CO_2e	=	0.025 (Metric tons of CH_4)	X	23
Metric Tons of CO_2e		0.014 (Metric tons of N_2O)		296
Metric Tons of CO_2e (CH_4)			=	0.575
Metric Tons of CO_2e (N_2O)				4.144
TOTAL Metric Tons/Year of CO_2 plus CO_2e (CH_4 and N_2O)			=	2983.9 + 0.575 + 4.144 = **2,988.6 Metric tons per year**

Formulas and Emission Factors from The California Climate Action Registry Report Protocol. 2006

As explained above, although calculating the project's approximate greenhouse gas emissions (as done above) is possible; the emissions calculations have significant limitations. For instance, as explained above, the analysis does not take into consideration the shifting of drivers from already existing locations to the project area, which may be longer or shorter than existing trips, as such the analysis assumes a baseline of zero trips. Thus, and importantly, the greenhouse gas emissions calculations presented here only evaluate aggregate CO_2 emissions, they do not demonstrate, with respect to a global impact, how much of these aggregate emissions are in fact "new" emissions specifically attributable to the proposed project. No analytical methodology exists to reliably estimate the extent to which such emissions are "new" emissions, as opposed to emissions that would occur in any event.

TABLE 3-4
GLOBAL WARMING POLICY CONSISTENCY

2035 General Plan Update EIR Policies and Mitigation Measures:	Weston Ranch Towne Center Project Consistency:
Policies designed to reduce the use of single-occupant vehicle trips to help reduce operational air quality impacts in the Study Area:	
LU-1.12 Commuting Distances The City shall strive to minimize the commuting distances between residential concentrations and employment centers by encouraging infill development and a mix of residential densities.	Residential neighborhoods exist to the west, east and north of the site, from which retail employers may draw employees. The 35-acre vacant parcel to the north of the site is designated for commercial use in the 2035 General Plan.
HS-4.10 Travel Demand Measures	
HS-4.13 Location of Support Services Coordinating with the SJVAPCD, the City shall require large development projects to mitigate air quality impacts. Mitigation measures may include, but are not limited to the following: • Providing bicycle access and parking facilities, • Providing preferential parking for high occupancy vehicles, car pools, or alternative fuels vehicles, and • Establishing telecommuting programs or satellite work centers.	The City, in coordination with the SJVAPCD, would impose mitigation on the project to mitigate air quality impacts. (Mitigation Measures 4.8.1a; 4.8.3a; 4.8.3b; 4.14.3). The project will include 75 non-exclusive park-n-ride spaces that will be shared between the Vestar site, the MCD site, and the Barkett property). Bicycle access and pedestrian measures are among the types of mitigation the City must impose pursuant to Mitigation Measure 4.8.3a through the applicant's energy conservation plan if such measures are clearly feasible. Bicycle parking will be provided on-site, per City zoning standards.
HS-4.14 Parking Controls The City shall provide disincentives for single-occupancy vehicle trips through parking supply and pricing controls in areas where supply is limited and alternative transportation modes are available.	As a retail development, the project has been designed to meet normal peak (weekend) shopping demand. Parking may be constrained during December weekends which would encourage ride sharing and use of transit by employees. Additional transit stops will be integrated into the transit schedule when the project opens.
HS-4.15 Infill Near Employment The City shall identify and adopt incentives for planning and implementing infill development projects within urbanized areas near job centers and transportation nodes.	Policy HS-4.15 pertains to City-wide policy making, and not to the proposed project.
Policies designed to support the use of alternative methods of transportation and improve the efficiency and ridership of public transit and rail:	
HS-4.8 Transportation Demand Management Programs The City shall coordinate City Transportation Demand Management programs with other public and private agencies, including programs developed by the San Joaquin Council of Governments and the SJVAPCD.	Policy HS-4.8 requires jurisdictional-wide effort by the City to coordinate City Transportation Demand Management programs and is beyond the scope of the Weston Ranch Towne Center project.
HS-4.12 Employment-Incentive Development The City shall encourage employment-intensive development with a high floor area ratio where adequate transit service is planned, and discourage such development where adequate transit service is not planned.	Adequate transit service is planned for the proposed project area through the San Joaquin Regional Transit District. (DEIR p. 4.7-50, see also FEIR p. 4-97. The FAR of the project is approximately 0.23, compared to a maximum allowable FAR of 0.3. While the project would not be considered "intensive development," the area is served by transit, and an additional transit stop will serve the project. The additional stop will be located on the west side of the project, along Manthey (west), just north of the Manthey Road and French Camp Road intersection. A higher intensity of development would increase the potential for incompatibility effects with the primarily suburban neighborhood.

TABLE 3-4
GLOBAL WARMING POLICY CONSISTENCY

2035 General Plan Update EIR Policies and Mitigation Measures:	Weston Ranch Towne Center Project Consistency:
HS-4.17 Street Design The City shall promote street design that provides an environment which encourages transit use, biking and walking.	Consistent with Mitigation Measure 4.8.3a, the project includes a transit stop, and provides 75 park-and-ride spaces to encourage transit use. The project also includes bicycle parking to encourage alternative transportation, and provides safe pedestrian access to the stores from the surrounding street network.
HS-4.18 Design for Transportation Alternatives The City shall encourage all new development to be designed to promote pedestrian and bicycle access and circulation, to the greatest extent feasible.	Mitigation Measure 4.8.3a includes among the measures the City must require if clearly feasible that as part of its energy management plan, the project provide: direct, safe, attractive pedestrian and bicycle access to transit stops and adjacent development; bicycle lanes and/or paths, connected to community-wide network; street lighting, and pedestrian safety designs/infrastructure at crossings. The project includes bicycle parking, per City standards. The site plan includes pedestrian connections from the surrounding streets to the buildings, and has been analyzed for pedestrian safety (see Section 4.7, Transportation and Circulation). Bicycle parking will be provided in convenient access areas throughout the site, located next to the major project buildings. Additionally, the site plan shows a network of pedestrian access routes that will allow pedestrians to travel onto the site from the adjacent roadways and transit stop and throughout the site via designated pedestrian routes and crossings.
Health & Safety Implementation Measure # 13 The City shall preserve and ensure the dedication of rights-of-way and station sites for future light rail extensions and/or Bus Rapid Transit, where necessary.	Light rail is not planned for this area. However, an additional bus stop is planned for this development. The applicant has coordinated with the San Joaquin Regional Transit District (RTD) to include a bus stop at Manthey Road (west). This stop will be accessed by four separate bus routes, providing service to the site from various locations.
TC-3.9 Programs for Smart Growth/Transit-Oriented Development To facilitate development of transit-oriented- development projects, the City shall support and capitalize on existing and proposed “smart growth” or transit-oriented development (TOD) programs, which award funds for transportation projects to local jurisdictions that approve building permits for compact housing and mixed use development near transit.	Policy TC-3.9 requires the City to capitalize on existing and proposed TOD programs related to transportation projects. The proposed project is a regional shopping center, and is not located near a major transit center. Therefore, Policy TC-3.9 does not apply.
TC-4.1 Support and Plan for Bus and Rail Transit The City shall work cooperatively with the San Joaquin Regional Transit District, the Altamont Commuter Express, the San Joaquin Council of Governments, Bay Area Rapid Transit (BART), Caltrans, AMTRAK, and other public transit providers to provide rail and bus service at a level that offers an alternative to the automobile for both the short and long distance commuter, and provides basic transportation to work, shopping and other destinations, especially for the handicapped, elderly, youth and economically disadvantaged	The project area is not served by rail. TC-4.1 is a jurisdiction-wide policy that does not impose specific requirements on individual developments. However, the San Joaquin Regional Transit District proposed to expand bus service to the shopping center. In addition, the project will provide 75 park-and-ride spaces to support transit use.
TC-4.3 Clustering of Land Uses in Transit-Serving Areas The City shall encourage clustering of land uses that generate high trip volumes in areas that are served by existing or planned transit, especially when such uses are complementary and where they can be adequately served by public transportation.	The existing Weston Ranch residential subdivision is located north and west of the project site. The project promotes clustered development by proposing commercial development not available in Weston Ranch.

TABLE 3-4
GLOBAL WARMING POLICY CONSISTENCY

2035 General Plan Update EIR Policies and Mitigation Measures:	Weston Ranch Towne Center Project Consistency:
	The project can be adequately served by public transportation. The San Joaquin Regional Transit District has requested, and the applicant has agreed to provide, appropriate transit features, including a bus pull-out on Manthey Road (west), with development of the project. Provision of a bus-pull out with appropriate transit amenities, such as a bus shelter, would improve transit accommodation in the area. The project is also providing 75 park-and-ride spaces to encourage transit use by both shoppers and adjacent residents.
TC-4.13 Support Heavy Rail Passenger Connections The city shall support the SJRTD Regional Bus Service, Altamont Commuter Express and AMTRAK's San Joaquin Intercity Rail service and work with other local, regional and State agencies to explore other public transportation facilities. The City shall work with and support ACE attempts to build tracks to bypass existing bottlenecks (e.g., the Union Pacific railyards in South Stockton). As a high priority, the City shall cooperate in studies to determine the feasibility of additional rail connections with the Bay Area and Sacramento, such as connections with the BART system and proposing rail between Stockton and Sacramento along the California Traction and other rail corridors.	Policy TC-4.13 requires the City to promote heavy rail passenger connections. The project site is not in the proximity of a heavy rail passenger service area. Policy TC-4.13 is inapplicable to the proposed project.
Policies designed to support the increased use of electric and alternative fuel vehicles:	
Health & Safety Implementation Measure # 9 The City shall replace City fleet vehicles with low-emission technology vehicles, wherever possible.	Health and Safety Implementation Measure # 9 pertains to City owned fleets. The proposed project is a private development project and does not propose the addition of new City fleet vehicles.
Health & Safety Implementation Measure # 10 The City shall encourage lowest emission technology buses in public transit fleets.	Health & Safety Implementation Measure # 10 pertains to the jurisdictional-wide public transit fleets and is inapplicable to the proposed project. While the proposed project will be served by additional bus service, the project does not require new public transit fleets.
Health & Safety Implementation Measure # 11 The City shall support legislation that promotes cleaner industry, lowest emission technology vehicles, and more efficient-burning engines and fuels.	Health & Safety Implementation Measure # 11 requires the City to support state-wide legislation and is not germane to the proposed project.
Policies designed to encourage continued support of regional air quality planning efforts:	
HS-4.1 Cooperation with Local and Regional Agencies The City shall cooperate with other local, regional, and State agencies in developing and implementing air quality plans to achieve State and Federal Ambient Air Quality Standards.	Policy HS-4.2 requires the City to work with other local, regional and state agencies in developing and implementing air quality plans. The proposed development project does not involve the development of an air quality plan.
HS-4.2 Regional Agency Review The City shall participate with cities, surrounding counties, and regional agencies to address cross-jurisdictional and regional transportation and air quality issues.	Policy HS-4.2 requires multi-jurisdictional cooperation and is not specific to development projects, such as the proposed project. Policy HS-4.2 is inapplicable to the proposed project.

TABLE 3-4
GLOBAL WARMING POLICY CONSISTENCY

2035 General Plan Update EIR Policies and Mitigation Measures:	Weston Ranch Towne Center Project Consistency:
HS-4.3 Regional Air Quality Project Review The City shall consult with the SJVAPCD during CEQA review for projects that require air quality impact analysis and ensure that the SJVAPCD is on the distribution list for all CEQA documents.	The Draft EIR was circulated to the SJVAPCD, who provided a comment letter dated February 15, 2007. In addition, the applicant will be submitting an indirect source review application to SJVAPCD pursuant to District Rule 9510 (and Mitigation Measure 4.8.3b)
HS-4.4 Support Regional Air Quality Attainment Plans The City shall support recommendations to reduce air pollutants found in the SJVAPCD local attainment plans and use its regulatory authority to mitigate "point" sources of air pollution (e.g., factories, powerplants, etc.).	The thresholds of significance and proposed mitigation measures for the project's air quality impacts are based on the recommendations found in the SJVAPCD local attainment plans (see DEIR chapter 4.8). The project does not include point sources of air pollution. Rather, emissions associated with the project are non-stationary, such as construction emissions and vehicle emissions.
HS-4.16 Planning Programs The City shall support land use, transportation management, infrastructure, and environmental planning programs that reduce vehicle emissions and improve air quality.	This policy applies to programs, and not necessarily to individual development programs. Nevertheless, the project includes several mitigation measures designed to reduce vehicle emissions and improve air quality, as well as to reduce energy consumption (Measures 4.8.3a, 4.8.3b and 4.14.3).
Health & Safety Implementation Measure # 7 The City shall coordinate with the San Joaquin Valley Air Pollution Control District on the review of proposed development projects early in project review	The City coordinated with the SJVAPCD early in the project review. The SJVAPCD provided information to the City in response to the Notice of Preparation for the project (SJVAPCD letter, dated Feb. 10, 2005, is included in the DEIR appendices). This project is subject to Indirect Source Review (ISR). The applicant has begun this process.
Policies designed to minimize air quality emissions associated with future development in the Study Area:	
HS-4.5 City Review of Development Proposals The City shall use the SJVAPCD Guidelines for Assessing and Mitigating Air Quality Impacts (GAAMAQI) for determining and mitigating project air quality impacts and related thresholds of significance for use in environmental documents. The City shall continue to cooperate with the SJVAPCD in the review of development proposals.	The City used the SJVAP Guidelines for Assessing and Mitigating Air Quality Impacts (GAAMAQU) in assessing the potential significance of air quality impacts of the project and feasible mitigation measures. (See DEIR Ch. 4.8.) The City cooperated with the SJVAPCD in reviewing the proposed project. (See *Ibid*.) The Draft EIR was circulated to the SJVAPCD, who provided a comment letter dated February 15, 2007. In addition, the applicant will be submitting an indirect source review application to SJVAPCD.
HS-4.6 CEQA Compliance The City shall ensure that air quality impacts identified during the CEQA review process are fairly and consistently mitigated. The City shall require projects to comply with the City's adopted air quality impact assessment and mitigation process, and to provide specific mitigation measures as outlined in policies of Chapter 8 Transportation and Circulation.	The proposed project provides mitigation measures to reduce air quality impacts, including mobile sources (vehicle emissions). The mitigation measures proposed for the project are fair and consistent with the City's assessment of other development projects and the General Plan EIR. In particular, the City implemented SJVAPCD guidance and regulations in analyzing and identifying mitigation for the project.
HS-4.7 Air Quality Mitigation The City shall continue the program for assessing air quality mitigation fees for all new development, with the fees to be used to fund air quality programs.	Mitigation Measure 4.8.3b allows for the payment of mitigation fees (as calculated in SFVAPCD Rule Rule 9510) to offset NOx or PM 10 operational emissions not reduced to the specified levels.
HS-4.19 Transportation Management Associations The City shall encourage commercial, retail, and residential developments to participate in or create Transportation Management Associations.	A Transportation Management Association has not been created for Weston Ranch.

TABLE 3-4
GLOBAL WARMING POLICY CONSISTENCY

2035 General Plan Update EIR Policies and Mitigation Measures:	Weston Ranch Towne Center Project Consistency:
Health & Safety Implementation Measure # 8 The City shall encourage business owners to schedule deliveries at off-peak traffic periods.	All tenants will be required to schedule deliveries for off-peak hours.
Health & Safety Implementation Measure # 12 The City shall adopt an ordinance requiring clean burning fireplaces and wood stoves.	Health & Safety Implementation Measure # 12 relates to the City adopting a City-wide ordinance and is inapplicable to the proposed project. As a commercial development, the proposed project does not include any fireplaces or stoves.
Policies designed to encourage energy efficiency:	
NCR-8.6 Tree Planting Informational Packet The City will develop a tree planting informational packet to help future residents understand their options for planting trees that can absorb carbon dioxide	Policy NCR-8.6 applies to the City and to future residents. The policy is inapplicable to the proposed project. Nevertheless, pursuant to revised Mitigation Measure 4.8.3a, the applicant may include the establishment of tree planting guidelines as a means to achieve a reduction in project energy use to achieve an overall 5% reduction in energy consumption beyond the requirements of Title 24. Further, the proposed project will include shade trees in the parking lot.
NCR-8.7 Shade Tree Planting The City will encourage the planting of shade trees within residential lots to reduce radiation heating and encourage the reduction of greenhouse gases.	Policy NCR-8.7 pertains to the planting of shade trees within residential lots. The project does not propose residential development. NCR-8.7 is inapplicable to the proposed project. Nevertheless, the proposed project will include shade trees in the parking lot to reduce radiant heat.
NCR-8.8 Alternative Fuels Vehicle Parking The City shall prioritize parking within commercial and retail areas for electric vehicles, hybrid vehicles, and alternative fuel vehicles as well as provide electric charging stations.	The project does not include charging stations or priority parking. This could be included in future phases of the project. Pursuant to revised Mitigation Measure 4.8.3a, fifteen prioritized parking spaces for electric vehicles, hybrid vehicles, and alternative vehicles will be included on site (5 prioritized spaces for Wal-Mart, 5 prioritized spaces for the junior anchor stores, and 5 prioritized spaces for the pad buildings).
NCR-8.9 Passive and Active Solar Devices The City shall encourage the use of passive and active solar devices such as solar collectors, solar cells, and solar heating systems into the design of local buildings.	Passive solar devices are included among the measures that the City must require, if clearly feasible to be included in the energy-conservation plan prepared for the proposed Project pursuant to Mitigation Measure 4.8.3a. Passive solar building designs, such as the inclusion of skylights and energy efficient building orientation, will be implemented. Additionally, pursuant to revised Mitigation Measure 4.8.3a, the project will achieve a 5% overall reduction of energy use beyond the requirements of Title 24, which may be achieved through the use of passive solar devices.
NCR-8.10 Solar Orientation and Building Site Design. The City shall encourage building and site design that takes into account the solar orientation of buildings during design and construction. The incorporation of energy-efficient site design shall be incorporated into City-wide master planning efforts when feasible.	The six major retail stores in the project are oriented on an east-west axis, facing south. This is a correct passive solar orientation for the site.
NCR-8.11Energy-Efficient Buildings. The City will encourage the development of energy-efficient buildings and communities.	Revised Mitigation Measure 4.8.3a requires the applicant to achieve a 5 percent overall reduction in energy consumption beyond the requirements of Title 24. Pursuant to Mitigation Measure 4.8.3a the applicant shall devise an energy-conservation plan that includes consideration of various potential measures. The City, in consultation with the SJVAPCD, will require implementation of the clearly

TABLE 3-4
GLOBAL WARMING POLICY CONSISTENCY

2035 General Plan Update EIR Policies and Mitigation Measures:	Weston Ranch Towne Center Project Consistency:
	feasible measures. The table of measures is noted in revised Mitigation Measure 4.8.3a located in Chapter 4 of this FEIR. Additionally, provisions in Mitigation Measure 4.14.3 provides additional measures to comply with the Title 24 requirements stated.
NCR-8.12 Solar Photovoltaic Systems The City will promote voluntary participation in incentive programs to increase the use of solar photovoltaic systems in new and existing residential, commercial, institutional and public buildings.	The City has not established any incentive program that would apply to the proposed project.
NCR 9.13 California Title 24 Energy Efficiency Standards The City will explore offering incentives such as density bonus, expedited process, fee reduction/waiver to property owners and developers who exceed California Title 24 energy efficiency standards.	The City has not developed incentives that would apply to the proposed project.

Greenhouse Reduction Measures

In addition to the air quality mitigation measures identified to reduce the operational impacts of the project, implementation of the numerous policies and implementation measures adopted in the recent Stockton 2035 General Plan Update will reduce greenhouse gas emissions, including carbon dioxide, associated with buildout of the proposed project. Table 3-4 lists the mitigation measures identified in the 2035 General Plan Update EIR to mitigate impacts associated with global climate change (City of Stockton, 2007a). All applicable policies and mitigation measures will be adopted for this project. To further ensure that the proposed development minimizes its contribution to global warming/climate change, Mitigation Measure 4.13.3 been added to the project, and are included in Chapter 4 (starting on page 4-264) of this FEIR.

Conclusion

Public Resources Code section 21083.3 and its parallel Guidelines provision, section 15183, provide for streamlined environmental review for qualifying projects consistent with applicable an general plan, community plan, or zoning designations. Where, as here, a proposed project is consistent with a general plan for which an EIR was certified, further environmental review is not required except as might be necessary to examine whether there are project-specific significant effects peculiar to the project. (CEQA Guidelines, § 15183, subd. (a).) In this case, the Stockton 2035 General Plan Update EIR comprehensively considered the impacts of global warming and greenhouse gases, which is fundamentally a cumulative impact (City of Stockton, 2007b). The impacts of global warming or the impacts of the City of Stockton on global warming are not peculiar to the project or to the project area. As demonstrated in the table above, all applicable mitigation measures identified for this in the General Plan EIR will be adopted for the proposed Weston Ranch Towne Center project. Accordingly, no further analysis of global climate change is required for the purposes of CEQA. Nevertheless, this Master Response provided relevant information on climate change, including a quantified assessment of the greenhouse gases emissions expected to occur as a result of the project, to further aid the public and decision-makers in understanding the environmental consequences of the project.

Master Response #2: Potential Crime Inducement

The Draft EIR discusses the impacts of the project on Public Services and Utilities, including law enforcement issues. (See DEIR, pp. 4.6-1, 4.6-7 through 4.6-8.) It concluded that the project's impact on law enforcement services would be less-than-significant. In addition, on-site security measures are discussed on page 3-12 of the DEIR.

The project, including the Wal-Mart Supercenter, was reviewed by the Stockton Police Department. The Department did not identify any concerns with higher levels of criminal activity compared to any other commercial retail use.

The potential for the project to induce crime, however, is a social issue, rather than an environmental issue. As such, the potential for a project to cause or induce criminal activity is generally not within the range of issues that must be analyzed in an EIR. (See *City of Pasadena v. State of California* (1993) 14 Cal.App.4th 810, 828, disapproved on other grounds in *Western States*

Petroleum Assn. v. Superior Court (1995) 9 Cal.4th 559, 570, fn. 2.; *Baird v. County of Contra Costa* (1995) 32 Cal.App.4th 1464, 1469-1470, fn. 2.)

CEQA is concerned with "significant effects on the environment" (Pub. Resources Code, §§ 21002-21002.1). The CEQA Guidelines define "significant effect on the environment" as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project[.]" (Cal. Code Regs., tit. 14 ("CEQA Guidelines"), § 15382 (emphasis added).) The CEQA Guidelines also provide that "economic and social changes resulting from a project shall not be treated as significant effects on the environment." (CEQA Guidelines, § 15064, subd. (e); see *Friends of Davis v. City of Davis* (2000) 83 Cal.App.4th 1004, 1019.) Where substantial evidence demonstrates that economic and social changes lead to a physical change in the environment, that physical change may be regarded as a significant effect in the same manner as other physical changes resulting from the project. (CEQA Guidelines §§ 15064, subd. (e), 15131 subd. (a), 15382.)

The courts have held that an increased risk of crime in connection with a project constitutes a social change, but not necessarily a physical environmental effect requiring review under CEQA. (*City of Pasadena v. State of California*, *supra*, 14 Cal.App.4th at p. 830.) In *City of Pasadena v. State of California*, the Court of Appeal rejected the City of Pasadena's assertion that the opening of a parole office in its civic center constituted a "significant environmental effect" under CEQA because of the increased risk of crime associated with the presence of parolees. (*Id.* at pp. 817-818.) The court found that while there may have been a possibility of a social impact from the location of the parole office, neither crime nor vandalism constituted substantial evidence of physical environmental effects requiring review under CEQA. (*Id.* at pp. 829-830.) Thus, an EIR need not address economic or social changes resulting from a project unless those changes would produce "physical changes in the environment." (*Friends of Davis v. City of Davis*, *supra*, 83 Cal.App.4th at p. 1019; *City of Pasadena v. State of California*, *supra*, 14 Cal.App.4th at p. 828.)

In this case, as explained in the Draft EIR, the additional police protection made necessary by the project may require additional staff, but will not require expansion and/or construction of new facilities leading to potential physical effects on the environment. (DEIR, p. 4.6-6.) Commenters have not submitted any substantial evidence demonstrating the additional law protection required for the project would lead to a significant adverse effect on the environment. (See CEQA Guidelines §§ 15064 subd. (e), 15131, subd. (a), 15382.) No changes to the EIR are necessary.

Master Response #3: Water Supply

Applicability of Public Resources Code Section 21083.3 and CEQA Guidelines Section 15183

As described in Master Response # 1, where an EIR has been prepared for a general plan, Public Resources Code section 21083.3 and CEQA Guidelines section 15183 provide for streamlined environmental review for site-specific approval of projects consistent with development allowed under the General Plan. For such site-specific approvals, CEQA generally applies only to impacts

that are "peculiar to the parcel or to the project" and that have not been disclosed in the prior EIR, except where "substantial new information" shows that previously identified impacts will be more significant than previously assumed. (Pub. Resources Code, 21083.3, subd. (b).) The provisions of Public Resources Code section 21083.3 apply only if "all public agencies with authority to mitigate the significant effects [of the project] . . . undertake or require the undertaking of any feasible mitigation measures specified in the prior environmental impact report relevant to a significant effect which the project will have on the environment." (Pub. Resources Code, § 21083.3.)

As discussed in Master Response # 1, in December 2007, the City of Stockton approved the Stockton 2035 General Plan Update and certified the EIR prepared for the Update (SCH No. 2004082066). Although the 2035 General Plan Update EIR is currently being challenged in court on CEQA grounds, the EIR is presumed adequate (Pub. Resources Code, § 21167.3, subd. (b)) and the 2035 General Plan Update remains in place at the time of the writing of this EIR (June, 2008). The relevant portions of the EIR prepared for the General Plan Update have been incorporated by reference as summarized below and herein. (CEQA Guidelines, § 15150.) The 2035 General Plan Update EIR evaluated the potential impacts resulting from implementation of the 2035 General Plan Update. Among other things, the "Public Facilities and Services" chapter and background report of the General Plan Update evaluated water supply and delivery impacts associated with implementation of the 2035 General Plan Update.

The proposed Project is consistent with the 2035 General Plan Update Commercial land use designation for the project site. Commercial development of the project site was therefore evaluated in the General Plan Update EIR. There is nothing peculiar about the water demands of the Project site or of the proposed Project, such as a proposal for a recreational lake or large plots of irrigated land, that would implicate water supply impacts for commercial development of the Project site beyond those evaluated in the 2035 General Plan Update EIR. Nor is there substantial evidence that water supply impacts are more significant than assessed in the 2035 General Plan Update EIR in 2007. As further explained below, the City has required the undertaking of all feasible mitigation measures previously identified in the General Plan EIR relevant to water supply. Accordingly, no further review of water supply for the proposed Project is required. (Pub. Resources Code, § 21083.3, subd. (c); CEQA Guidelines, § 15183.)

To evaluate water supply for the General Plan Update, the City conducted a Water Supply Evaluation (WSE), which was intended to meet the demands of Senate Bill 610 (Water Code, § 10910 et seq.). The General Plan Update EIR also included a Background Report. The Public Facilities and Services section of the Background Report provided further detailed information on water supply and delivery associated with the General Plan Update. The Stockton 2035 General Plan Update EIR's analysis of water supply (General Plan Update EIR, pp. 9-1 through 9-17); WSE (Appendix D); the cumulative impact analysis (General Plan Update EIR, pp.15-4 through 15-5, 15-19 through 15-21; Background Report, pp. 9-2 through 9-61); Master Response #3 (General Plan Update Final EIR (Final EIR) pp. 3-4 through 3-12); Master Response # 5 (Final EIR pp. 3-14 through 3-25); responses to comment letter A16 (Final EIR pp. 3-40 through 3-43); response to comment I-1-1 (Final EIR p. 3-97); responses to comments I10-55 through I10-63 (Final EIR pp. 3-140 through 3-144); responses to comments I10-84 through I10-87 (Final EIR pp. 3-149 through 3-150);

responses to comment I11-5 through I11-12 (Final EIR p. 3-156 through 3-159); responses to comments I12-2 through I12-17 (Final EIR pp. 3-161 through 3-165); responses to comments I19-4 through I19-14 (Final EIR pp. 3-190 through 3-192); responses to comments I28-1 through I28-30 (Final EIR pp. 3-199 through 3-200) are hereby incorporated into this EIR for the Weston Ranch Towne Center project as though set forth herein in full. (CEQA Guidelines, § 15150.) The incorporated portions of the 2035 General Plan Update EIR, including the WSE (Appendix D) and Background Report are available for review at the City of Stockton Community Development Department, Planning Division, located at 345 N. El Dorado Street, Stockton, CA and online at: http://www.westplanning.com/docs/stockton/documents.htm.

The 2035 General Plan Update EIR found one (1) significant and unavoidable impact associated with water supply and water delivery:

- Impact PFS-1: The Proposed Project would require or result in the construction of new water treatment facilities or expansion of existing facilities the construction of which could cause significant environmental effects.

The General Plan Update EIR found the following impacts to be less than significant with implementation of the proposed mitigation measures:

- Impact PFS-2: The Proposed Project would require new or expanded water supply entitlements;

- Impact PFS-3: The Proposed Project would have the potential in the long-term to deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.

It is important to note that City of Stockton General Plan Policy PFS-2.13 requires the City or project applicant to demonstrate the availability of a long-term, reliable water supply from a public water system for the proposed development. The Draft EIR, the Water Supply Assessment prepared for the proposed Project, and the environmental review documents prepared for the 2035 General Plan Update (incorporated herein by reference) provide the required substantial evidence of a long-term reliable water supply from a public water system for the proposed Project. In addition, as explained in the Draft EIR adequate water supply infrastructure will be put in place to meet project demand. (See Draft EIR, p. 4.6-2.) Notably, the Water Supply Assessment prepared for the Project conservatively assumes that Delta water from the proposed Delta Water Supply Project will not be available to meet project demands.

As mentioned, in order to fall within the partial exemption created by Public Resources Code section 21083.3, "all public agencies with authority to mitigate the significant effects shall undertake or require the undertaking of any feasible mitigation measures specified in the prior environmental impact report relevant to a significant effect which the project will have on the environment." (Pub. Resources Code, § 21083.3, subd. (c).)Table 3-5 explains how each of the mitigation measures adopted by the City of Stockton through its General Plan Update to mitigate water supply impacts will be undertaken for the project.

TABLE 3-5
WATER POLICY CONSISTENCY

2035 General Plan Update EIR Policies and Mitigation Measures:	Weston Ranch Towne Center Project Consistency:
PSF-1.10 Utility Master Planning Performance criteria for water, wastewater, and stormwater facility shall be set forth in an adopted citywide plan for each utility.	This policy pertains to city-wide utility planning and is not applicable to the proposed Project.
PFS-2.1 Water Conservation The City shall continue to implement water conservation programs that save significant amounts of water at reasonable cost.	This policy pertains to the implementation of City-wide conservation programs and is not applicable to the proposed Project. The Project will comply with all mandatory water conservation programs.
PFS-2.2 Water Supply The City shall evaluate long-term water supply strategies, including acquiring or developing additional water supplies to offset the shortages anticipated from existing supplies, and improved water conservation and re-use. For new development, the City will require the installation of non-potable water infrastructure for irrigation of large landscaped areas where feasible and cost effective. Conditions of approval will require connection and use of non-potable water supplies when available at the site.	This policy requires the City to evaluate long-term water supply strategies and is not applicable to a specific development project, such as the Proposed Project. As demonstrated in the Draft EIR and Water Supply Assessment prepared for this Project, sufficient supplies exist to meet the Project's anticipated near-term and long-term water demand.
PFS-2.3 Water Treatment Capacity The City shall plan, secure funding for, and procure sufficient water treatment capacity and infrastructure to meet projected water demands.	This policy pertains to Citywide efforts to procure water treatment capacity and water treatment infrastructure and is inapplicable to the proposed Project. The proposed Project would receive wastewater service from the City of Stockton Municipal Utilities Department. In accordance with approved master plans, a 15-inch sanitary sewer pipeline will be extended from the intersection of McDougal Boulevard and Henry Long Boulevard east.
PFS-2.4 Growth Trends The City shall establish a process for monitoring water demand growth trends to anticipate water supply needs.	This policy pertains to City-wide monitoring of growth trends to anticipate water supply needs. As part of the environmental review of the proposed Project, a Water Supply Assessment was prepared, estimating Project water supply needs. The revised project will result in less water demands than estimated in the Draft EIR for the Project as originally proposed. The information provided in the Draft EIR, this Final EIR, and the Water Supply Assessment for the Project will assist the City in monitoring water demand trends and anticipating water supply needs associated with build-out of the General Plan.
PFS-2.6 Level of Service The City shall maintain adequate levels of water service by preserving, improving, and replacing infrastructure as necessary.	Adequate levels of water services will be provided for the Project. As described in section 4.6 (Public Services and Utilities) of the Draft EIR, the project would receive water service from the City of Stockton Municipal Utilities Department, Water Division. Water distribution systems in the vicinity of the project site include a 30-inch pipeline along French Camp Road, an 18-inch pipeline along Manthey Road, and a 16-inch pipeline along William Moss Boulevard. The Project would require an extension of the existing water service in the area. A 12-inch water line at the intersection of French Camp Road and Manthey Road would be extended west along French Camp Road to serve the project site. In addition, the project would require the extension of a 16-inch line from the intersection of Henry Long Boulevard and Manthey Road to coincide with the western boundary of the project site.

TABLE 3-5
WATER POLICY CONSISTENCY

2035 General Plan Update EIR Policies and Mitigation Measures:	Weston Ranch Towne Center Project Consistency:
PFS-2.7 Water Supply for New Development The City shall ensure that water supply capacity and infrastructure are in place prior to granting building permits for new development.	As addressed in Section 4.10 Hydrology, of the Draft EIR, the City has determined that sufficient water supply exists to meet the project's current, near-term and long-term water demands.
PFS-2.8 Delta Water Supply The City shall not approve new development that relies on water from the Delta Water Supply Project until this Delta Water is allocated through a water right to the City by the State of Water Resources Control Board or a replacement water supply is secured.	The proposed Project does not include Delta SWP or CVP water supplies. This policy is therefore inapplicable. (See Water Supply Assessment, see also Responses to Comments 31-45 and 31-51.)
PFS-2.9 Water Facility Sizing The City shall ensure through the development review process that public facilities and infrastructure are designed to meet ultimate capacity needs, pursuant to a master plan, to avoid the need for future replacement to achieve upsizing. For facilities subject to incremental sizing, the initial design shall include adequate land area and any other elements not easily expanded in the future.	This policy pertains to public facilities and infrastructure and is not applicable to the proposed Project. As described in section 4.6 Public Services and Utilities of the Draft EIR (Draft EIR, p. 4.6-2) water service infrastructure will be extended to the Project site to meet project demand.
PFS-2.10 Sustainability of Surface Water The City shall work in concert with other water purveyors in the region to seek long-term renewable surface water contracts, and shall take actions to acquire, protect, and expand surface water rights to serve growing water demands.	This policy requires the City to work with other water purveyors to seek long-term renewable surface water contracts and acquire water rights to serve the City's growing demand and is not applicable to the proposed Project.
PFS-2.11 Sustainability of Groundwater The City shall work in concert with other water purveyors in the region to achieve the target yield (0.6 AF/year) of the drinking water aquifer, and shall limit its long-term average groundwater withdrawals to this target yield.	To the extent this policy requires the City to work in concert with other water purveyors, it is inapplicable to the proposed Project.
PFS-2.12 Water for Irrigation The City shall encourage the use of non-potable water supplies for irrigation of landscape.	Currently, the City of Stockton does not have a reclaimed water system. Therefore, non-potable water is not presently available for landscape irrigation at the Project site. However, consistent with Policy PFS-2.12, the following mitigation measure is hereby added: Mitigation Measure 4.10.4 The water irrigation system installed for the Project shall be installed such that it may be converted to a non-potable reclaim water system in the future. The applicant shall monitor the City's efforts to develop a reclaimed water system. If the City develops a reclaimed water system that is feasibly accessible to the project site, non-potable water shall be used for Project landscape irrigation.
PFS-2.13 Timing of Future Development Prior to any approval of any tentative small lot subdivision map for a proposed residential project of more than 500 dwelling units, the City shall comply with Government Code Section 66473.7. Prior to approval of any tentative small lot subdivision map for a proposed residential project of 500 or fewer units, the City need not comply with Section 66473.7 or formally consult with the public water system that would provide water to a proposed subdivision, but shall nevertheless	Consistent with Policy PFS-2.13, the Draft EIR for the Weston Ranch Towne Center Project and the Water Supply Assessment prepared for the Project demonstrate, based on substantial evidence, the availability of water supply from a public water system for the amount of development proposed and that physical improvements for treating and delivering water to the Project site will be in place prior to occupancy.

TABLE 3-5
WATER POLICY CONSISTENCY

2035 General Plan Update EIR Policies and Mitigation Measures:	Weston Ranch Towne Center Project Consistency:
make a factual showing or impose conditions similar to those required by Section 66473.7 in order to ensure adequate water supply for development authorized by the map. Prior to recordation of any final small lot subdivision map, or prior to City approval of any project-specific discretionary approval or entitlement required for nonresidential land uses, the City or the project applicant shall demonstrate, based on substantial evidence, the availability of a long-term, reliable water supply from a public water system for the amount of development that would be authorized by the final subdivision map or project-specific discretionary nonresidential approval or entitlement. Such a demonstration shall consist of a written verification that existing sources are or will be available and that needed physical improvements for treating and delivering water to the project site will be in place prior to occupancy.	
LU-1.13 Growth Phasing The City shall phase growth based on the availability of adequate water supplies, market forces, infrastructure financing capacity, and the timing of the design, approval, and construction of water supply and transportation facilities and other infrastructure.	The Project is consistent with Policy LU-1.13 (Growth Phasing) in that adequate water supplies are available for the proposed Project and adequate financing exists to provide water infrastructure to the Project.
HE-3.2 Public Improvements The City shall plan for the expansion and/or improvement of public facilities and infrastructure to coincide with housing development and improvements.	This policy relates to expansion of public facilities and infrastructure as they relate to housing development. The proposed Project does not include any residential development. Therefore, this policy is inapplicable.
Implementation Measure 2 The City shall adopt and implement a water supply assessment and a verification of sufficient water supply fee.	This policy requires actions on behalf of the City to adopt and implement a City-wide water supply fee and is inapplicable to the proposed Project. The applicant will pay any mandatory water supply fees required for the proposed Project.
Implementation Measure 5 The City shall maintain and periodically update the water master plan.	This policy requires the City to maintain and update the water master plan and is inapplicable to the proposed development project.
Implementation Measure 6 The City shall update the urban water management plan every five years in accordance with State Law.	This policy requires the City to comply with State Law in updating its urban water management plan and is inapplicable to the proposed Project.
Implementation Measure 7 The City shall design and construct the Delta Water Supply Project (DWSP).	This policy requires the City to design and construct the DWSP and is inapplicable to the proposed Project.
Implementation Measure 8 The City shall work with Stockton East Water District (SEWD) to improve the capacity of the SEWD Water Treatment Plan to 60 mgd.	This policy requires the City to work with SEWD to improve SEWD Water Treatment Capacity and is inapplicable to the proposed Project.
Implementation Measure 9 The City shall meet compliance schedules stipulated by the State and EPA regulations, Water Quality Monitoring Program.	The proposed Project will comply with all applicable State and EPA regulations, as well as Water Quality Monitoring Programs. (See Draft EIR, chapter 4.10 Hydrology and Water Quality.)
Implementation Measure 10 The City shall work in concert with other water purveyors in the region to prepare and implement an Integrated Regional Water Resources Management Plan.	This policy requires the City to work with other water purveyors in the preparation and implementation of an Integrated Regional Water Resources Management Plan and is inapplicable to the proposed Project.

TABLE 3-5
WATER POLICY CONSISTENCY

2035 General Plan Update EIR Policies and Mitigation Measures:	Weston Ranch Towne Center Project Consistency:
Implementation Measure 20 Develop Infrastructure and Public Facilities to Support Residential Development: When the Plans for capital improvements to expand or improve infrastructure and public facilities, it shall take into consideration where housing is likely to be built. In this way, capital improvements can support new residential development.	This policy pertains to public facilities supporting residential development. Because no residential development is proposed for the Weston Ranch Towne Center project, the policy is inapplicable.
Implementation Measure 21 The City shall conduct an assessment of proposed expansion areas, including Village areas, to determine where fees need to be levied for new and expanded public services and utility infrastructure, but not limited to, fire stations and equipment, police stations and equipment, utility infrastructure, recreation, and library facilities. Fees should be based on initial facility and equipment costs as well as operations and long-term maintenance and replacement.	This policy requires the City to determine where fees need to be levied for public services and is inapplicable to the proposed Project. The applicant will pay any mandatory fees associated with development of the proposed Project.

Due to the Decreased Size of the Weston Ranch Towne Center Project, a Water Supply Assessment is no longer required.

A water supply assessment (WSA) was prepared for the project pursuant to SB 610 (Water Code, § 10910 et seq.) and was circulated with the Draft EIR. An SB 610 WSA is no longer required for the project because the reduced project size is less than 500,000 square feet, will employ fewer than 1,000 employees and the project does not create a water demand equivalent to that of 500 dwelling units.[2] Therefore, the proposed Project is not a "project" under Water Code §10912 and a Water Supply Assessment is not required.

Nevertheless, the Water Supply Assessment prepared for the Draft EIR provides further substantial evidence (in addition to that supplied in the 2035 City of Stockton General Plan Update EIR and the Draft EIR for this Project) that sufficient water supplies are available to meet current, short- and long-term project water demand and that water supply impacts of the Project would be less-than-significant. As explained in the Draft EIR, the Project's potential to deplete groundwater supplies is less than significant. (Draft EIR, pp. 4.10-15 through 4.10-17.)

Estimated Water Demand for the Revised Project

In the water supply analysis in the Draft EIR, water demand for the project was calculated using the weighted average of the urban water demand factor as provided in the Water Supply Assessment for the Weston Ranch Town Center 2005 (MWH Americas, 2005). The urban water demand factor is equivalent to 1.6 AF/ac/yr [85,330 AF/yr / (82,064 acres (urban) – 27,585 acres (agriculture)] = 1.6 AF/ac/yr. This factor is then applied to the gross acreage of the project. The original project would have an estimated demand of 96 AF/yr (1.6 AF/ac/yr * 60 acres = 96 AF/yr). The reduced project described in this Final EIR would have an estimated demand of 70.6 AF/yr (1.6 AF/ac/yr * 44.14 acres = 70.6 AF/yr). This reduced project is consistent with the findings of the WSA provided in the Draft EIR, and would result in lower water demand.

Individual Responses

Letter 1. [California Department of Water Resources]

Response to Comment 1-1:

Commenter states that the project may occur on an adopted flood control plan. Commenter further states that if the project does encroach on a flood control plan, then an encroachment permit will need to be obtained.

Flood hazards are discussed Section 4.10 of the EIR, "Hydrology and Water Quality" (pages 4.10-5 and 4.10-19). The project is located near French Camp Slough. FEMA flood maps (Panel 0603020035E) show the project site outside of the designated floodway. The project site is within Flood Zone X: either outside of the 100-year and 500-year flood zones, or protected from a 100-year flood event.

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[2] A typical dwelling unit in California requires between 0.25 and 0.5 acre-feet per year (AFY) of water. A conservative (low) residential use factor of 0.25 AFY per dwelling unit would equal 125 AFY for 500 units. The revised project would have a water demand of approximately 70.6 AFY, well below the 500-unit equivalent.

Manthey Road is a local levee adjacent to a regulated stream, French Camp Slough. The project would not affect the levee.

Letter 2. [SJCOG, Inc]

Response to Comment 2-1:

Commenter indicates that the project is subject to the San Joaquin Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) and that the project must either participate in the SJMSCP or provide alternative mitigation in an amount and kind equal to that provided in the SJMSCP.

The Draft EIR addresses this concern in Chapter 4.11, "Biological Resources." A description of the project's consistency with the SJMSCP is described on page 4.11-1, paragraph four. An additional description of the purpose of the SJMSCP and requirements of the plan are provided on page 4.11-14, third full paragraph, through page 4.11-15, first full paragraph. Further, Impact 4.11.1 on pages 4.11-17 to 4.11-18 and Mitigation Measure 4.11.1 on pages 4.11-18 through 4.11-20 describe the project's potential impacts to species covered under the SJMSCP and provide an outline of the proposed mitigation to reduce these impacts. Mitigation Measure 4.11.1 specifically describes mitigation equal to that indicated by the commenter: either participation in the SJMSCP or alternative mitigation comparative in amount and kind (outlined on pages 4.11-18 to 4.11-20). Impacts to species covered under the SJMSCP were found to be less-than-significant with mitigation included in the Draft EIR.

Letter 3. [Department of California Highway Patrol]

Response to Comment 3-1:

Commenter states that the California Highway Patrol has primary responsibility for traffic enforcement on County Roads as well as I-5, and that the project would increase the traffic volumes on these roadways. Comment noted. Traffic impacts resulting from the project are discussed in Section 4.7 of the Draft EIR.

Response to Comment 3-2:

Commenter states the importance of working with Caltrans, San Joaquin County and the CHP in developing long range plans that are beneficial to all highway users. Comment noted. The City continues to work with these parties on this project and others within the City of Stockton.

Response to Comment 3-3:

Commenter states that the project will directly impact I-5 and the CHP's ability to effectively manage traffic without an increase in resources. Impacts to I-5 are discussed in Impact 4.7.5, 4.7.6, 4.7.9, 4.7.10, and 4.7.11. The revised project would not significantly impact freeway operations on I-5. The City will continue to coordinate with the CHP to ensure that adequate traffic enforcement is available. It should also be noted that most of the affected intersections and surface streets analyzed in the Draft EIR, are within the City of Stockton. The City of Stockton Police Department provides traffic enforcement within the City limits.

Letter 4. [San Joaquin County Environmental Health Department]

Response to Comment 4-1:

Commenter states that they have no comment regarding the Draft EIR. No further response is required.

Letter 5. [California Department of Transportation]

Response to Comment 5-1:

Commenter restates the description of the project, per Section 3.2 and Section 3.3.2. No further response necessary.

Response to Comment 5-2:

The commenter asks if the temporary mitigation measure at the I-5 southbound ramp interchange would operate acceptably (specifically the southbound right-turn movement) until the reconstruction project would occur.

The revised project would not significantly impact the southbound I-5 ramps, eliminating the need for the interim turn lane and traffic controls.

Response to Comment 5-3:

The commenter asks if the temporary mitigation measure at the I-5 northbound ramp interchange would operate acceptably (specifically the eastbound left-turn and northbound left-turn movements) until the reconstruction project could occur.

The revised project would reduce the impact to French Camp/I-5 Northbound Ramp. While the intersection would continue to operate at an acceptable level of service, the eastbound left-turn movement queue could spill back, resulting in a significant impact. The planned interchange improvements would mitigate this impact. Should the project be completed prior to construction of the interchange improvements, the proposed mitigation measure, providing dual eastbound left turns would mitigate the potential impact. Mitigation Measure 4.7.6 of this Final EIR (see Chapter 4, "Minor Changes and Edits to the Draft EIR") describes the dual lane configure and how this would mitigate the impact, as follows: "The project applicant shall contribute its fair share towards the planned interchange improvements at the French Camp Road/I-5 interchange through the payment of traffic impact fees. Should construction of the planned interchange improvements be scheduled for completion subsequent to project completion, the project applicant shall modify the eastbound approach to extend the eastbound left-turn storage to Manthey Road (east intersection). This improvement can be implemented within the existing right-of-way. With this improvement, the intersection would operate at an overall acceptable service level and although vehicle queue spillback would periodically occur, these queues would clear within one to two signal cycles."

Response to Comment 5-4:

The commenter questions the operation of Manthey Road as a frontage road with construction of the project, and identifies several issues that could potentially impede through traffic on Manthey

Road, resulting in increased through traffic on Interstate 5. These include: the number of driveways, lack of throat depth, through traffic making left-turns, sharp curves, and delivery vehicle access.

The revised project would reduce potential impacts related to the abandonment of Manthey Road. The intersection of Henry Long and Manthey would operate acceptably. The intersection of Manthey and French Camp would operate acceptably with mitigation measures.

Driveway cuts on Manthey have been avoided, with site access provided from the realigned Henry Long Blvd. Mitigation Measure 4.7.13 includes additional mitigation measures for on-site circulation to reduce any impacts associated with both passenger vehicles and delivery trucks.

Response to Comment 5-5:

The commenter is concerned regarding the final alignment of the southern leg of Manthey Road at French Camp Road, as the alignment of the northbound through movements would force vehicles in the inner left-turn lane into a trap left-turn lane, forcing vehicles to turn into the site, or change lanes within a short distance.

The revised project would avoid the change in the alignment of Manthey Road that could present the challenge the comment notes (see revised site plan, Revised Figure 3-4).

Response to Comment 5-6:

The commenter requests queuing information for the I-5/Downing Avenue interchange in the 2025 analysis year for the southbound right-turn movement and the eastbound left-turn movement.

The revised project reduced potential 2025 impacts to less than significant. The I-5/Downing interchange would continue to operate at an acceptable level of service. The main analysis now is the 2035 analysis due to the adoption of the *2035 General Plan Update*.

Response to Comment 5-7:

The commenter concurs with the DEIR recommendation that bus pull-outs and transit amenities be provided throughout the site.

The bus pull-out is located on the revised site plan on realigned Manthey Road, north of French Camp Road. Pedestrian connections between the stores and transit stop are also shown. Other transit amenities (such as park and ride spaces) will be shown in the final improvement plans.

Response to Comment 5-8:

The commenter requests that the number of park and ride parking spaces to be provided on-site be identified.

Based on discussions between the City of Stockton Community Development Department and Public Works Department, the project will include 75 non-exclusive park-n-ride spots that will be shared between the Vestar site, the MCD site, and the Barkett property. Specific locations of park-n-ride spaces are still to be determined, and will be noted on final site plans.

Response to Comment 5-9:

The commenter requests that the proposed intersections be checked to verify that they accommodate STAA turning radius requirements.

It has not been determined if STAA trucks will be used to serve the commercial tenants within the proposed development. Intersection improvements will require approval by the Public Works Department (if developer constructed), or will be constructed under City direction (if developer funded). The City of Stockton will evaluate the turning requirements for STAA and other large vehicles during the design phase for all transportation improvements. Mitigation Measure 4.7.13 requires the applicant to design on-site circulation to accommodate large vehicles (which would include STAA if necessary).

Response to Comment 5-10:

Point of contact for California Department of Transportation is noted.

Letter 6. [Pacific Gas & Electric]

Response to Comment 6-1:

Commenter thanks the City for the opportunity to review the Draft EIR and indicates that comments are provided below. Comment noted. No further response is required.

Response to Comment 6-2:

Commenter provides background information about gas and electric facilities located on or adjacent to the project and states that project proponents should coordinate with PG&E early in the development of project plans and that these plans should provide for unrestricted utility access.

Project proponents will work with PG&E during the planning stages of the project to ensure compliance with clearance requirements between facilities and other encroachment issues.

Response to Comment 6-3:

Commenter states that the requesting party will be responsible for costs associated with the relocation of existing PG&E facilities to accommodate their proposed development and the party should consult with PG&E as soon as possible, as facilities relocations require long lead times.

Project proponents will consult with PG&E early to determine if any utility relocations will be required due to the project and will provide funding for such relocations.

Response to Comment 6-4:

Commenter states that relocations of PG&E's electric transmission and substation facilities could require formal approval from the California Public Utilities Commission.

No electric transmission or substation facilities are believed to be located on the project site. However, project proponents will consult with PG&E early in the building plan review process to determine if any of this type of utility relocation will be required due to the project and will provide funding for such relocations.

Response to Comment 6-5:

Commenter states that continued development consistent with the City's General Plan will have a cumulative impact on PG&E's gas and electric systems and may require improvements. Commenter also states that existence of gas or electric transmission or distribution facilities does not indicate existing capacity for new loads.

The comment was submitted while the City of Stockton's previous General Plan was in place. Since the release of the Draft EIR, the City has adopted the 2035 General Plan Update. The EIR prepared and certified for the 2035 General Plan Update is incorporated in this EIR by reference (City of Stockton, 2007a and 2007b). As explained in the 2035 General Plan Update EIR, buildout of the General Plan would not result in the wasteful, inefficient, or unnecessary consumption of energy by residential, commercial, industrial, or public uses (Impact PFS-15; see also Pub. Resources Code, § 21083.3, CEQA Guidelines § 15183). Policies included within the 2035 General Plan Update address the need for additional public utilities, including gas and electricity. For example, policy PFS-6-1 encourages the City to coordinate with utility services providers to plan for future utility extension that ensure the provision of adequate levels of service.

Project proponents will consult with PG&E to ensure that adequate capacity is available for new connections to the project site.

Response to Comment 6-6:

Commenter states that growth and development requires various electric system improvements and upgrades to the gas system. Commenter further recommends that environmental documents for projects include adequate evaluation of cumulative impacts to utility systems, the utility facilities needed to serve those developments and any environmental issues associated with extending utility service to the project.

As is described in the revised text of the Energy chapter, shown in Chapter 4.0, "Minor Change and Edits to the Draft EIR," the project is projected to result in an electricity demand of approximately 8.2 million kilowatt hours per year and a natural gas demand of approximately 16.7 million cubic feet of natural gas per year. Impact H.3 discusses cumulative energy consumption and finds that by implementing feasible conservation measures (as described in Mitigation measure 4.8.3a), the project's contribution to energy usage would be less than cumulatively considerable. As a result, facilities will not need to be upgraded due to the project.

Response to Comment 6-7:

Commenter states they are committed to working with the City to provide utility service to the planned area and would like to be copied on future correspondence regarding this project. Comment noted. No further response is required.

Response to Comment 6-8:

Commenter provides background information about the regulation of public utilities within the state of California. Comment noted. No further response is required.

Response to Comment 6-9:

Commenter provides contact information for questions. Comment noted. No further response is required.

Letter 7. [San Joaquin County Public Works]

Response to Comment 7-1:

Commenter states that they have reviewed the document and have the following comments, described below. Comment noted. No further response is required.

Response to Comment 7-2:

Commenter states that San Joaquin County Flood Management will need to review the master drainage plan prior to construction.

The project proponent will provide the master drainage plan to the San Joaquin County Department of Public Works prior to construction of the project.

Response to Comment 7-3:

Commenter states that this project is subject to the Regional Transportation Impact Fee and indicates that the City of Stockton shall collect this fee from the applicant.

The project proponent will pay the Regional Transportation Impact Fee as required by the City of Stockton.

Response to Comment 7-4:

Commenter states that for impacts to County transportation facilities, the City should either require the applicant to construct necessary improvements or collect the project's fair share of "impacts" (construction costs for required improvements).

The DEIR identifies significant impacts to the intersections of Mathews Road and Manthey (Impact 4.7.8) and Mathews Road and I-5 (Impact 4.7.9). With the revised project, the impact to Mathews Road and Manthey Road is less than significant. The impact to Mathews Road and I-5 Northbound Ramps remains significant. If the County determines that a fair share contribution would provide for the construction of the necessary improvements (and the necessary mitigation would be implemented), the applicant could pay the fair share fees to the County rather than undertake construction of the identified improvements.

Response to Comment 7-5:

Commenter states that if STAA trucks will be used at the Towne Center, appropriate design and signage measures should be taken. See response to comment 5-9. In addition, interchange signage, including STAA truck routes, shall meet Caltrans requirements.

Response to Comment 7-6:

The comment requests that traffic control plans for construction traffic be submitted to the county a minimum of six weeks prior to commencement of work for County review and approval.

Traffic control plans shall be submitted to the San Joaquin County Public Works department for review and approval prior to the commencement of project work.

Response to Comment 7-7:

Commenter thanks the City for the opportunity to comment and provides contact information for questions. No further response is required.

Letter 8. [Eugene Erfe, resident]

Response to Comment 8-1:

Commenter expresses concern that the lighting required for operation of the project will affect views from the commenter's home. Commenter asks how much light pollution will be visible to the residents behind the project, how lights will distort views, and how bright required lighting will be.

Chapter 4.3, "Aesthetics," addresses these concerns. Specifically, Impact 4.3.1 (pages 4.3-10 and 4.3-11) discusses the project's potential impact on the degradation of local visual character. This impact describes the proposed change in the site from agricultural land to a shopping center and indicates that although some people may regard the conversion of the current view as the loss of a desirable and aesthetically pleasing local view shed, that under the applicable CEQA thresholds, the project will not create a significant impact because it will not "substantially degrade" the view. Further, Impact 4.3.2 (page 4.3-11) addresses the project's potential light and glare impacts. This impact describes design standards required by the City of Stockton's Municipal Codes for Design and Development that would reduce glare and the amount of light trespass to a less than significant level. Impacts to visual resources have not been reassessed since publication of the Draft EIR. The original analysis for this topic does not require an update because there has been no increase in potential impacts. It is likely that visual impacts are somewhat decreased due to the substantial decrease in the building size of the Wal-Mart.

Response to Comment 8-2:

Commenter asks how much energy and power will be required for operation of the project. Commenter also asks if the project will use solar power parking lamps and fluorescent bulbs to conserve energy.

Impact 4.14.1 (pages 4.14-8 and 4.14-9) and Impact 4.14.2 (pages 4.14-9 and 4.14-10) describe the project's projected use of energy and power. Further, the revised text of the Energy section in Chapter 4.0, "Minor Changes and Edits to the Draft EIR," indicates the reduction in energy use with the newly revised project. The revised project is expected to require up to 8.2 million kilowatt hours (kWh) per year of electricity and 16.7 million cubic feet of natural gas per year at buildout. Mitigation Measure 4.8.3a identifies energy conservation measures that may be used if feasible,

in accordance with General Plan policy. Prior to implementation of the project, the applicant will present for City approval an energy-conservation plan that includes consideration of the mitigation measures listed in revised Mitigation Measure 4.8.3a. The plan includes a goal to exceed Title 24 requirements by 5%. The City, in consultation with the San Joaquin Valley Air Pollution Control District, will require implementation of measures from the list.

In response to this comment, the list of measures to be considered under Mitigation Measure 4.8.3a shall be revised as follows:

- Energy efficient lighting (e.g., fluorescent or solar powered lighting), appliances, and heating and cooling systems.

Letter 9. [John S. Cook Sr., resident]

Response to Comment 9-1:

Commenter asserts that the proposed project will result in increased levels of crime and requests a study to address the issue of crime. Please see Master Response #2.

Letter 10. [Abelardo Molano Jr., resident]

Response to Comment 10-1:

Commenter expresses concern that the project could result in adverse impacts to special-status species, including Swainson's hawks, burrowing owls, Greater western mastiff-bats and others. Commenter asks how the city will determine if these species exist on the property and what migratory and nesting patterns are identified in the EIR for these animals. Commenter also asks what impact noise and air pollution will have on neighboring areas where special-status species nest or breed.

An assessment of regionally occurring special-status species is included in the Draft EIR in Chapter 4.11, "Biological Resources," on pages 4.11-5 through 4.11-11. The assessment was prepared by an expert biologist. This discussion includes information about species migration patterns, foraging and habitat requirements. The project area was found to represent potential habitat for nine special-status animal species: burrowing owl, ferruginous hawk, Swainson's hawk, mountain plover, white-tailed kite, greater sandhill crane, loggerhead shrike, greater western mastiff bat, and Yuma myotis. Impact 4.11.1 (pages 4.11-17 and 4.11-18) addresses the potential impacts of the project on these species. The impact finds that special-status species or their habitats may be adversely affected by the project. Mitigation Measure 4.11.1 (pages 4.11-18 through 4.11-20) explains that all special-status species potentially present at the site are covered species under the San Joaquin Multi-Species Conservation and Open Space Plan (SJMSCP) and outlines mitigation to reduce these impacts to a less-than-significant level. Impact 4.11-1 recognizes that implementation of the project will result in the conversion of habitat. Inherent in this conversion is the recognition that construction and operation is incompatible with the continued use of the project site by various special status species. Construction and operation impacts that may affect special status species may include noise and air quality issues. However, as noted above, Mitigation Measure 4.11.1 outlines mitigation to reduce all construction and operational impacts to special status species to a less-than-significant level.

Letter 11. [Gustavo Vera, resident]

Response to Comment 11-1:

Commenter expresses concern regarding cancer occurrences associated with diesel trucks at onsite loading docks, specifically risk to residents located behind the Supercenter. Commenter asks how Wal-Mart will ensure that they are not contributing to any cancer causing impacts and further asks for a description of impacts related to idling trucks behind the Wal-Mart and Sam's Club. Commenter states that even one case of cancer caused by the shopping center is unacceptable.

Impact 4.8.5 on page 4.8-27 of the Draft EIR includes a discussion of the health risk associated with diesel particulate matter (DPM) impacts due to diesel vehicle traffic and transportable thermal refrigeration units (TRU's) on nearby sensitive receptors. Public health officials consider the significance threshold to be 10 cases per million for diesel emissions. The DEIR found the impact from DPM to be potentially significant, but less than significant with the incorporation of feasible mitigation measures. The revised project would generate less truck traffic and would not locate loading docks near sensitive receptors. As discussed in revised Impact 4.8.5, the potential health risks associated with DPM would be reduced to a less than significant level.

Letter 12. [William Oreiro, resident]

Response to Comment 12-1:

Commenter expresses concern regarding the proximity of the project to the Stockton airport, stating that the airport is only 4 miles away. Commenter asks how the lighting and reflective glare caused by the project will impact planes and further, how the height of the buildings at the project site will affect the airport's approach and departure zones.

As noted in the Draft EIR, on page 4.13-4, the project site it located within two miles of the Stockton Metropolitan Airport. The project site does not fall within the Airport Land Use Commission Planning boundary. However, it is located within the airport's Conical Zone, which has certain safety requirements. Impact 4.13.5 on page 4.13-6 addresses this issue and finds that due to the project site's location within the Stockton Metropolitan Airport Area of Influence Boundary and the Conical Surface Outer Boundary, the impact is potentially significant. Mitigation Measure 4.13.5 is included to reduce this impact. This mitigation measure includes design requirements and land use guidelines as provided in the San Joaquin County Airport Land Use Plan, including the use of non-reflective materials, restriction on visual distractions and very tall structures as well as no use of transmissions such as communication towers. With implementation of Mitigation Measure 4.13.5, the impact is less-than-significant. Impacts associated with visual resources (including light and glare) have not been reassessed since publication of the Draft EIR. The original analysis for this topic does not require an update because there has been no increase in potential impacts. It is likely that visual impacts are somewhat decreased due to the substantial decrease in the building size of the Wal-Mart.

Letter 13. [Sandra Hormigas, resident]

Response to Comment 13-1:

Commenter states that traffic is a concern for residents of Weston Ranch. Further, commenter asks who will pay for improvements to intersections and interchanges that are found to have significant and unavoidable traffic impacts in the Draft EIR. Commenter specifically asks about highway interchanges at I-5 and Manthey Road and at Manthey Road and Mathews Road.

The intersection of Mathews Road and Manthey Road is addressed in Impact 4.7.8. Under the revised project, this intersection would continue to operate an acceptable level of service.

Impact 4.7.9 in Chapter 4 of this Final EIR ("Minor Changes and Edits to the Draft EIR") addresses the traffic impact at the Mathews Road and I-5 Northbound Ramps intersection. This intersection is anticipated to operate at a deficient level of service in the near-term, without the project. The revised project would add a relatively small amount of traffic to this intersection, but would increase the average delay by more than 5 seconds. Therefore, this impact is considered significant. Revised Mitigation Measure 4.7.9 in the same chapter would provide for a "fair share" payment for the cost of improvements to this intersection. The cost of the improvements is paid by developers, with the project applicant paying a fair share.

Impact 4.7.10 on page 4.7-60 addresses the traffic impact on Northbound I-5, north of Downing Avenue. Under the revised project, this impact would be less than significant.

Letter 14. [Ron Mediana, resident]

Response to Comment 14-1:

Commenter expresses concern regarding project noise and the impact of noise on the Weston Ranch Community. Specifically, commenter states that any type of noise that produces over 70 decibels of noise is hazardous to a person's health. Commenter indicates that the project will generate noise at levels hazardous to human health, including delivery trucks and street traffic. Commenter asks about the noise levels that will be generated by delivery trucks, truck refrigeration units, vendor trucks, A/C/ units on top of stores, and the combined noise levels from all of these sources.

The commenter expresses concern regarding noise levels in excess of 70 decibels. The Draft EIR includes a discussion of noise standards applicable in the City, and the impacts associated with noise levels. (See Draft EIR, § 4.9.) At residential uses, a noise level of below 70 decibels is considered conditionally acceptable, and a noise level of above 70 decibels is considered normally unacceptable. (See Draft EIR, Figure 4.9-2.) Significance thresholds for noise used in the EIR vary depending on the setting, the time of day, and the nature of the noise. The EIR summarizes the standards used in the analysis, and cites the sources of these standards (See Draft EIR, pp. 4.9-5 – 4.9-10.)

Noise impacts are addressed in chapter 4.9 of the Draft EIR. Specifically, Impact 4.9.1 on page 4.9-19 addresses noise associated with construction and grading activities during the construction

of the project, Impact 4.9.2 addresses noise producing non-transportation operational activities associated with operation of the project, Impact 4.9.3 addresses traffic noise, and Impact 4.9.4 addresses cumulative traffic noise.

Impacts 4.9.2, Impact 4.9.3 and Impact 4.9.4 address the issues raised by the commenter. Specifically, Impact 4.9.2 addresses noise impacts associated with non-transportation operational activities including the following:

- loading dock activity noise,
- on-site truck circulation noise,
- Heating, Ventilating, and Air Conditioning (HVAC) equipment noise,
- parking lot activity noise,
- site maintenance activity noise, and
- trash compactor noise

Non-transportation operational activities noise is found to be a significant impact. Mitigation Measures 4.9.2a and 4.9.2b are included to reduce the significance of this impact. These measures include design measures and hour restrictions for certain activities. One of the design features included in Mitigation Measure 4.9.2a is a sound wall that will be constructed along the entire western edge of the project site. Additionally, commenter should note that the noise study analyzed the potential impacts from 24-hour operations at the Wal-Mart. Further, Wal-Mart trucks automatically shut off after 3 minutes of idling, which is an improvement from the State requirement of 5 minutes.

Letter 15. [Gurpal Srai, resident]

Response to Comment 15-1:

Commenter expresses concern over the potential impacts to other retailers, job losses and net sales tax revenue. Commenter also asks about the impact of the Hammer Lane Wal-Mart.

The economic impacts of a project are normally beyond the range of issues analyzed under CEQA. The courts have noted that "CEQA is not a fair compensation statutory scheme." (*Waste Management of Alameda County, Inc. v. County of Alameda* (2000) 9 Cal.App.4th1223, 1235.) However, CEQA Guidelines Section 15131(a) requires that an EIR analyze physical changes in the environment that would result from economic or social change caused by the project. The need to analyze "urban decay" that could indirectly result from a proposed retail project was further described by the courts in *Bakersfield Citizens for Local Control V. Cit of Bakersfield* (2004) Cal. App4th. 1184). This DEIR includes a detailed urban decay analysis in Section 4.4, as well as an urban decay analysis report, which appears in Appendix C to the Draft EIR. The urban decay analysis determined that the project would not introduce additional retail competition that would result in business closures by current retailers that would be expected to generate long-term vacancies of existing retail properties in the region. A sales shift associated with the proposed project could result in business closures among existing competing retailers. However, the EIR analysis indicates that most of the

properties would be re-tenanted due to the continuing strong commercial and residential real estate demand in Stockton (see Impacts 4.4-1 and 4.4-2 on pages 4.4-36 through 4.4-45). See also responses 31-32 through 31-39. Additionally, the urban decay analysis has been revised to incorporate the recent reduction in size of the project from a maximum floor area of 710,000 square feet (with a 232,000 square foot Wal-Mart) to a maximum of 481,000 square feet (with a 99,996 square foot Wal-Mart).

Regarding the creation or loss of jobs, the DEIR does not specifically address this issue. As previously stated, the CEQA guidelines require an EIR to analyze physical changes in the environment that would result from economic or social change caused by the project. Change in the availability of jobs does not fall under this description. However, economic and employment effects of the project can be considered by the lead agency during the project approval process.

Regarding the Hammer Lane Wal-Mart, this existing store was considered in the DEIR as part of the existing conditions. Please see Table 3-1 of Appendix C.

Letter 16. [Joaquin Acosta, resident]

Response to Comment 16-1:

Commenter states that the DEIR, on page 4.13-4, does not adequately describe impacts related to lead-based paint and asbestos.

These impacts are further described in Impact 4.13.7 and 4.13.8 (pp. 4.13-17 to 4.13-19). Impacts related to lead-based paint and asbestos material could potentially result from demolition of existing structures. Impact 4.13.7 describes this potential impact and identifies adequate mitigation (Mitigation Measure 4.13.7). The project site also includes an existing asbestos pipe disposal location, identified in the DEIR as the "Barkett Property" (formerly the Equinoa/Luengo property). No development is currently proposed at the Barkett Property. The property was included because from a planning perspective the City concluded that rezoning the Barkett property was appropriate. The EIR therefore included an analysis of the impacts of developing the Barkett property for commercial uses. No uses are proposed, however. Mitigation measures to prevent the accidental disturbance of the asbestos disposal site are identified on page 4.13-18 (Mitigation Measures 4.13.8a, b, and c).

Response to Comment 16-2:

The commenter states that the EIR fails to detail the depth of demolition and construction on the property. The project does not include demolition or other construction activities on the Barkett property (the asbestos disposal site). Mitigation measure 4.13.8a requires that the Barkett property be adequately protected with security fencing during and after construction of the proposed Weston Towne Center to prevent disturbance of the disposal site by works or the general public.

Response to Comment 16-3:

The commenter asks what mitigation measures the developer is taking [regarding hazardous materials], and states that the "worst-case scenarios" should be explored. Per pages 4.13-4 and 4.13-17 of the DEIR, the existence, or extent of lead-based paint in existing on-site structures is

unknown. A lead-based paint survey and asbestos survey is required prior to any demolition of existing structures (Mitigation Measure 4.13.7). Many residential and other structures built prior to 1978 have the potential for lead-based paint. Proper demolition and disposal techniques would reduce the potential impact to a less-than significant level. CEQA does not require an examination of the worst-case scenario, but requires an examination of what is reasonably foreseeable.

Response to Comment 16-4:

The commenter questions why a deed restriction was placed on the Barkett property and why the project would allow this restriction to be removed. The project does *not* include removal of the deed restriction on the Barkett property. The deed restriction was placed on the property in 1992 as part of the mitigation measures to cap the waste material in place (see DEIR, page 4.13-18). The deed restriction requires that the U.S. EPA be notified at least five working days prior to conducting any work on the restricted land. Development of the Barkett property would require remediation of the site, and approval by DTSC, CIWMB and the San Joaquin Valley APCD (see Mitigation Measures 4.13.8a, b, and c).

Letter 17. [Ruben Modesto, resident]

Response to Comment 17-1:

Commenter states that Stockton ranks high in asthma rates among major U.S. cities and that the Weston Ranch Town Center will increase damage to the City's air quality. Commenter further states that Stockton is rated 51st among other Cities in the U.S. by the Asthma and Allergy Foundation of America [note that the document referenced in the comment letter ranks Stockton-Lodi at 81st rather than 51st]. The Draft EIR includes a discussion of air quality in the Stockton region. The EIR also identifies health effects associated with poor air quality. As the commenter notes, these effects include high incidence of asthma. (See Draft EIR, § 4.8.1.)

Response to Comment 17-2:

Potential health effects related to increases in Ozone and PM10 are described on page 4.8-20 of the DEIR. The project includes mitigation measures for both the construction and operational phase of the project to minimize the contribution of the project to existing air quality. It is difficult to ascribe a change in City-wide asthma rates to the project, although as discussed on page 4.8-10, changes in long-term exposure are expected to be minimal. However, because the project would contribute to an existing non-attainment problem for ROG, NOx (ozone precursors) and PM10 within the air basin, the impact was found to be significant and unavoidable. Impacts related to carbon monoxide were found to be less than significant (see Impact 4.8.4).

Letter 18. [Ralph Guzman Jr., resident]

Response to Comment 18-1:

The comment states that the traffic impacts of the project have not been factored in with the LPG [liquefied petroleum gas] trucks that will also operate on French Camp Road, and asks what the added impacts of these trucks will be with shopping center traffic. Commenter further asks what the impact will be on neighborhood streets when people start to use McCuen Avenue, McDougal Boulevard and Star Way to avoid increased traffic on French Camp Road and Manthey Road.

A potential LPG user on French Camp Road was not identified by San Joaquin County in either their comments on the Notice of Preparation or the DEIR. The City's 2035 General Plan identifies office, commercial, and residential future land uses along French Camp Road. A proposed change in land use, either within San Joaquin County or the City of Stockton, including storage or distribution of LPG, would be required to go through the environmental review process (in a manner similar to this project). At that time, additional traffic analysis could be required to identify any potential conflicts between LPG truck traffic and the proposed Towne Center (it should be noted that the existing residential uses would be of equal or greater concern in any project proposing to store or ship a potentially hazardous material).

Traffic on Star Way and McCuen Avenue is not expected to increase with development of the project, as these streets directly serve residential uses and do not connect major roadways. McCuen Avenue is approximately 1/4 mile in length and connects Henry Long Boulevard to French Camp Road. Star Way connects Henry Long Boulevard to William Moss Boulevard and continues to the south of Henry Long Boulevard as Woodhollow Avenue, where it becomes a cul-de-sac. No access to French Camp Road is provided from Star Way. Intersections on McDougald Boulevard are expected to operate at acceptable service levels with development of the project, as are intersections on French Camp Road and Manthey Road.

Response to Comment 18-2:

The commenter questions what will happen to the Howard Road/I-5 interchange, S. Wolfe Road/ Howard Road, and Howard Road/Roberts Road with development of the project, and when people begin using Roberts Road to come from Highway 4.

The Mathews Road/I-5 interchange (Howard Road continues as Mathews Road east of Wolfe Road) and S. Wolfe Road/Howard Road were analyzed in the traffic study. A significant impact was identified at the Mathews Road/I-5 interchange and mitigation measures that would reduce the impact to a less-than-significant level and result in acceptable intersection operations were developed. No project impacts were identified at the S. Wolfe Road/Howard Road intersection.

In the PM peak hour, it is anticipated that the revised project would increase traffic through the Howard Road/Roberts Road intersection by approximately 6 vehicles in the peak PM hour. This increase is not considered significant. As the intersections in the vicinity of the project site are expected to operate at acceptable service levels with the project and implementation of the recommended mitigation measures, changes in regional travel patterns to the Weston Ranch area from Highway 4 are not anticipated to occur.

Letter 19. [Curtis Johnson, resident]

Response to Comment 19-1:

Commenter asks what the various water demands of the project will be. Due to the scale of the project, a water supply assessment (known as an SB610 analysis, after the senate bill which amended state law) was prepared for the project. This analysis is included as Appendix D of the DEIR, and is described in Impact 4.10.4. The WSA takes into consideration water used for project features such as landscaping. Due to the reduction of the size of the project to a maximum of 481,000 square

feet, a water supply assessment is no longer required by law. The reduced project size would correspond to a reduced demand for water as compared to what was analyzed in the previously prepared WSA. Therefore, impacts to water supply are reduced for the revised project as compared to the project evaluated in the 2006 Draft EIR. Additionally, the project includes features that will reduce water consumption. As one example, the Wal-Mart restroom sinks will include sensor-activated low flow faucets. The low flow faucets reduce usage by 84%. The sensors save approximately 20% of the remaining 16% usage over similar manually operated systems. See also Master Response #3.

Response to Comment 19-2:

Commenter asks what the current and twenty-year supply effects will be. The water supply assessment prepared for the project analyzed in the 2006 Draft EIR includes an analysis of current and 20-year water supplies, in both normal and dry years. The water supply assessment concludes that the City of Stockton can adequately serve the project. See also Response to Comment 19-1 and Master Response #3.

Letter 20. [Maria Rodriguez, resident]

Response to Comment 20-1:

Commenter expresses concern regarding energy usage at the project site, including project operations and vehicle fuel use. Commenter further asks how the shopping center will impact the energy consumption from the Stockton power grid, how 24-hour operations will impact the amount of energy consumed, and how much energy will be consumed to power refrigeration units. Commenter also asks if ceiling mounted ventilation and solar power will be used.

As is described in the revised text of the Energy chapter shown in Chapter 4.0, “Minor Changes and Edits to the Draft EIR,” of this FEIR the project is projected to result in an electricity demand of approximately 8.2 million kilowatt hours per year and a natural gas demand of approximately 16.7 million cubic feet of natural gas per year. This analysis is based on 24-hour project operations. Impact H.3 (page 4.14-12 of the DEIR) discusses cumulative energy consumption and finds that by implementing feasible conservation measures (as described in Mitigation measure 4.8.3a) the project’s contribution to energy usage would be less than cumulatively considerable. These measures include energy-conserving features and may specifically include ceiling fans, solar water-heating systems or passive solar cooling and heating designs. The Supercenter will include sustainable features that will help reduce the store's energy consumption. These features are noted in Chapter 4, “Minor Changes and Edits to the Draft EIR” under the heading “Sustainable Features.”

Letter 21. [Astrid & Miles Watterson, residents]

Response to Comment 21-1:

The comment concerns the potential for the project to generate “excessive” amounts of crime. See Master Response #2.

Letter 22. [Vincent Hudson, resident]

Response to Comment 22-1:

The commenter questions the effects of construction on the existing asbestos disposal site. The asbestos disposal site is a defined area within the project site, referred to in the DEIR as the Barkett property. The project does not include ground-disturbing activities on the Barkett property. Hazards associated with the implementation of the project and the Barkett property are discussed in Section 4.13 of the DEIR. Please see Responses to Comments 16-1 through 16-4.

Letter 23. [Robin Thornton, resident]

Response to Comment 23-1:

Commenter states that air quality in the central valley is horrible and that the EIR admits the impact from this project will be significant and unavoidable. Commenter further asks how the increase in traffic due to the project will affect the air quality around schools, specifically August Knodt Middle School. Commenter refers to a study, titled *The Effect of Air Pollution on Lung Development from 10 to 18 Years of Age* from the New England Journal of Medicine and refers to information indicating that living near high amounts of automotive exhaust can increase damage to children's lungs.

August Knodt Elementary School (Grades K-8) is located at 3939 Ews Woods Blvd., Stockton, CA 95206, more than ½-mile from the northwest boundary of the project site. The school is located close to the intersection of Ews Woods Blvd. and William Moss Blvd. This intersection was not analyzed in the traffic section of the Draft EIR, as it was not anticipated to be a key intersection affected by project traffic. Key intersections were selected for analysis in consultation with City of Stockton Public Works staff, San Joaquin County Public Works staff, and comments received on the Notice of Preparation (NOP) for the project. All locations requested for analysis by other agencies, including Caltrans, were analyzed. Because August Knodt Elementary School is not located near a key intersection, it is not anticipated to be affected by project traffic, and was not listed as a sensitive receptor for the air quality analysis.

Other existing sensitive receptors that were addressed in the air quality impact section include existing residential communities to the west of the project site, the Great Valley Elementary School located at 4223 McDougald Boulevard, and an existing residential neighborhood to the north of the project site along William Moss Boulevard. Impacts 4.8.1 through Impact 4.8.5, as well as Cumulative Impact 4.8.6 (pages 4.8-16 through 4.8-30) address the health risks associated with air quality. Of these impacts, Impact 4.8.1 (construction impacts), Impact 4.8.3 (operational emissions of criteria pollutants) and Impact 4.8.6 (cumulative air quality impact) are found to be significant and unavoidable after implementation of feasible mitigation measures. Page 4.8-6 of the Draft EIR describes the current air quality conditions in the area and explains that the project area is in nonattainment status for state and federal ozone, PM10 and PM2.5 standards. Even without construction of the project this area is not meeting the National Ambient Air Quality Standards for these pollutants. The project will contribute to air quality impacts in the area, as previously described. However, without the project the area would still be in nonattainment for certain air quality pollutants.

Letter 24. [Earnest Thompson, resident]

Response to Comment 24-1:

Commenter notes that the DEIR states that the project will have significant and unavoidable impacts to the intersections of "Mathews Road/Manthey Road and Manthey Road/I-5 Northbound ramp." The commenter asks what the impacts to Interstate 5 interchanges will be to the "Downey Street/I5" [presumably Downey Avenue and I-5]. Commenter further asks what impact backups on I-5 ramps will have during peak traffic times.

The revised project would have a less-than-significant impact to Mathews Road/Manthey Road and Downey Ave/I-5. The intersection of Mathews road/I-5 Northbound Ramps would operate at a deficient level in the near term. The revised project would contribute to delays at this intersection impact and would be a significant impact. This impact would be reduced to less than significant with the construction of a traffic signal. The project would be required to contribute its "fair share" to the construction cost of this signal.

Letter 25. [Jason Kidd, resident]

Response to Comment 25-1:

The commenter states that a neighborhood commercial zoning for the project site should have been analyzed as an alternative in the DEIR. In the City of Stockton, the CN zone is identified as "neighborhood commercial." The project includes a rezoning to CL, "commercial large-scale." This specific alternative was not analyzed in the DEIR. However, a "reduced density" alternative (Alternative 4) was analyzed. This reduced density alternative includes one of the primary characteristics that a neighborhood commercial zoning alternative might have (reduced square footage, and a de-emphasis on "destination retail"). Per the CEQA Guidelines, Section 15126.6(a), an EIR need not consider every conceivable alternative, but shall analyze a range of reasonable alternatives in order to evaluate the comparative merits of the project alternatives. The DEIR found that reduced density alternative is environmentally superior to the project, although it failed to meet all of the project objectives.

On August 14, 2007, subsequent to the publication and circulation of the Draft EIR, the Stockton City Council passed an ordinance which prohibited retailers from opening stores larger than 100,000 square feet which used at least 10 percent of their floor space to sell groceries. The Weston Ranch Towne Center has subsequently been revised to comply with the ordinance passed in August, 2007. The revised project reduces the floor area of the proposed Wal-Mart Supercenter to 99,996 square feet and removes the second large major retail space (previously noted at 134,720 square feet). The size of the revised project (405,541 square feet for Phases I, II and III and 481,000 maximum square foot envelope for all phases) is generally consistent with the Draft EIR's Alternative 4-Reduced Density Alternative.

Letter 26. [Lester Bradshaw, resident]

Response to Comment 26-1:

The commenter asks how much more traffic will be pushed through neighborhood streets with Henry Long Blvd. removed. Table 4.7-7 (page 4.7-17) identifies the additional daily trips anticipated from the proposed project. Table 4.7-8 (page 4.7-18) identifies what roadways these additional trips are expected to occur on. Additionally, Impact 4.7-1 (starting on page 4.7-55) through Impact 4.7-13 (ending on page 4.7-64) address the traffic impacts to study intersections in the project area. Under the project, Henry Long Blvd will terminate at the western edge of the project. Henry Long Blvd. provides east-west access in the neighborhood. Henry Long would be realigned to connect Manthey Road with French Camp Road, and provide circulation around the project site. The traffic analysis in the DEIR examined the effects on the other major east-west roadways in the project vicinity: French Camp Road, William Moss Blvd. and Carolyn Weston Blvd. Please refer to section 4.7 of the DEIR.

Response to Comment 26-2:

The commenter asks how the traffic will affect nearby schools. Study intersection and roadway traffic counts were collected at study intersections during times when area schools were in session to account for school traffic. Impact 4.7-1 (starting on page 4.7-55) through Impact 4.7-13 (ending on page 4.7-64) address the traffic impacts to study intersections, some of which are located near area schools. The nearest school is the Great Valley Elementary School on McDougald Blvd. The school is between two intersections studied in the DEIR: McDougald/William Moss Blvd. and McDouglald/Henr Long Blvd. As shown in Tables 4.7-9 and 4.7-13 of the DEIR, neither of these intersections would experience significant impacts as a result of the project.

Response to Comment 26-3:

The commenter asks:

- "How will the added traffic plus the increase in the LPG plant trucks affect us?" Please see Response to Comment 18-1.
- "How will the traffic affect nearby schools?" See Response to Comment 26-2.
- "How much more traffic will be pushed through neighborhood streets with Henry Long Blvd taken out?" See Response to Comment 26-1.

Commenter further states that if the EIR find the project will be detrimental to local traffic, then the City should explore its authority of eminent domain. The comment regarding eminent domain is noted.

Letter 27. [Sukhwant K. Bath, resident]

Response to Comment 27-1:

Commenter expresses concern that a 24-hour Wal-Mart Supercenter and Sam's Club will impede the quality of life for residents. Commenter further asks what the noise impacts will be for residents who have jobs requiring them to work at night and sleep during the day and asks how vendor trucks and trucks with refrigeration units will contribute to noise. See Response to Comment 14-1.

Letter 28. [Michael Leonard, resident]

Response to Comment 28-1:

The commenter states concerns regarding the health care of Wal-Mart employees. The social and economic impacts of a project, including the wages and benefits of potential employees, are normally beyond the range of issues analyzed under CEQA (CEQA Guidelines Section 15131(a)). An exception to this rule is the potential for the economic effects of a project to result in "urban decay." This potential impact was analyzed extensively in the DEIR. A revised urban decay analysis that incorporates recent changes to the project (reduction in maximum building floor area, as described in the revised project description) is provided in Chapter 4.0 "Minor Changes and Edits to the DEIR."

Letter 29. [Matab Singh, resident]

Response to Comment 29-1:

Commenter inquires about the impacts of the project to the surrounding land as a result of contaminated stormwater runoff from the project site. The commenter's main concern was in regards to the storage of fertilizers on the project site and the potential for stormwater runoff containing fertilizer would damage groundwater. Stormwater drainage impacts from the project are addressed in Section 4.10, "Hydrology and Water Quality," of the Draft EIR. Impact 4.10.2 states that stormwater runoff would be conveyed to the San Joaquin River and downstream waterways. Many of these waterways are identified in the SWRCB's 303(d) list as impaired for a variety of contaminants. Additionally, Mitigation Measure 4.10.2e requires that the Applicant achieve a minimum percentage removal of pollutants from stormwater leaving the project site due to the fact that receiving waters are already designated as impaired. Table 4.10-1 in the Draft EIR identifies the minimum expected pollutant removal efficiency that is to be achieved utilizing a variety of Best Management Practices (see page 4.10-11). In the event stormwater from the project site contains fertilizer originating from Wal-Mart or any other portion of the project site, it is expected that any potential contamination will be eliminated or minimized to the extent feasible due to the use of BMPs by the Applicant. The BMPs identified in the Draft EIR are widely used to address potential water quality impacts from stormwater run-off. They have been shown to be effective in addressing impacts from run-off from shopping centers or other commercial uses.

Letter 30. [Charles L. Miller, resident]

Response to Comment 30-1:

The commenter asks what the impact of the Wal-Mart Supercenter would be existing retailers, including Food 4 Less. The impacts of the project on other retailers is extensively discussed in the Urban Decay analysis in the DEIR (Section 4.4) and the revised Urban Decay analysis provided in Chapter 4.0 "Minor Changes and Edits to the DEIR," of this FEIR.

Letter 31. [Law Office of J. William Yeates]

Response to Comment 31-1:

Commenter states that the following comments are provided on behalf of the Protect Weston Ranch Coalition.

This comment is noted. No further response is required.

Response to Comment 31-2:

The commenter asks what the relationship of the "general plan amendment" is to the proposed General Plan Update. The project no longer includes a General Plan Amendment. The City of Stockton 2035 General Plan Update was approved by the Stockton City Council on December 11, 2007. The land use designation for the project site contained within this recently approved document is Commercial. The project elements are consistent with this land use designation and a General Plan Amendment is not required.

Response to Comment 31-3:

The commenter asks if a "regional shopping center" located in this area is consistent with future land use designations and policies being proposed in the 2035 GPU. As noted in Response to Comment 31-2, the recently approved City of Stockton 2035 General Plan designates the area as commercial. The proposed commercial large-scale zoning for the project is consistent with this land use designation. In addition, the City of Stockton 2035 General Plan includes the following goal (LU-4): "maximize regional shopping opportunities where their economic viability can be sustained."

Response to Comment 31-4:

The commenter asks if the asbestos disposal site on the Barkett property is characterized as part of the environmental baseline. The environmental baseline is the existing environment at the time the Notice of Preparation (NOP). The NOP for the Weston Ranch Towne Center Project was issued on January 14, 2005. The Barkett property is discussed in the project description, on page 3-7, and further discussed in the Hazards and Hazardous Materials environmental setting on page 4.13-4. Asbestos was present on the Barkett property at the time the City issued the Notice of Preparation. This condition therefore represents the environmental setting, or baseline, against which the impacts of the project must be measured.

Response to Comment 31-5:

The commenter questions the relationship of the Barkett property to the project. The project includes a rezoning of the Barkett property from the existing low density residential to commercial large-scale. As shown on Revised Figure 3-4, no development is currently proposed for this parcel. Therefore, of the entitlements listed in Section 3.5.1 of the DEIR, only the rezoning would apply to the Barkett property. As discussed on page 3-7 of the DEIR, it would not be prudent planning and zoning practice to allow a pocket of residentially-designated land to remain within a large-scale commercial development. Therefore, at the City of Stockton's request, the proposed rezoning includes the Barkett property. The DEIR is not intended to serve as a program EIR as specified by CEQA Guidelines Section 15168. However, the DEIR does analyze the whole of the action, which includes a rezoning of the entire project site. As described in Response to Comment 31-33, below, the analysis assumes a level of development, 481,000 square feet of commercial use, which is higher than the current site plan shows. This is intentional, and accounts for the future development of the Barkett property under the proposed zoning. Development of the Barkett property would require one or more discretionary actions, including use permits, site plan approval, and a tentative map. If and when such entitlements are requested to proceed with development on the Barkett property, the City will have to perform additional analysis under CEQA. The form of that analysis cannot

be determined at this time, absent a specific application to proceed with development on that site. At this time, the EIR assumes the site will develop for commercial purposes so that the impacts of rezoning the site can be analyzed and understood by the City. Please see response to comment 16-1.

Response to Comment 31-6:

Commenter references page 4.13-4 of the DEIR. No further response required.

Response to Comment 31-7:

Commenter asks if the project area is subject to high winds and states that the DEIR characterizes the region as experiencing light, variable winds. Commenter states that the conditions create a climate conducive to high concentrations of certain air pollutants and asks if the site can experience high winds. Commenter further asks if Caltrans has signs warning of high wind conditions in the area and asks about the erosive force of the wind in this area.

A Windrose for Stockton is shown in Appendix F, Figure 1, on page F-8 of the DEIR. The Windrose depicts the annual predominant wind direction and speeds. As described in Appendix F and shown in the Windrose, there is a low frequency of winds over 10 meters per second, with an average wind speed of 3.85 meters per second. Also, according to California Surface Wind Climatology (CARB, 1992), the period with highest wind speeds in Stockton is during the evening hours (4 p.m. through 10 p.m.) of the summer months (June through August), with an average wind speed of 11.6 miles per hour. ESA is unaware of any Caltrans high-wind signs along I-5 in the project area. The project would predominantly cover currently exposed ground with parking lots and building structures and could reduce the erosive potential of wind over the project area.

Response to Comment 31-8:

Commenter questions the safety issues regarding removal of asbestos at the Barkett site, and the timing of such removal, specifically removal prior to large scale development. Any potential clean-up of the Barkett site must be approved and overseen by DTSC (or another designated oversight agency). The clean-up plan must provide for the safety of adjacent land uses.

The Barkett property is not under the control of the applicants for the Weston Ranch Towne Center. The timing of any potential clean-up action is not under the control of the applicants, and the legal use of their property cannot be tied to the potential actions of a neighboring property. However, CEQA required the lead agency to evaluate the potential environmental impacts of a project, including the potential to expose the public to a significant environmental hazard. The DEIR includes mitigation measures 4.13.8a, b, and c to reduce impacts related to the landfill on the Barkett property to a less-than-significant level.

Response to Comment 31-9:

Commenter questions the appropriateness of zoning the area for commercial use when it is located adjacent to a hazardous waste facility (the Barkett Property). Commenter inquires as to restrictions in the City's prospective General Plan or Zoning Code regarding incompatible uses next to each other.

This comment raises two issues: the first is whether or not the lead agency has considered the effects of an existing asbestos disposal site on the proposed project. The second is whether the proposed zoning is more appropriate than the existing zoning. The answer to the first question is yes, as demonstrated in Impact statements 4.8.2 and 4.13.8, which addresses the potential disturbance of what is currently a capped hazardous disposal site. The answer to the second question is also yes. The majority of the project site is currently zoned for residential use, with a portion zoned for general commercial (see Section 4.2 of the DEIR). A residential project carried out under the existing zoning would have to address the same environmental issues described in the Draft EIR. In addition, commercial uses are generally considered more compatible with capped waste facilities and more appropriate for future re-use, should the Barkett property be remediated and available for future development.

Response to Comment 31-10:

Commenter inquires about the safety of the groundwater in the entire site affected by the asbestos disposal site, not just the Barkett Site. Commenter asks about the depth of the asbestos waste facility, whether or not the asbestos materials were disposed in sealed contains, and whether the groundwater under the facility is separate from the groundwater basin that serves the City of Stockton.

The asbestos materials are believed to consist of discarded pipe, and were not sealed within containers. The depth of the asbestos material is not known (and identifying the depth would be the first step in a clean-up action). However, record entries reported in the Phase 1 assessment indicate much of the material is near the surface, possibly less than six feet(thus the need to cap the facility with three feet of clean fill). Groundwater is believed to be 30 feet or more below the surface (see Twining 2003). Per the deed restriction on the property, groundwater on the Barkett property may not be used, and no wells would be drilled on the Barkett property or any other property within the proposed Weston Ranch Towne Center.

All public water systems permitted under the State Department of Health Services are required to meet Title 22 Drinking Water Standards (Article 4. Primary Standards--Inorganic Chemicals; §64431.Maximum Contaminant Levels-- Inorganic Chemicals) which include a maximum contaminant level of asbestos at 7 million fibers per liter of water. Information related to the above mentioned hazardous asbestos waste facility is available through the Department of Toxic Substances Control (DTSC) web site. Asbestos is typically an airborne hazard. Nothing in the information posted leads City of Stockton Municipal Utilities Department (COSMUD) to believe that the asbestos has or will come in to contact with groundwater or be exposed to the air. They have placed an impervious asphalt cap over the illegal fill that is just below the ground surface in the unsaturated portion of the soil strata preventing water and air from coming into contact with the contaminant. Any further information or a status of the current condition of the site should be reported directly by DTSC.

Response to Comment 31-11:

Commenter states that Section 4.10, Hydrology and Water Quality, does not discuss deed restriction regarding the use of water under the hazardous waste facility. Commenter asks for clarification as to whether the drainage from the proposed large scale commercial development will drain onto

or underneath the Barkett site or if the opposite is the case. Commenter also inquires about parking areas and internal circulation for the proposed commercial area and whether that will be lower than the Barkett Property after site preparation and grading.

The deed restriction is discussed on page 4.13-4, in the Hazards section. The project site, which is undeveloped except for a small number of structures, currently drains primarily by sheet flow and eventually into the Weston Ranch storm drain system (see pages 4.10-12 and 4.10-17 of the DEIR). However, as noted on page 4.10-1 and 4.10-12, most of the existing runoff infiltrates into the soil column. The currently proposed project does not include development of the Barkett property. Runoff would continue to infiltrate the soil column on this site. Some runoff may be expected. Impacts 4.10.2 and 4.10.5 identify a potentially significant effect on the quantity and quality of runoff as a result of the project. Mitigation measures 4.10.2 and 4.10.5 will take into account runoff from the Barkett property. In addition, the Barkett property is currently capped (by three feet of fill and geotextile fabric) to mitigate potential health hazards from the landfill. The cap would be maintained until such time as a clean-up action occurs (see Mitigation Measure 4.13.8c).

Response to Comment 31-12:

Commenter states that "information about baseline drainage conditions is sparse" and further states it is not clear whether the two irrigation ditches traversing the project site drain into French Camp Slough or the San Joaquin River. Although information provided in the Draft EIR was not lengthy (see page 4.10-1 and 4.10-17 of the DEIR), the information provided in the setting as well as Impact 4.10.5 gives a complete picture of the current and future drainage issues on site. As noted on page 4-28 of the FEIR, only one drainage ditch still exists. This ditch is located outside the project site, east of the existing Manthey Road and flows north toward French Camp Slough.

Response to Comment 31-13:

Commenter notes that development would result in the project site (except for the Barkett property) becoming largely covered with impervious surfaces. Commenter asks what the existing capacity of the Weston Ranch drainage system and what additional capacity must be added to accommodate the proposed project.

The DEIR acknowledges on page 4.10-12 that "much of the site would be covered by impervious surfaces following construction." As noted by the commenter, mitigation measures include preparation of a Drainage Plan (Mitigation Measure 4.10.5). The proposed project is within the area covered by the Weston Ranch Master Storm Drain Plan. This master plan identified the future use of the project site as commercial, with a corresponding high coefficient of runoff (see page 4.10-18 of the DEIR). This is consistent with the proposed project. The DEIR also acknowledges that the master plan was prepared in 1988, and build-out conditions may have changed. The drainage plan for the project would quantify project runoff based on the final site plan, and confirm that that the system has adequate capacity to convey project runoff. The drainage plan will address not only capacity, but will include BMPs to mitigate the potential effects on stormwater quality (Mitigation Measure 4.10.2). Mitigation Measure 4.10.5 includes a performance criteria that project runoff not exceed the capacity of the existing system. A preliminary drainage plan has been prepared for the project.

Response to Comment 31-14:

Commenter states that in considering the baseline environmental conditions, the DEIR did not consider the consequences of sea level rise caused by global warming. Consistent with long-standing CEQA tradition, the City considered the current baseline as the environmental setting at the time the Notice of Preparation is issued, and not one hundred years into the future. According to CEQA Guidelines Section 15125 (a), "[a]n EIR must include a description of the physical conditions in the vicinity of the project, as they exist at the time the notice of preparation is published ... This environmental setting will normally constitute the baseline physical conditions by which a Lead Agency determines whether an impact is significant ..." (See *Woodward Park Homeowners Assn., Inc. v. City of Fresno* (2007) 149 Cal.App.4th 892, opn. mod. 2007 Cal.App. LEXIS 714.) The requirements of CEQA "ensur[e] that the evaluation of impacts normally will do what common sense says it should do and what the EIR's more important audience, the public, will naturally assume it does: compare what will happen if the project is built with what will happen if the site is left alone." (Ibid.)

Regarding cumulative impacts, such impacts were comprehensively addressed and mitigated for in the City's 2035 General Plan Update. All pertinent mitigation included in the General Plan Update EIR will be incorporated into the proposed project. Climate change impacts are not peculiar to the project. Accordingly, further analysis is not required. (Pub. Resources Code, § 21083.3; CEQA Guidelines § 15183). See "Master Response 1: Climate Change."

Commenter further states that scientists predict a 7 to 23-inch rise in sea level by the end of the century and that increased El Niño events due to climate change will increase water levels in the Delta, especially during the winter months when precipitation and run off into the Delta are maximized. See "Master Response 1: Climate Change."

Response to Comment 31-15:

Commenter states that the California Department of Water Resources (DWR) warns that projected increases in air temperature may lead to changes in the timing, amount and form of precipitation (rain or snow) and changes in runoff timing and volume. Commenter states that the DEIR must take these cumulative impacts into account for storm water and flood planning.

Commenter states that studies show that over the last century there has been an increased variability in rain intensity, leading to more intense rain evens and also a pattern of more extreme wet and dry years. Commenter asks if the proposed drainage and flood protection measures account for these changes. Commenter also asks what the direct effect of increasing run off from the project site during peak storm events will be and what the project's cumulative contribution to run off into the Delta based on the growth predictions in the 2035 General Plan Update will be.

Commenter further asks if the 1988 Weston Ranch Storm Drain Plan is designated to accommodate rising sea level conditions within the Delta.

In addition, the report cited by the comment above includes the following (DWR 2006, page 6-21):

- No significant trend exists in statewide average precipitation from 1890-2000

- A small increasing trend in statewide precipitation is found from 1970-2000
- Annual runoff shows slight decreasing trend in San Joaquin River System
- April-July runoff as percentage of annual runoff is decreasing in both Sacramento and San Joaquin River Systems

Please see Response to Comment 31-14 and Master Response #1.

Response to Comment 31-16:

Commenter provides background information on climate change and refers to the Intergovernmental Plan on Climate Change (Working Group 1) Fourth Assessment Report. Commenter provides quotes from the aforementioned report that indicate rising temperatures are associated with greenhouse gas generation, which contribute to global warming and in turn threaten public health, water resources, agriculture, forestry and rising sea levels. Commenter further states that the DEIR does not discuss the greenhouse gas baseline nor the project's contribution to greenhouse gas generation despite a modification of the City general plan.

Commenter states that the DEIR needs to establish the baseline conditions at the project site and compare the baseline to the greenhouse gases to be generated by the project.

See "Master Response #1: Climate Change."

Response to Comment 31-17:

Commenter provides background information regarding Executive Order S-3-05, issued by the State of California's Governor Arnold Schwarzenegger. Commenter further provides information on AB 32, the "California Global Warming Solutions Act of 2006." Commenter states that Local Governments for Sustainability offers software and strategies for quantifying and reducing GHG emissions and is referenced to help the DEIR preparer incorporate this information.

See "Master Response #1: Climate Change."

Response to Comment 31-18:

Commenter questions why the Preliminary Site Plan and area of circulation plan are in a schematic format on page 3-13. Commenter asks how, when, and where the revised plans will be evaluated. The revised site plan submitted by the applicant, and shown in Revised Figure 3-4, is fairly detailed. It is not, however, a complete set of engineered drawings, as explained on page 3-13 (and referenced by the commenter). The site plan may undergo some minor modification, in response to the mitigation measures contained in the DEIR, other conditions of approval made by the decision-making body, and other changes as actual tenants are identified, and the site planning moves from general site planning to actual building construction. As noted on page 3-11, building design may change slightly during the project review process. Final drawings will be reviewed prior to issuance of building permits for their consistency with the site plan approved by the decision making body and all conditions of approval, including environmental mitigation measures.

CEQA acknowledges this balance between performing environmental review earlier enough in the process, versus waiting until precise project details are available: "Choosing the precise time for CEQA compliance involves a balancing of competing factors. EIRs and negative declarations should be prepared as early as feasible in the planning process to enable environmental considerations to project program and design and yet late enough to provide meaningful information for environmental assessment. [CEQA Guidelines Section 15004(b)]"

Under CEQA, final engineering need not be performed in order to perform an adequate environmental analysis of a project. Rather, the project description must be sufficiently detailed to allow the lead agency to perform a meaningful analysis. The City believes the revised site plan and other information concerning the project meets that standard.

Response to Comment 31-19:

Commenter asks "why isn't the existing hazardous waste disposal site located on the Barkett property not identified as an existing onsite use?" in the Land Use and Agricultural Resources, Section 4.2.

The Barkett property's prior use as an unauthorized asbestos landfill is disclosed in the Hazards and Hazardous Materials section on page 4.13-4. The Barkett property is a closed landfill and not an ongoing use. Section 4.2 of the DEIR will be revised (see Chapter 4, Minor Changes and Edits to the Draft EIR).

Response to Comment 31-20:

Commenter questions whether the operation of an asbestos disposal site predates the current low density residential designation. Unauthorized disposal of asbestos-containing pipe is believed to have occurred beginning in the late 1950's. This would predate annexation of the area into the City (and it's residential zoning). Prior County zoning is assumed to have been agricultural.

Response to Comment 31-21:

Commenter questions whether the current General Plan or the proposed General Plan allow hazardous waste facilities on residential and commercial designated land. The recently approved City of Stockton 2035 General Plan Update does not allow hazardous waste facilities on residential or commercial land. However, the Barkett property is not an operating hazardous waste facility. It is an unauthorized disposal site which has been closed. Furthermore, its future development as commercial (its general plan designation) is contingent upon proper cleanup of the site (see Mitigation Measures 4.13.8a through c).

Response to Comment 31-22:

Commenter questions whether the Barkett property should be cleaned up before the General Plan is amended to authorize a large scale commercial use around an existing hazardous waste site. Please see Response to Comment 31-8.

Response to Comment 31-23:

Commenter states that the DEIR should address the positive impact 65.8 acres of prime farmland would have towards the reduction of greenhouse gases. Please see Master Response #1. While

soils and plant material can act as a carbon sink, active farming operations, including soil management and agricultural equipment, contribute to global emissions of greenhouse gases. Also, note the reduction in the project footprint which reduces the conversion of prime farmland to 42.24 acres.

Response to Comment 31-24:

Commenter questions if the Project Objectives listed on page 3-8 are consistent with the village concepts proposed in the 2035 GPU, and asks how the GPA for the project assists in encouraging infill development. The recently approved City of Stockton 2035 General Plan Update identifies the project site as commercial—consistent with the objectives and proposed uses of the project. The project site is not identified as a "village." A village is a distinct land use category in the proposed General Plan 2035. The proposed site is identified as part of the River View District in the General Plan 2035, and recognizes that commercial and industrial uses are a part of this district.

Response to Comment 31-25:

Commenter expresses concern that Table 4.2.1 includes a general plan consistency analysis for the 1990 General Plan which is slated to be updated. Commenter also states that the DEIR needs to evaluate the impact of a large scale regional commercial facility on the ability of the city to encourage infill development. Commenter also questions the environmental impact of a change in traffic patterns between low-density residential and large scale commercial development. Commenter suggests mixed use to encourage infill.

Suggestions noted. The pursuit of infill development does not exclude regional commercial development, particularly in areas which may be currently underserved. The statement that infill development tends to include mixed residential and commercial uses on a neighborhood scale that reduces reliance on the automobile for shopping is not supported. Infill and mixed-use development are not interchangeable. The existing zoning of the proposed project is not mixed-use, but residential, with a portion of the property zoned for commercial use. The proposed project is compared to existing zoning in Section 5.4 of the DEIR, Alternatives. While traffic impacts may be lessened, they are still assumed to be significant under this alternative. In regards to Table 4.2.1, this Final EIR provides a revised Table 4.2.1 (see Chapter 4 of this document) to address the project's consistency with the recently approved *2035 General Plan Update*.

Response to Comment 31-26:

Commenter states that Impact 4.2.3 fails to identify or discuss the existing hazardous waste disposal site adjacent to the Barkett property. Impact 4.2.3 discusses the proposed uses with regard to the surrounding land uses. The effects of existing contamination within the project area are discussed in Impact 4.13.8.

Response to Comment 31-27:

Commenter states that the Land Use Section of the DEIR needs to address the consequences of a land use policy decision to change the land use designation on the Barkett property without significant clean up of the site.

The recently approved City of Stockton 2035 General Plan Update included the redesignation of the Barkett property from low density residential to commercial. Therefore, no change in land use designation is proposed as part of this project and no General Plan Amendment is sought. Please see also Responses to Comments 31-8 and 31-9.

Response to Comment 31-28:

Commenter states that the DEIR needs more specificity about the site design and development in order to mitigate adverse aesthetic impacts when looking at large scale development depicted on Figures 3-4 and 3-5. As discussed in Response to Comment 31-31, a large amount of information, including the square footage and location of all buildings is provided in the original project description. The commenter described the proposed project as “fortress-like,” which, while being entirely subjective, implies that enough information is available for the residents and decision makers to make informed decisions on the potential impacts of the project. Opinions on the aesthetic merits of a project are inherently subjective. The commenter’s opinion regarding the design of the project is noted and will be forwarded to the City for its consideration. Additionally, on August 14, 2007, subsequent to the publication and circulation of the Draft EIR containing the original project description, the Stockton City Council passed an ordinance which prohibited retailers from opening stores larger than 100,000 square feet which used at least 10 percent of their floor space to sell groceries. The Weston Ranch Towne Center has subsequently been revised to comply with the ordinance passed in August, 2007. The revised project reduces the floor area of the proposed Wal-Mart Supercenter to 99,996 square feet and removes the second large major retail space (previously noted at 134,720 square feet). The size of the revised project (405,541 square feet for Phases I, II and II with 481,000 maximum square foot envelope for all phases) is generally consistent with the Draft EIR’s Alternative 4-Reduced Density Alternative.

Response to Comment 31-29:

Commenter states that the DEIR should include graphic simulations in the form of illustrations or graphics to provide a sense of scale of the project. Conceptual elevations of the major retail tenant (Major 1) are provided on page 3-5. The DEIR describes the potential visual effects of the project. Graphic simulations showing the project in relation to adjacent uses are not required as part of the application or environmental review process.

Response to Comment 31-30:

Commenter states that the statement on page 4.3-10 "[t]he proposed commercial development would create visual conditions in the project area similar to existing views in urban settings found in the nearby Stockton area" does not mitigate the change from the existing open space and agriculture condition of the site. The sentence quoted by the commenter is within an impact statement for visual effects, which in fact is identified as potentially significant. The statement expresses the likely future state of the project site, and is not a mitigation measure in and of itself. Impacts to visual resources have not been reassessed since publication of the Draft EIR. The original analysis for this topic does not require an update because there has been no increase in potential impacts. It is likely that visual impacts are decreased due to the substantial decrease in the building size of the Wal-Mart.

Response to Comment 31-31:

Commenter states that the design and site plan needs to be more specific so that the public and public decision makers can evaluate the significant adverse environmental consequences of the project on existing land. Please refer to Response to Comment 31-18. The revised site plan is reasonably detailed, including the size and location of the proposed buildings, access points, and site circulation. The level of detail is adequate to provide for public review and comment. Delaying environmental review until building permit plans are available would deny the public and local decision makers a meaningful opportunity to consider potential environmental impacts and mitigation measures earlier in the planning process.

Response to Comment 31-32:

Commenter asks why the second major retailer was not identified as a Sam's Club in the DEIR. Commenter further asks if the business relationship between a Wal-Mart Supercenter and a Wal-Mart Sam's Club were considered in the analysis and if the two stores were considered separate retail entities.

Based on the preliminary information provided by the applicant, the Urban Decay Analysis Report assumed that the large retail component of the proposed Weston Ranch Towne Center project would likely include both a Wal-Mart Supercenter type and Sam's Club warehouse discount retail stores (see Appendix C, page 2-3). Prior to publication of the Draft EIR, the applicant indicated to the City that tenants other than the Sam's Club would be considered. However, the Draft EIR retained the original assumption that a Sam's Club would be the discount warehouse tenant because Sam's Club is a market leader in its retail sector. Average sales for a Sam's Club are comparable to those of similar retailers (e.g., Costco) although they are often higher than those of many discount warehouse retailers. The use of a Sam's Club in the Draft EIR to estimate future discount warehouse sales thus may overstate but is unlikely to understate the actual sales and related impacts for the project. The urban decay analysis presented in both Appendix C and Section 4.4 of the Draft EIR evaluates potential future urban decay impacts for full commercial development of the entire proposed Weston Ranch regional shopping center (including allowance for potential future development of the Barkett Property). The analysis estimates the magnitude of new project sales by retail category (e.g. apparel, food etc) for each major retail store type. As shown in Table 4-6 of the Urban Decay Analysis Report (see Appendix C, page 4-12), both the combined retail sales effects of the entire Weston Ranch project as well as those of the proposed Wal-Mart Supercenter and warehouse discount retail store were also estimated separately.

The future retail sales impacts of the Wal-Mart Supercenter and the discount warehouse store were based on national average retail sales figures available from Wal-Mart's Form 10-K filings to the United States Security and Exchange Commission. The urban decay analysis developed sales projections for Supercenter retail development separately from projections for older and smaller non-Supercenter Wal-Mart stores. In addition, although no financial data is available specifically for the sales performance of Supercenter and discount warehouse retail stores "paired" in "powercenter" retail developments, the national popularity of such shopping centers suggests that the financial data used by the analysis will adequately represent the project's likely actual future sales.

On August 14, 2007, subsequent to the publication and circulation of the Draft EIR, the Stockton City Council passed an ordinance which prohibited retailers from opening stores larger than 100,000 square feet which used at least 10 percent of their floor space to sell groceries. The Weston Ranch Towne Center has subsequently been revised to comply with the ordinance passed in August, 2007. The revised project reduces the floor area of the proposed Wal-Mart Supercenter to 99,996 square feet and removes the second large major retail space (previously noted at 134,720 square feet). The size of the revised project (405,541 square feet for Phases I, II and III with 481,000 maximum square foot envelope for all phases) is generally consistent with the Draft EIR's Alternative 4-Reduced Density Alternative. A revised Urban Decay analysis is provided in Chapter 4.0, "Minor Changes and Edits to the DEIR."

Response to Comment 31-33:

Commenter asks why the urban decay analysis includes potential development on the Barkett Property when the DEIR states that no specific entitlements are sought at this time on the Barkett Property.

The retail square footage estimates used to evaluate potential impacts of the revised Weston Ranch Towne Center project conservatively assume full build-out (i.e. 481,000 square feet of commercial use) of the entire site including the Barkett property. If redevelopment of the Barkett property did not occur, it remains possible though unlikely that the remainder of the site could accommodate the projected full build-out. Any, reduction in the project's future retail square footage, whether due to non-development of the Barkett property or other cause would be expected to reduce potential retail impacts (and correspondingly any potential related urban decay impacts) of the project. As noted in previous responses, development of the Barkett property would require one or more discretionary actions, including use permits, site plan approval, and a tentative map. If and when such entitlements are requested to proceed with development on the Barkett property, the City will have to perform additional analysis under CEQA.

Response to Comment 31-34:

Commenter asks what other retail sites in Stockton are similar to Wal-Mart and further asks if it is fair to compare a Wal-Mart to Raley's, Albertson's, Gottschalk's and Dillard's.

The retailers and shopping centers in Stockton potentially most affected by the proposed Wal-Mart Supercenter (and the Weston Ranch Towne Center's other retail development) are identified and evaluated in detail in the Urban Decay Analysis Report (see Appendix C, pages 3-3 to 3-20) and the revised Urban Decay analysis provided in Chapter 4.0 "Minor Changes and Edits to the DEIR". The existing condition assessment also identifies key similarities and differences between the project's retail components and existing Stockton retailers and shopping centers. As stated in the discussion of the urban decay analysis approach, "(t)he retailers selected for analysis were those expected to be in direct competition with the Weston Ranch project due to *similarities in goods and customer base* (emphasis added)."[3] It is these similarities between the project and existing Stockton retailers that are considered most relevant in assessing the project's future competitive effects on its competitors.

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[3] / See Appendix C, page 3-4.

Response to Comment 31-35:

Commenter asks why smaller grocery stores and drugstores were not included in the inventory of competing retailers. Commenter asks if this decision ignores policies in the 2035 GPU that encourages future "village-type" mixed used infill developments.

The revised urban decay analysis focuses on medium and large retailers as these businesses account for the greatest proportion of Stockton retail sales. These larger retailers also generally serve those customers and sell those goods and services most similar to the project's likely future customers and its mix of retail goods and services. Generally speaking, small retailers are more likely to attract their customers based on convenience, product selection, price considerations and/or service quality factors that differ substantially from those that the project would provide. As a result, these smaller stores would be in less direct competition with the project than larger retailers.

The recently approved City of Stockton 2035 General Plan Update identifies the project site as commercial—consistent with the objectives and proposed uses of the project. The project site is not identified as a "village." A village is a distinct land use category in the proposed General Plan 2035. The proposed site is identified as part of the River View District in the General Plan 2035, and recognizes that commercial and industrial uses are a part of this district.

Response to Comment 31-36:

Commenter states that a regional large scale commercial center that is intended to meet Stockton's needs and also attract customers from as far as the Sierra foothills will increase vehicle miles traveled resulting in increased fossil fuel consumption and generation of CO_2 into the atmosphere.

As the comment notes, the Draft EIR acknowledges that Stockton is a "sales attractor" currently and that population growth in the City resulting from new residents re-locating from elsewhere is likely to continue. The Draft EIR evaluates the impacts of increases in traffic which include air quality impacts, described on 4.8-22 through 4.8-26, and energy consumption, on page 4.14-9. These topics are also discussed in the revised text provided in Chapter 4.0, "Minor Changes and Edits to the DEIR." In addition, CO_2 emissions related to mobile sources are further discussed in this Final EIR in Master Response 1, above.

Response to Comment 31-37:

Commenter states that the following text from the Urban Decay Analysis was not included in the DEIR, and asks why this sentence was excluded: "Typically larger stores or stores with attractive additional retail components (such as Superstores) may be expected to have somewhat wider trade areas because they can attract customers to travel somewhat further to their store." Commenter further asks if the combination of a Wal-Mart Supercenter and a Sam's Club as retail attractors is comparable to a "power center" and asks for definition of "power center."

The specific sentence cited by the commenter as "excluded" from the Draft EIR ("Typically, larger stores…to their stores.") is located in the first paragraph on page 4.4-26 of the Draft EIR.

The International Council of Shopping Centers and Urban Land Institute definitions of a power center are provided in the Urban Decay Analysis Report (see page 4-1). In its description of the project, the urban decay analysis also states that "(t)he proposed retail configuration for the project generally conforms to the industry standard categorization of a 'power center' (see Appendix C, page 4-1). The proposed Wal-Mart Supercenter and discount warehouse club both qualify as large anchor stores, which combined with the other planned large discount retailers together, will function as a power-center type retail location.

However, the revised project no longer includes a second major retailer. On August 14, 2007, subsequent to the publication and circulation of the Draft EIR, the Stockton City Council passed an ordinance which prohibited retailers from opening stores larger than 100,000 square feet which used at least 10 percent of their floor space to sell groceries. The Weston Ranch Towne Center has been revised to comply with the ordinance passed in August, 2007. The revised project reduces the floor area of the proposed Wal-Mart Supercenter to 99,996 square feet and removes the second large major retail space (previously noted at 134,720 square feet). The size of the revised project (405,541 square feet for Phases I, II and III with 481,000 maximum square foot envelope for all phases) is generally consistent with the Draft EIR's Alternative 4-Reduced Density Alternative. The revised Urban Decay analysis for this reduced project is provided in Chapter 4.0, "Minor Changes and Edits to the DEIR."

Response to Comment 31-38:

Commenter states that according to one study, Wal-Mart is considered the biggest threat to the supermarket industry. Commenter asks why, in light of this information, the primary trade area for the project was determined to be a five-mile radius of the project site. Commenter asks why the determination of this trade area appears to be based on the environmental consultant's professional opinion versus consultation with industry analysts.

The Draft EIR identifies the project's primary market area as the entire City of Stockton (see Draft EIR pages 4.4-26 to 4.4-28) as well as areas to the south of the city within five miles of the project site. The Draft EIR identifies the project's market area as extending up to ten miles to the north of the project site and including a number of residential areas. Combined with a determination that 75% of project sales would originate from this primary market area, the urban decay analysis has adopted an analytic approach that assumes most of the project's sales, and therefore any impacts related to sales, would be primarily local rather than attenuated by distribution over a large region.

The primary trade area analyzed for the project is far more extensive than that of a traditional supermarket since "(a)ccording to the ICSC, trade areas of three miles are common for supermarkets" (see Draft EIR page 4.4-25). While the commenter appears to be implying that traditional supermarkets (such as a Raley's) are usually assumed to have a five mile primary trade area, the study referenced in the comment states that a three mile radius is "considered as the trading area of a typical grocery store" (Singh, et al "Impact of Wal-Mart Supercenter on a Traditional Supermarket: An Empirical Investigation" page 11).

ESA's analysis of the project's primary trade area and of the project's potential impacts was informed by extensive research and consideration of numerous data sources and analyses. The existing conditions assessment (see Appendix C, Section 3) includes both a comprehensive local inventory of retailers and site inspections of the region's retailers and shopping centers. ESA's assessment of existing retail market conditions in Stockton includes identification of recent and on-going city redevelopment projects. As noted in both the Draft EIR (see pages 4.4-20 to 4.4-22) and the Urban Decay Analysis Report (see Appendix C, pages 4-19 to 4-22) telephone interviews with local commercial real estate brokers also provided additional perspective on the Stockton retail sector from specialists familiar with the retail market conditions and factors specific to Stockton retailers.

An extensive discussion of the factors, sources and other analyses incorporated in ESA's market analysis's judgment is provided in the Urban Decay Analysis Report (see Appendix C, pages 4-6 to 4-11) and summarized in the Draft EIR (see pages 4.4-25 to 4.4-28). In addition to relevant data from the International Council of Shopping Centers and U.S. Department of Transportation, ESA carefully reviewed the market assessments performed for the North Stockton Wal-Mart Supercenter development by Insite Environmental and Keyser Marston. Numerous other economic impacts and urban decay analyses performed for retail development projects throughout California and nationally were reviewed and are cited in the Draft EIR and Urban Decay Analysis Report when specifically applicable to the Weston Ranch analysis.

In addition, the project size has been reduced since the publication of the DEIR. On August 14, 2007, subsequent to the publication and circulation of the Draft EIR, the Stockton City Council passed an ordinance which prohibited retailers from opening stores larger than 100,000 square feet which used at least 10 percent of their floor space to sell groceries. The Weston Ranch Towne Center has subsequently been revised to comply with the ordinance passed in August, 2007. The revised 6roject reduces the floor area of the proposed Wal-Mart Supercenter to 99,996 square feet and removes the second large major retail space (previously noted at 134,720 square feet). The size of the revised project (405,541 square feet for Phases I, II and III with 481,000 maximum square foot envelope for all phases) is generally consistent with the Draft EIR's Alternative 4-Reduced Density Alternative. A revised Urban Decay analysis is provided in Chapter 4.0, "Minor Changes and Edits to the DEIR."

Response to Comment 31-39:

The comment identifies several supposed inadequacies in the urban decay analysis. First, the commenter suggests that the analysis "ignores entirely Wal-Mart's extraordinary success, and its impact in other areas." The urban decay analysis has estimated the project's future retail impact on Stockton retailers (including specific estimates of the project's impact to grocery sector sales4) using future retail sales per square foot estimates based on the available, national reported financial data for Wal-Mart Superstores and Sam's Clubs sales performance. As such, these retail sales estimates inherently recognize and incorporate into the EIR projections Wal-Mart's financial

[4] / Estimated to be a short-term impact of up to $52.1 million in future diverted grocery sector retail sales and amount equivalent to 8.5% of Stockton 2005 grocery sector sales (see Draft EIR, Table 4.4-10 and page 4.4-35).

"success." The sales estimates both show the magnitude of project's expected future grocery sales and also include any Supercenter synergy sales effects associated with attracting customers due to larger grocery store sales area and increased product selection.

As discussed in the Urban Decay Analysis Report (Appendix C, Section 4) and the Draft EIR (see pages 4.4 – 25 and 4.4-33), projecting the retail impact of any new development on existing retailers is dependent on specific local circumstances and other factors. As a result, the applicability of retail effects observed in other cities (let alone in other states) can differ greatly. An assessment of potential retail impacts from new businesses to existing businesses needs to consider the retail market conditions of both the existing retailers and future demand. For example, the potential impact of an additional new retailer to a fast-growing retail market such as Stockton (see Draft EIR, page 4.4-14) will be less than a retail market with little real growth in retail demand. Similarly, many past Wal-Mart impact studies have evaluated impacts on existing retailers in less mature markets encountering competition from a discount retailer for the first time and as such experiencing greater price and service adjustments than in more mature retail markets (such as Stockton) where discount retailers already operate.

Second, the commenter contends that the urban demand analysis "assumes a uniform population growth…without any change in the existing retail demand picture." The future retail demand growth projections for Stockton shown in Table 4.4-8 of the Draft EIR (on page 4.4-30) are annualized to clarify for readers the underlying methodology and assumptions used in the future population and retail demand growth analysis. This approach identifies expected changes to existing retail demand in Stockton (i.e. by differentiating future spending characteristics of the expected new migrant and immigrant population). The urban decay analysis focuses on the expected net impact to Stockton's existing retail sector to identify the nature and extent of the potential "sales shift" impact, which represents the potential project-related negative impact on the existing retailers. The urban decay analysis has conservatively assumed that the Stockton retail market is current fully saturated (despite the apparent "under-retailed" nature of South Stockton). As a result, it is presumed that the short term net increase in project-related sales would be obtained from "sales shifts" diverting sales from the existing retailers to the project.

Third, as discussed above the retail impact analysis uses national sales per square averages for Wal-Mart Supercenters (with specific estimates for distinct retail categories) to estimate project impacts on the Stockton grocery sector extensive survey of existing grocery stores and their customers and products. However, as discussed in the Draft EIR (see Draft EIR pages 4.4-25 and 4.4-33) and Urban Decay Analysis Report (see Appendix C, pages 4-5 to 4-19), it is not possible to predict exactly how specific project impacts will affect existing individual retailers, due to the many non-project related factors that determine an individual business's response to increased competition.

The commenter's final assertion that the urban decay analysis "has simply missed the mark" overlooks the causal sequence that the Draft EIR finds is required to establish project-related urban decay impacts evidenced by a "substantial increase in physical deterioration in retail property." As discussed in the Draft EIR's significance criteria discussion (see page 4.4-23), the key issue for determining that a significant project-related urban decay impact is likely to result must not

only show that the project's competitive retail impacts will cause existing retailers to go out of business but also that:

- "The failed retailers' vacated properties will not be re-tenanted (or otherwise reused) due to insufficient real estate demand.
- These untenanted properties will be vacant for prolonged periods of time and will be abandoned or otherwise permitted to deteriorate significantly by their owners." (DEIR, page 4.4-23, "Significance Criteria.")

The Draft EIR's real estate analysis concludes on pages 4-.4-35 that a generally strong real estate market for commercial and residential real estate currently exists in Stockton. As explained in chapter 4, Minor Changes and Edits to the Draft EIR (section 4.4, Urban Decay), although there has been a decline in the retail real estate markets, several indicators, such as the successful re-tenanting of commercial properties, suggest that the current stable demand for commercial retail properties in Stockton is likely to continue for the foreseeable future. This finding suggests that even if existing retail businesses do close, few if any of resulting vacated properties would remain untenanted for extended periods and their owners have strong economic incentives to prevent physical deterioration while their properties are vacant. In addition, and as noted in the Draft EIR (see pages 4.4-10 to 4.4-12), the City of Stockton has committed substantial resources in recent years to redevelopment projects and to code enforcement further reducing the likelihood that an increase in vacancies would necessarily result in urban decay impacts. Hence, it is concluded that project in itself would not result in significant urban decay impacts.

In addition, the project size has been reduced since the publication of the DEIR. On August 14, 2007, subsequent to the publication and circulation of the Draft EIR, the Stockton City Council passed an ordinance which prohibited retailers from opening stores larger than 100,000 square feet which used at least 10 percent of their floor space to sell groceries. The Weston Ranch Towne Center has subsequently been revised to comply with the ordinance passed in August, 2007. The revised project reduces the floor area of the proposed Wal-Mart Supercenter to 99,965 square feet and removes the second large major retail space (previously noted at 134,720 square feet). The size of the revised project (405,541 square feet for Phases I, II and III with a 481,000 maximum square foot envelope for all phases) is generally consistent with the Draft EIR's Alternative 4-Reduced Density Alternative. A revised Urban Decay analysis is provided in Chapter 4.0, "Minor Changes and Edits to the DEIR."

Response to Comment 31-40:

Commenter states that the DEIR fails to adequately consider Wal-Mart's impact on local law enforcement resources and local citizen's health, safety and welfare. Commenter states that the DEIR needs to gather more information from police departments that have been impacted by incidents at Wal-Marts. The impact of the project on law enforcement services is analyzed in chapter 4.6 of the Draft EIR. The analysis concludes the project will have a less-than-significant impact on such services. The City circulated a copy of the Draft EIR to the Police Department. No comments were received. Also, please see Master Response #2.

Response to Comment 31-41:

Commenter states that transportation and circulation comments are provided in Attachment 12 of this comment letter.

This comment is noted. Comments provided in Attachment 12 will be responded to under the heading "Response to Attachment 12 Comments." No further response is required.

Response to Comment 31-42:

Commenter states that the following comments are based on the professional opinion of Morris L. Allen, consulting civil engineer, and that Mr. Allen's comments are attached as Attachment 13 of the comment letter. Commenter further states that based on the Water Supply Assessment prepared for the project, the DEIR fails to adequately and accurately assess the project's impacts on existing and future water supplies and that the Water Supply Assessment fails to support its determination that there is sufficient water supply to meet the demands of the project.

This comment is noted. No substantive information was provided in this comment to support a response. Please refer to the following responses to comments: Master Response # 3, Response to Comment 31-43 through Response to Comment 31-70.

Response to Comment 31-43:

Commenter states that the WSA states that a uniform water demand is assigned to the project regardless of land use unless there is a special use requiring significant quantities of water. Commenter asserts that this is not what the law requires and that the WSA must discuss the actual water demands of the specific project.

The commenter is referred to Master Response # 3. As explained therein, this EIR relies on the General Plan Update EIR as provided by Public Resources Code section 21083.3 and its parallel CEQA Guidelines section 15183. Pursuant to those provisions and the substantial evidence available in the WSA and record to date, no further water supply analysis is required for the project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents incorporated herein by reference demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. Nevertheless, in the interest of providing a detailed good faith response, the City also notes that:

State law does not provide a specific method for calculating and documenting project demand assumptions. Indeed, as described by the Department of Water Resources Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001, SB 610 "emphasizes local control and decision-making." (Guidebook, page 23, available at http://www.owue.water.ca.gov/Guidebook.pdf as of June, 2008.)

Since the writing of the WSA, further explanation has been provided in subsequent WSAs to clarify why the City of Stockton uses a uniform water demand in estimating water demand. The language is as follows:

> *"The Project water demands are included in the 2005 Urban Water Management Plan (UWMP) water demand projections to 2015. Projected annual water supplies are included in the UWMP to 2030, and in the General Plan Update Water Supply Evaluation to 2035. . . . The weighted average of the urban water demand factor is equivalent to 1.6 AF per acre/year (85,330 AF/year / (82,064 acres within Urban Services Boundary - 27,585 acres of Ag within Urban Services Boundary) = 1.6 AF per acre/year). This factor will be applied to the gross acreage of the Project for estimating water demands. It should be noted that this method of demand calculation is used given that some projects requiring a WSA only have a change from native or agriculture to urban with no defined land use categories (e.g., COS annexation with undetermined land use) or the acreages of the land use categories are still in flux at the time of request. As mentioned previously, if a project warrants a specific demand calculation by having an intensive water use (i.e., large regional parks, recreational lakes, etc), then this method may be abandoned. In cases where land uses are provided, a check is made to see if the calculated water demand falls close to the 1.6 AF/acre/year (City of Stockton Municipal Utility Department [COSMUD], 2006)."*

In other words, the City of Stockton uses the urban water demand factor of 1.6 AF/ac/yr, which is calculated based on weighted average urban water demand, unless a project warrants a specific demand calculation by having an intensive water uses (i.e., large regional parks, recreational lakes, etc.), in which case an alternative method is used. In this case, because the proposed Project does not include any intensive water uses the demand factor of 1.6 is appropriate. Notably, as shown in Table 1 of the Water Supply Assessment, based on water demand demonstrated under the previous General Plan, average water demand of commercial uses within the City of Stockton is 1.5. Therefore, the use of a 1.6 unit demand factor provides a conservative estimate of Project water demand. Thus, actual water demand is likely to be less than the conservative estimate of 70.6 AF/yr for the revised project. The conclusions of the WSA regarding the sufficiency of available water supplies to meet water demand associated with the proposed Project remain valid.

See also Master Response #3.

Response to Comment 31-44:

Commenter states that the WSA states that the surface water supplies associated with the City of Stockton Metropolitan Area (COSMA) conjunctive use program fall into three categories; however, the WSA fails to describe the extent to which the project will be able to rely on any or all of these supplies.

As explained in Master Response # 3, the City relies on Public Resources Code section 21083.3 and its parallel CEQA Guidelines provision, section 15183, in responding to this comment. Pursuant to those provisions, no further water supply analysis beyond that contained in the 2035 General Plan Update EIR is required for the Weston Ranch Towne Center Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents incorporated herein by reference demonstrates that sufficient supply is available to meet

long-term demand as required by General Plan Policy PFS-2.13. Nevertheless, the City responds to the specific comment raised as follows.

The City of Stockton Metropolitan Area's water system is a conjunctive use water system that depends on varying amounts of each source based on hydrologic and physical constraints in any given year. This means that the water system will maximize the use of surface water when it is available and purposefully reduce groundwater extractions to minimum operational needs; thereby allowing the groundwater basin to recover to above pre-existing conditions. In dry years and dry months, the City of Stockton Metropolitan Area's groundwater extractions will increase to compensate for the reduced availability of surface water but will not extract beyond certain managed thresholds so as to avoid local and regional impacts such as degradation of water quality and/or drying up of wells.

As with all water supply assessments within the City of Stockton Metropolitan Area, including the Water Supply Evaluation prepared for the 2035 General Plan Update, the modeling used to make a determination of water supply deficiency evaluates the differing uses of each water supply source over a 70-year historical hydrologic period to insure that adequate surface water supplies are available to meet the long term goals of groundwater management within the City of Stockton Metropolitan Area. No one single source can be considered solely for use to meet the demands of this Project; rather, the current conjunctive use program and proposed enhancements are sufficient to meet the Project's current, near-term and long-term water demands as required by the State Water Code.

The City of Stockton Metropolitan Area currently has all of the regulatory and contractual approvals necessary to deliver water to the Project; and as such the project does not require any new water supply sources. As noted in Master Response # 3, the Water Supply Assessment did not consider water from the Delta Water Supply Project as a source of Project water.

See also Master Response #3 and Response to Comment 31-43.

Response to Comment 31-45:

Commenter states that Figure 9 of the WSA shows that this project and all future projects will rely solely on groundwater. Commenter asks how increased groundwater demand will affect residential groundwater wells in surrounding areas and how the City will ensure that groundwater wells of surrounding residents are not compromised in dry year conditions when groundwater pumping is projected to increase.

As explained in Master Response # 3, the City relies on Public Resources Code section 21083.3 and its parallel CEQA Guidelines provision, section 15183, in responding to this comment. The 2035 General Plan Update EIR concluded that with implementation of General Plan policies PFS-2.13, PFS-2.2, PFS-2.8, PFS-2.11 and Implementation Measure # 21, buildout-of the General Plan (including commercial uses for the Project site) would have a less than significant impact on groundwater in the short term and, in fact, a beneficial impact in the long term because implementation of the Policies included in the General Plan Update, along with implementation

of the Delta Water Supply Project will reduce the City of Stockton Metropolitan Area's dependence on groundwater. (2035 General Update EIR, pp. 9-14 through 9-17.) Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents incorporated herein by reference demonstrates that a sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. Pursuant to Public Resources Code section 21083.3 and CEQA Guidelines section 15183 no further water supply analysis is required for the Weston Ranch Towne Center Project. There are no water supply effects that are peculiar to the parcel or to the project which were not addressed as significant in the prior General Plan EIR, or which substantial new information shows will be more significant than previously described.

The City provides the additional following response to Comment 31-45.

Figure 9 of the Water Supply Assessment does not show that water demands will be met solely with groundwater supplies. Rather, Figure 9 shows that demands can be met with surface and groundwater supplies for the next 20 years, without exceeding the sustainable yield of the groundwater basin. (WSA p. 23.) The reason why groundwater is shown to increase is an artifact of how the City of Stockton Metropolitan Area conservatively views groundwater; that is, groundwater only becomes available for urban use once the entitlements are granted. Otherwise, the City of Stockton Metropolitan Area could simply start at full build-out of the General Plan using 0.75 factor for the gross developed acreage (i.e., existing and proposed).

As described in the City of Stockton General Plan EIR and Water Supply Evaluation, the Water Supply Assessment for the Weston Ranch Towne Center Project, the Draft EIR for the Project and Response to Comment 31-46, in terms of overall water balance, the City of Stockton Metropolitan Area's water system is and will continue to be operated in a conjunctive use manner. As described in the 2035 General Update EIR:

> [Conjunctive use] means that the water system will maximize the use of surface water when it is available and purposefully reduce groundwater extractions to minimum operational needs; thereby allowing the groundwater basin to recover to above pre-existing conditions. This result is achieved through active recharge projects, such as recharge basins or injection wells, and through in-lieu recharge (i.e., allowing natural recharge from deep percolation, streams, and river beds, and subsurface inflow) which is to simply allow nature to recharge the groundwater basis as it has always done but with reduced groundwater extractions. In dry years and dry months, [the City of Stockton Municipal Utilities Department's] groundwater extractions will increase to compensate for the reduced availability of surface water but will not extract beyond certain managed thresholds so as to avoid local and regional impacts such as wells going dry and degradation of water quality.

Through detailed technical studies, which are available for review at the City of Stockton Department of Municipal Utilities, the sustainable yield of the groundwater basin was identified based on actual measured data and through the use of existing groundwater models of the entire San Joaquin County

groundwater basin and beyond to the basin's natural recharge and boundary conditions. The study provides sufficient evidence that the basin underlying the City of Stockton Metropolitan Area is no longer critically overdrafted and has recovered and stabilized over the past 15 years. A large part of this stabilization is due to the successful programs implemented by Stockton East Water District and funded through its urban contractors within the City of Stockton Metropolitan Area. The sustainable groundwater yield is based on three criteria:

1. No increase in the groundwater gradient near the salinity front that may cause an increase in its movement.
2. No overall decrease in groundwater elevations of over 2 feet in the City of Stockton Metropolitan Area.
3. No decrease in groundwater elevations at the cone of depression located to the east of the City of Stockton Metropolitan Area.

In addition, although not a requirement for the Project, a major element of the City of Stockton Metropolitan Water Area's water supply program is the Delta Water Supply Project (DWSP). One of the three primary objectives of the Delta Water Supply Project is the protection and improved reliability of the City of Stockton Metropolitan Area's groundwater resources. The Delta Water Supply Project Feasibility Report includes the construction of wells and surface water treatment plant (WTP) capacity at both the Delta Water Supply Project and Stockton East Water District (SEWD) water treatment plants (Operational Scenario 2 of the DWSP Feasibility Report) and for both supplies to be operated conjunctively. The City of Stockton has been forthright in the Water Supply Assessment in stating that the Delta Water Supply Project cannot be deemed a reliable water supply until the environmental document has been certified [EIR was certified on November 8, 2005] and the necessary regulatory approvals have been granted [a State Water Resources Control Board Water Right Permit was issued on March 8, 2006]. The City of Stockton Metropolitan Area's time and monetary resources over the past three years and into the next five years will be in implementing its water supply master plan.

Until the Delta Water Supply Project is constructed and operational (planned for completion by 2009), the only reliable water supplies are from the Stockton East Water District and groundwater, both of which are described in the Water Supply Assessment prepared for the project and in the General Plan Update environmental review documents. In addition, there are other wholesale suppliers of water adjacent to the City of Stockton Metropolitan Area that its retail purveyors (City of Stockton (COS), California Water Service, and the San Joaquin County Maintenance Districts) will pursue and likely purchase interim water from over the next 5 years until the Delta Water Supply Project is operational. Conservatively, these assumptions were not made as part of the Water Supply Assessment prepared for the Project.

In wet years, the demand on groundwater will be less because of higher surface water productivity from the City of Stockton Metropolitan Area's wholesale provider of surface water. In the dry years, the City of Stockton Metropolitan Area will purchase available surface water supplies, to the extent that they are affordable and available. Surface water is the first priority over other supplies. The City of Stockton Metropolitan Utility District has consistently worked to achieve

affordable surface supplies to the extent they are available for treatment at the Stockton East Water District. Over the long term, the average groundwater yield will be the sustainable amount stated in the Water Supply Assessment. Additional groundwater usage associated with the project is not expected to result in any significant effect on groundwater elevations or water quality in privately owned wells in the region.

See also Master Response #3 and Response to Comment 31-43.

Response to Comment 31-46:

Commenter states that the City of Stockton Metropolitan Area (COSMA) has no other source of water apart from the Stockton East Water District's Second Amended Contract of 1987, and that COSMA should not rely upon the Delta Water Supply Project EIR as its basis for factual information. Use of interim supplies from Oakdale Irrigation District and South San Joaquin Irrigation District differs from the Delta Water Supply EIR.

As stated in Master Response # 3, the City relies on Public Resources Code section 21083.3 and its parallel CEQA Guidelines provision, section 15183, in responding to this comment. Pursuant to those provisions, no further water supply analysis beyond that contained in the 2035 General Plan Update EIR is required for the Weston Ranch Towne Center Project. The information provided in the Draft EIR, the Water Supply Assessment, as well as information contained in the General Plan environmental review documents (incorporated herein by reference), demonstrates, with substantial evidence, that sufficient water supply is available to meet long-term project demand. Although not required, the City provides the following specific response to this comment as follows.

The commenter is incorrect that the City of Stockton Metropolitan Area has no other source of water apart from the Stockton East Water District's Second Amended Contract of 1987. The 2035 General Plan Update EIR clarifies the City of Stockton Metropolitan Area's water sources as follows:

> The [City of Stockton Metropolitan Area] currently receives surface water supplies (via [Stockton East Water District]) from five sources as indicated in table 1. The Stockton East Water District provides surface water for both agricultural and urban areas. Over the years since its formation in 1948, the [Stockton East Water District] boundaries have grown to encompass the agricultural areas in the Eastern San Joaquin region and the urbanized areas of the City of Stockton as the boundaries change over time. For the purposes of the [Water Supply Evaluation], it is assumed that all areas inside the proposed updated General Plan area that lie outside the current boundaries of the [Stockton East Water District] will be conditioned to annex to [the Stockton East Water District] through the San Joaquin County Local Agency Formation Commission (LAFCO) thereby permitting the use of [Stockton East Water District] surface water entitlements by the City of Stockton water retail providers.
>
> Surface water suppliers from [the Stockton East Water District] can come from many sources in the eastern Sierra Nevada foothills. Total existing "firm" supplies

for municipal and industrial (M&I) uses are approximated to yield 104.17thousand acre feet (TAF)/year under wet and above average hydrologic conditions. Including interim supplies, the [City of Stockton Metropolitan Area] currently has 134.17 TAF/year. Its full entitlement in wet years (including interim and future supply sources) could yield as much as 180 TAF/year. As required by the State Water Code, the [Water Supply Evaluation] only considers existing "firm" surface water contracts or the 104.17 TAF/year.

Currently, [Stockton East Water District's] ability to use its available water right amount is constrained by one or more of the following factors in any given year: 1) the hydrologic year type (i.e., dry year curtailment provisions in surface water contracts and reductions in surface water contracted from other agencies), 2) the [City of Stockton Metropolitan Area municipal and industrial] water demand, 3) the raw water delivery system to the [Stockton East Water District water treatment plant], 4) the rated [Stockton East Water District water treatment plant] capacity, and 5) the treated water conveyance capacity from the [Water Treatment Plant].

Further clarification on the nature of the Calaveras County Water District (CACWD) and [Stockton East Utility] water contracts came in response to questions posed as part of the comments received on the draft EIR for the updated General Plan. A letter from the [Calaveras County Water District] noted that the [Water Supply Evaluation] incorrectly treated as "firm" for water supply planning purpose a certain 10,000 AF/year of New Hogan Reservoir water. [Citation.] The letter claimed, more specifically, that the [Water Supply Evaluation] erroneously treated [Calaveras County Water District] water contract entitlements as a firm source of water within the defined place of use as set forth in a United States Bureau of Reclamation contract with [the Stockton East Water District] and [Calaveras County Water District] for New Hogan Reservoir. The [Calaveras County Water District] comments also clarified the type of water right that was being addressed in the [Water Supply Assessment] and in previous water studies.

… [The City of Stockton Municipal Utilities Department's] prior understanding of the water right entitlements of the [Calaveras County Water District] was in error, as [the City of Stockton Municipal Utilities Department] believed there were two separate contracts: one with Reclamation, and the other a senior appropriative water right on the Calaveras River. [The City of Stockton Municipal Utilities Department] now understands that there is only one contract, that being the Reclamation contract, and that [Stockton East Water District] has full entitlements to its apportionment of same. The apportionment of the water under the Reclamation contract is based on [Stockton East Water District]getting 56.5 percent and [the Calaveras County Water District] getting 43.5 percent of the total 71,100 AF/year of Reclamation contract water (note: this water is not subject to [Central Valley Project] deficiencies in dry hydrologic years and the actual amount of water under the Reclamation contract provides 13,000 AF/yr of water

to meet prior riparian rights for agriculture on top of the 71,100 AF/year). With [the Calaveras County Water District's] comments, and the written clarification by both [the Calaveras County Water District] and [the Stockton East Water District] regarding the contract and use of any unused water entitlement, the definition and disposition of the [Calaveras County Water District] and [Stockton East Water District] contracts and water entitlements has been revised from what was originally described in previous water studies.

The question of whether the [City of Stockton Metropolitan Area] can claim unused [Calaveras County Water District] capacity as a firm water supply is addressed in the following quotation from [the Stockton East Water District's] response to [the Calaveras County Water District's] letter:

> *'There is no alternative use for the [Calaveras County Water District's] New Hogan supply other than future development within the New Hogan Place of Use within [the Calaveras County Water District]. The contract among the United States [Reclamation], [Stockton East Water District] and [Calaveras County Water District] expressly prohibits the use of New Hogan water outside of the boundaries of the two districts. Further, in Article 10 of the [Stockton East Water District-Calaveras County Water District contract], [Calaveras County Water District] expressly agreed that no water from the New Hogan Project shall be used by it or through it by a third party beyond the [Place of Use] boundaries.'*

Consequently, it is a viable conclusion that if projected growth within Calaveras County does not require [the Calaveras County Water District's] full water entitlements, any unused [Calaveras County Water District] water entitlements will be are available to [Stockton East Water District] pursuant to the New Hogan agreements. For the purposes of this [Water Supply Evaluation] the assumption assumes that a minimum of 10,000 AF/year of excess [Calaveras County Water District] water entitlement appears to exist and will be available to transfer to [the Stockton East Water District] for wholesale delivery to the urbanized lands within the City of Stockton. Currently, up to 24,000 AF/year of excess [Calaveras County Water District] water entitlements is being used by [the Stockton East Water District] that will gradually be reduce[ed] to 10,000 AF/year over time as demands for Calaveras County water use (in accordance with the current Calaveras County General Plan) grow. Additional [Calaveras County Water District] water demands that may result as a consequences of an updated Calaveras County General Plan could have implications on the amount of available water; however, until an updated general plan is adopted by the County of Calaveras, the above assumption will be used.

[The Stockton East Water District] is also a United States Bureau of Reclamation Central Valley Project (CVP) contractor and has a contract on the Stanislaus River

(New Melones Reservoir). Contract documents, agreements, and applications for these surface water supplies are available for review in Exhibit "D" of the [Water Supply Evaluation] A full description of each contract is provided below.

Calaveras River Contracts

The United States Bureau of Reclamation contract for water stored in New Hogan Reservoir is a repayment contract that provides a firm supply of water in all hydrologic year types. The amount available for [municipal and industrial uses] is approximately 40.171 TAF/year. The reliability of the unused portion of the [Calaveras County Water District] contract is also firm; however, as development continues in Calaveras County, less of the [Calaveras County Water District] water will be available to [the Stockton East Water District] and its customers. [The Calaveras County Water District's] unused allocation currently yields 24 TAF/year but will diminish over time to an amount approximating 10 TAF/year (i.e., the 10 TAF/year is believed to be consistent with the contract and with the best available information on growth in Calaveras County).

TABLE 3-6
CURRENT SEWD WATER SOURCES AND CRITICAL YEAR AVAILABILITY

Source	Annual Contract Amount Thousand Acre-feet (TAF)	Projected "Critical Year" Annual Availability (AF/year) Planning Year 2000	2010	2020	2035
Current and Future "Firm" Sources of Supply					
Reclamation – New Hogan Water Supplies, SEWD entitlement	Total Yield 84.1 TAF[1] SEWD Entitled to M&I or Ag **40.171 TAF**	20,000	12,000	12,000	12,000
Reclamation – New Hogan Water Supplies, CACWD unused entitlement[2]	CACWD Entitled to 30.928 TAF and are currently using approximately 3 TAF with SEWD using slightly over 24.0 TAF of CACWD's unused portion. This amount is projected to decrease to 10 TAF at buildout of the General Plans of both Calaveras County and the City of Stockton	24,000	24,000	10,000	10,000
Reclamation – New Melones Interim Water Contract And Section 215 "Spill" Water	Total Contract 75 TAF (M&I) **40 TAF**	Not Available in Dry Years			
SSJID Transfer – Stanislaus Water	(Interim M&I **15 TAF**)	4,000	4,000	0	0
OID Transfer – Stanislaus River (includes contract renewal to 2025)	(Interim M&I **15 TAF**)	4,000	4,000	4,000	0
Total	**(Firm M&I 104.1 TAF initially to 94.1 TAF at build-out) (Approximate Max Future M&I 180 TAF)**	**48,000**	**30,000**	**26,000**	**22,000**

Notes
1. SEWD has a right to 56.5 percent of the yield, and CACWD has rights to the remaining 43.5 percent. The estimated New Hogan yield of 84,100 ac-ft is further reduced by 13,000 ac-ft annually for prior riparian rights. CACWD currently uses approximately 3,500 ac-ft of its allocation.
2. Based on an agreement between CACWD and SEWD, SEWD currently has use of the unused portion of CACWD';s appropriative water rights, and this yielded approximately 28 TAF to SEWD in 2005 and is expected to be reduced to 23 TAF by 2025.
(Stockton General Plan 2035 Final EIR, pp. 3-15 through 3-18.)

It is important to note that the water supply portfolio of the City of Stockton Metropolitan Area changes over time, which may result in minor discrepancies only because better data becomes available. This is the case with the Oakdale Irrigation District (OID)/South San Joaquin Irrigation District (SSJID) contracts and their forecasted termination. Regardless, the Water Supply Assessment conservatively assumes that both contracts will not be available beyond 2025.

Response to Comment 31-47:

Commenter states that claimed water supplies need to be identified and quantified and the amount of water conservation needs to be specifically quantified and measured over times. Commenter asks what is the reason for mentioning speculative water supplies.

Given the nature of a conjunctive use water system, the molecule of water that the project receives in any given year will change. The Water Supply Assessment can only illustrate that the current conjunctive program and groundwater management strategy will provide sufficient water supplies. For this reason it is not necessary to identify and quantify specific water supplies. The mention of other water supplies not used in the Water Supply Assessment is merely to point out that other water supplies do exist in the area that could be accounted for, but for conservative purposes, the Water Supply Assessment does not include those supplies in its water supply sufficiency evaluation.

The City, as explained above, also relies on Public Resources Code section 21083.3 and its parallel CEQA Guidelines provision, section 15183, in responding to this comment. Pursuant to those provisions, no further water supply analysis is required for the Weston Ranch Towne Center Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents incorporated herein by reference demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13.

See also Master Response #3 and Response to Comment 31-43.

Response to Comment 31-48:

Commenter states that current and historical groundwater pumping rates exceed the sustainable yield of the underlying groundwater basin on an average annual basis. Commenter also asks what cumulative impacts the project will have given the growth the City of Stockton has predicted in the 2035 General Plan Update, as well as the foreseeable growth the other cities overlying the same groundwater basin have predicted for themselves.

As explained in Master Response # 3, the City relies on Public Resources Code section 21083.3 and its parallel CEQA Guidelines provision, section 15183, in responding to this comment. The City also incorporates by reference the 2035 General Plan Update EIR which concluded that with implementation of General Plan policies PFS-2.13, PFS-2.2, PFS-2.8, PFS-2.11 and Implementation Measure # 21, buildout-of the General Plan (including commercial uses for the Project site) would have a less than significant impact on groundwater in the short term and, in fact, a beneficial impact in the long term. (2035 General Update EIR, pp. 9-14 through 9-17.) (CEQA Guidelines, § 15150.) Pursuant to Public Resources Code section 21083.3 and CEQA Guidelines section 15183, no further water supply analysis is required for the Weston Ranch Towne Center Project.

Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents incorporated herein by reference demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. Although not required, to provide maximum information, the City provides the following specific response.

As described in the Draft EIR for the Weston Ranch Towne Center project, the City of Stockton is located in the San Joaquin River Hydrologic Region, which covers approximately 15,200 square miles, contains two entire groundwater basins and part of the San Joaquin Valley Groundwater Basin. The San Joaquin Valley Groundwater Basin is divided into nine subbasins in the Jan Joaquin River Hydrologic Region. The Weston Ranch Towne Center Project would occur within the area defined by the Eastern San Joaquin Subbasin.

The 2035 General Plan Update EIR provides further relevant information regarding the Central Valley aquifer system. Specifically, and pursuant to CEQA Guidelines 15150, the background report describes existing groundwater supply as summarized:

> Groundwater pumped from the basin underlying the [City of Stockton Municipal Area] and the San Joaquin County is part of the contiguous Central Valley aquifer system. The thickness of the alluvial aquifer ranges from around 100 feet on the eastern end of the county to over 3,000 feet on the southwestern end; the thickness underlying the Stockton area is approximately 1,000 feet. Over the last 20 to 30 years, pumping for municipal and industrial uses in eastern San Joaquin County has exceeded the basis's sustainable yield and caused groundwater elevations to decline by 40 to 60 feet. The decline in groundwater elevations has created a cone of depression, allowing saltwater from the Delta region to intrude into the basin underlying the western portion of the [City of Stockton Metropolitan Area], diminishing groundwater quality. The saltwater intrusion generally travels in an easterly direction across the [City of Stockton Metropolitan Area]. Figure 9-15 [of the 2035 General Plan Update Background Report] illustrates this cone of depression and the location of the saltwater intrusion front.

(2035 General Plan Update, Background Report, p. 9-44.)

As referenced by the commenter, Department of Water Resources (DWR) Bulletin 118-80 "Ground water Basins in California" identified the Eastern San Joaquin Basin as being in critical condition of overdraft. (DWR – Bulletin 118, 2003 Update p. 98.) According to DWR, "[a] basin is subject to critical conditions of overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." (*Ibid*.) Importantly, the conditions of the basins identified by Bulletin 118-80 as critically overdrafted have not been re-evaluated since Bulletin 118-80 was published in 1980. (*Ibid*.) As such, DWR's 2003 Update to Bulletin 118 cautions:

> "[p]ersons interested in collecting groundwater information in accordance with the Water Code as amended by SB 221 and SB 610 may start with the information in

> Bulletin 118, but should follow by consulting the references listed for each basin and contacting local water agencies to obtain any new information that is available. Otherwise, evaluation of available groundwater resources as mandated by SB 221 and SB 610 may not be using the most complete and recent information about water budgets and aquifer characteristics."

(DWR Bulletin 118 Update, 2003, p. 146.)

In the years since DWR's Bulletin 118 identified the Eastern San Joaquin County Basin as overdrafted, the City of Stockton has made a concerted effort to stabilize and promote recovery of the basin. As explained in the Water Supply Evaluation prepared for the 2035 General Plan Update (and as also explained in Weston Ranch Towne Center project Water Supply Assessment), the City of Stockton Metropolitan Area has focused concerted attention on the availability of existing surface water supplies from the Stockton East Water District and the need to manage groundwater resources at a sustainable yield. Indeed, the City of Stockton Metropolitan Area has been instrumental through its voluntary participation in funding the existing conjunctive use program for the portion of the basin underlying the Stockton metropolitan area. Groundwater elevations have stabilized and no significant declines have been recorded since the late 1980s. (2035 General Plan Update, Water Supply Evaluation, p. 35.) In addition to its historical contributions, the City of Stockton Metropolitan Area's long-term plan for preventing overdraft of the groundwater basin are embedded in the objectives of the proposed future Delta Water Supply Project to ensure systematic, incremental implementation of the on-going conjunctive use program and to provide a benefit to the groundwater basin. This benefit extends beyond the political boundaries of the City of Stockton. (*Ibid*.)

The San Joaquin groundwater basin is not unlike many groundwater sub-basins in the Central Valley where, through the 1950's and 1970's agricultural demands on groundwater created a state of unbalance where natural recharge was not keeping up with the amount of groundwater extraction. As a result, groundwater levels declined and cones of depressions occurred in almost every sub-basin (note: a sub-basin is typically delineated by its recharge sources that are typically the major rivers). Over time, however, the amount of recharge from the hydraulically connected rivers increased until recharge once again sustained the amount of extraction. Even with a cone-of-depression, a groundwater basin can be in equilibrium and not in a state of overdraft.

Regarding cumulative impacts, the City of Stockton 2035 General Plan Update EIR concluded that buildout of the General Plan would not result in a significant cumulative impact associated with water supplies, including groundwater with implementation of General Plan Policy PFS-2.13, which requires the City or project applicant to demonstrate the availability of a long-term, reliable water supply from a public water system for the proposed development. (2035 General Plan Update EIR, pp. 15-19 through 15-20.) As required by General Plan Policy, PFS-2.13, the Draft EIR for the proposed Project and the Water Supply Assessment provide substantial evidence that sufficient water supply will be available to meet current, near-term and long-term project water demand.

With respect to the Water Supply Assessment's analysis of cumulative impacts, "per the requirements of SB 610, cumulative effects (future water demand) are inherent in the water supply assessment."

(Draft EIR p. 6-19.) The WSA analyzes other (proposed) projects for which WSA's have been prepared together with the proposed Weston Ranch Towne Center Project. Such projects include Cannery Park, Paradise (a.k.a. Westlake) Villages, Origone Ranch, North Stockton Phase III, Bear Creek West Specific Plan and Bear Creek East Specific Plan. As described in the Water Supply Assessment and shown in Water Supply Assessment Figure 9, projected cumulative water demands associated with development of these proposed projects would not exceed the groundwater sustainable yield of 39,082 AF/year.

See also response to 31-45 and Master Response # 3.

Response to Comment 31-49:

Commenter asks how the Water Supply Assessment asserts that groundwater extraction has been sustainable, when the DEIR states that the groundwater is, and has been, in a steady state of overdraft, leading to saline intrusion from the west.

As explained in Master Response # 3, the City relies on Public Resources Code section 21083.3 and its parallel CEQA Guidelines provision, section 15183, in responding to this comment. The 2035 General Plan Update EIR concluded that with implementation of General Plan policies PFS-2.13, PFS-2.2, PFS-2.8, PFS-2.11 and Implementation Measure # 21, buildout-of the General Plan (including commercial uses for the Project site) would have a less than significant impact on groundwater in the short term and, in fact, a beneficial impact in the long term. (2035 General Update EIR, pp. 9-14 through 9-17.) Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents incorporated herein by reference demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. Pursuant to Public Resources Code section 21083.3 and CEQA Guidelines section 15183, no further water supply analysis is required for the Weston Ranch Towne Center Project. Nevertheless, the following specific response is provided.

The Draft EIR setting section describes the historic situation of the groundwater basin. The Groundwater Management Plan and Water Supply Assessment, by contrast, seek to identify the current equilibrium and the sustainable yield that would maintain that equilibrium. Current pumping rates do not exceed the estimated sustainable yield, as evidenced by individual studies.

Individual studies completed to address the commenter's concern and are available for review at City of Stockton Municipal Utilities Department (COSMUD) offices. For instance, the studies prepared in connection with the Delta Water Supply Project address reducing reliance on groundwater. In addition, there are on-going studies that are taking place currently to investigate salinity intrusion and source identification with the cooperation of the United States Geological Survey and the State Department of Water Resources along with local partners including COSMUD. The current state of the aquifer has been described in the San Joaquin Groundwater Management Plan and through extensive monitoring and modeling completed by COSMUD and the Army Corps of Engineers for the Farmington Recharge Project in partnership with the Stockton East Water District. Monitoring results indicate that the aquifer is in a state of equilibrium (i.e., natural recharge is equal to extractions) based on groundwater elevation hydrographs that illustrate that fluctuations

in groundwater elevation are from increased pumping in irrigation months and in-lieu recharge in the winter (or non-irrigation) months. The consecutive normal to above normal year hydrology of the previous ten years indicates a consistent rise in groundwater elevations and not a decline that would indicate an overdraft condition.

The City of Stockton Metropolitan Area has consistently described its continued use of the aquifer in a very conservative manner as described in the many published documents and in the response to comment 31-45 above. Furthermore, the City of Stockton Municipal Utilities District has and will continue endeavors to maintain groundwater extractions within the sustainable yield of the aquifer underlying the Stockton metropolitan area and support regional programs outside the Stockton metropolitan area. The recovery and stabilization of the aquifer underlying the City of Stockton Metropolitan Area over the past 10 years has shown this to be the case. That is not to say that agricultural areas to the east of the Stockton Metropolitan Area are not overtaxing the basin and affecting the overall performance of the regional groundwater basin underlying other portions of San Joaquin County. Stockton East Water District, City of Stockton Metropolitan Area, and agricultural users should continue to seek opportunities and partnerships in these areas, and allow the Stockton Metropolitan Area to continue to manage its portion of the groundwater basin within their existing partnership with Stockton East Water District. This will result in an optimization of San Joaquin County's total water resources without impacting overall groundwater quality or quantity in the City of Stockton Metropolitan Area and surrounding areas.

See also Master Response #3 and Response to Comment 31-43.

Response to Comment 31-50:

Commenter states that the DEIR includes information on groundwater overdraft that should belong in the Water Supply Assessment pursuant to subsection (f)(2) of section 10910 of the Water Code.

Please see Master Response # 3. A Water Supply Assessment is no longer required for the Project. Therefore, to the extent, if any, required information may be missing from the Water Supply Assessment, the commenter's concern would be moot.

Please also see response to comment 31-48 and 31-49. The reference to overdraft in the DEIR is relevant for historical context but is not an accurate depiction looking into the future with the Delta Water Supply Project planned for operation by 2010.

Response to Comment 31-51:

Commenter states that the Water Supply Assessment does not provide sufficient details of the COSMA's long-term plan or objective of the proposed Delta Water Supply Project.

As set forth in Master Response # 3, the City relies on Public Resources Code section 21083.3 and its parallel CEQA Guidelines provision, section 15183, in responding to this comment. Pursuant to those provisions, no further water supply evaluation is required for the proposed Project. The Draft EIR for the proposed Project, the Water Supply Assessment for the proposed Project and the General Plan Update environmental review materials incorporated herein by reference provide

the required substantial evidence of a long-term reliable water supply from a public water system for the proposed Project. Nevertheless, the following response is provided.

This comment is noted. Because the Water Supply Assessment could not rely on the Delta Water Supply Project (DWSP), in-depth detail was not provided that included the Delta Water Supply Project as a source of water and means of groundwater management. Given the progress of the Delta Water Supply Project to date, the Water Supply Assessment certainly could be updated to include the Delta Water Supply Project as a planned future water supply for purposes of reducing groundwater extractions. However, because of the responses above, there is insufficient justification when urban uses may ultimately result in less groundwater extractions than what currently exist with agriculture taken out of production by urbanization or through Stockton East Water District surface water projects that reduce agriculture's reliance on groundwater. The long-term plan for groundwater management is in the City Council adopted Delta Water Supply Project Feasibility Report. Implementation in terms of agreements and financing are either completed or are in-progress in accordance with the Feasibility Report, a publicly available document on the City of Stockton (COS) web site.

See also Master Response #3 and Response to Comment 31-43.

Response to Comment 31-52:

Commenter states that the City has sought a Delta Water Supply for nearly a decade and the project has not come to fruition.

Please see Master Response # 3. Pursuant to Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, no further water supply evaluation is required. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. Although not required, the following specific response is provided.

As mentioned in previous responses the Delta Water Supply Project should not be evaluated as part of this Water Supply Assessment. Reference to the Adopted Delta Water Supply Project Feasibility report is made only to assist in understanding the overall master plan of the City of Stockton Metropolitan Area and the management of groundwater supplies. While City of Stockton Municipal Utilities Department is confident that the Delta Water Supply Project will be operational by 2010, the Project has been shown to meet the City of Stockton's criteria for groundwater sustainability without the Delta Water Supply Project and therefore should move forward regardless of the Delta Water Supply Project being operational.

See also Master Response #3 and Response to Comment 31-43.

Response to Comment 31-53:

Commenter states that the Water Supply Assessment fails to address Term 91.

As explained in Master Response # 3, pursuant to Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, no further water supply evaluation is required. Substantial

evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. Although not required, the following specific response is provided.

Term 91 is only relevant to the Delta Water Supply Project and then only to the Area-of-Origin water portion of the Delta Water Supply Project and not the Water Code Section 1485 portion of the Delta Water Supply Project's water supply that has already been granted by the State Water Resources Control Board. No further response is necessary.

See also Response to Comment 31-43.

Response to Comment 31-54:

Commenter asks how the General Plan Update would change the land uses in the WSA tables.

Please see Master Response # 3. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. Pursuant to those sections, no further water supply evaluation is required for the Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. Although not required, the following specific response is provided.

The Water Supply Evaluation prepared for the General Plan Update takes into account proposed land uses for the Project site. This Project is included in the land uses for the 2035 General Plan and is accounted for in that way in the Water Supply Evaluation. As explained in Master Response # 3, the Water Supply Evaluation is incorporated into this EIR by reference. (CEQA Guidelines, § 15150.) The commenter is encouraged to review the Water Supply Evaluation for further information.

See also Master Response #3 and Response to Comment 31-43.

Response to Comment 31-55:

Commenter states that the Water Supply Assessment specifically states the projected water demand associated with the proposed project was not accounted for in the most recently adopted Urban Water Management Plan (UWMP).

Please see Master Response # 3. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. Pursuant to those sections, no further water supply evaluation is required for the Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. The proposed Project was accounted for in the General Plan Update EIR and supporting WSE. While this project was no specifically identified in the last UWMP, adequate supply is demonstrated in the WSA prepared for the project.

See also Response to Comment 31-43.

Response to Comment 31-56:

Commenter states that the Water Supply Assessment fails to provide the 20 year analysis and does not include the public water system's existing and planned future uses, including agriculture and manufacturing uses.

Please see Master Response # 3. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. Pursuant to those sections, no further water supply evaluation is required for the Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13.

Further, as explained in Master Response # 3, because of the reduced project size, state law no longer requires a Water Supply Assessment for the proposed Project. Therefore, to the extent, if any, that the Water Supply Assessment fails to comply with the requirements of section 10910(c)(3) of the Water Code, that point would be moot.

Although not required, the City provides the following response.

The Water Supply Assessment looks at existing, reasonably foreseeable, and Project water demands and applies 2025 water supply conditions. This approach meets the requirements of the State Water Code, despite the fact that a Water Supply Assessment is not required for the Project. Agricultural and open space uses were not included because the public water system would not be required to serve these uses in the long-term. Use of non-potable water supplies from other sources and jurisdictions will be used. True Open Space is assumed to have no applied irrigation whether from non-potable or potable sources.

See also Response to Comment 31-43.

Response to Comment 31-57:

Commenter states that the City's over-reliance on groundwater supplies for existing and future uses place existing wells at risk of becoming contaminated with salt water. Commenter further states that full reliance on groundwater to support the project will seriously affect the quality of groundwater.

Please see Master Response # 3. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. Pursuant to those sections, no further water supply evaluation is required for the Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. The General Plan Update EIR concluded that that with implementation of General Plan policies PFS-2.13, PFS-2.2, PFS-2.8, PFS-2.11 and Implementation Measure # 21, buildout-of the General Plan (including commercial uses for the Project site) would have a less than significant impact on groundwater in the short term and, in fact, a beneficial impact in the

long term. (2035 General Update EIR, pp. 9-14 through 9-17.) Although not required, the following response is also provided.

See response to comment 31-49. While groundwater is shown to increase as a result of this project, it is only an artifact of the methodology of calculating sustainable yield and should not be directly attributed to the increased water demands from the Project. The Project will likely receive a mix of surface water and groundwater over time. A good example is in the winter months when the system can operate almost wholly on surface water. This will still occur with the Project water demands. It will only be until the Stockton East Water District water treatment plant capacity is maximized in the winter when groundwater is safely relied on more and more. Therefore, the project will not fully rely on groundwater, nor will it place existing wells at risk.

See response to comment 31-49 for issues pertaining to managing the basin for prevention of increased salinity intrusion. See also Response to Comment 31-43.

Response to Comment 31-58:

Commenter asks if the South area is now being served by surface water through the South Stockton Aqueduct (a pipeline from the SEWD WTP to COSMUD's south service area including the Project), how will the north area be affected? Commenter further asks about the effect of the new Arsenic regulations.

See Master Response # 3. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. Pursuant to those sections, no further water supply evaluation is required for the Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. The General Plan Update EIR concluded that that with implementation of General Plan policies PFS-2.13, PFS-2.2, PFS-2.8, PFS-2.11 and Implementation Measure # 21, buildout-of the General Plan (including commercial uses for the Project site) would have a less than significant impact on groundwater in the short term and, in fact, a beneficial impact in the long term. (2035 General Update EIR, pp. 9-14 through 9-17.) Although not required, the following response is also provided.

See response to comment 31-49 for issues pertaining to managing the basin for prevention of increased salinity intrusion.

The north service area will rely on groundwater more in the summer months but models have been run and results are available that show that if groundwater extractions are going to increase for a short term period (i.e., dry years and irrigation months), more groundwater can be safely extracted in the north service area than the south service area. This minimizes the salinity intrusion, the decline in groundwater elevation under the City of Stockton Metropolitan Area and at the cone of depression to the east.

Arsenic is a Department of Health Services Permit issue that the City of Stockton Municipal Utilities District needs to comply with regardless of the Project. Existing customers will be just as affected by the ruling as new growth.

See also Master Response #3 and Response to Comment 31-43.

Response to Comment 31-59:

Commenter states that the Water Supply Assessment must explain how the sustainable yield of groundwater can be derived.

As described in Master Response # 3, the City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. Pursuant to those sections, no further water supply evaluation is required for the Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. The General Plan Update EIR concluded that that with implementation of General Plan policies PFS-2.13, PFS-2.2, PFS-2.8, PFS-2.11 and Implementation Measure # 21, buildout-of the General Plan (including commercial uses for the Project site) would have a less than significant impact on groundwater in the short term and, in fact, a beneficial impact in the long term. (2035 General Update EIR, pp. 9-14 through 9-17.) Although not required, the following response is also provided.

See response to comment 31-49. The City of Stockton Metropolitan Area's methodology for calculating sustainable yield is based on developed acreage. As development occurs the developed acreage increases and so does the sustainable yield. This methodology, if implemented consistently, is effective in managing the groundwater basin and recognizes that existing agricultural uses within the rural area will continue to extract groundwater until development occurs when urban groundwater management practices reduce the extraction considerably from prior uses. The Water Supply Assessment includes a calculation of sustainable yield based on existing uses, including agricultural and industrial uses, reasonably foreseeable future uses, and project acreages that are either existing, under development, or proposed for development, thereby using conservative assumptions.

See also Response to Comment 31-43.

Response to Comment 31-60:

Commenter questions the Water Supply Assessment's conclusions regarding sustainable yield of groundwater and urban development.

Please refer to Master Response # 3. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. Pursuant to those sections, no further water supply evaluation is required for the Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. The General Plan Update EIR concluded that that with implementation of

General Plan policies PFS-2.13, PFS-2.2, PFS-2.8, PFS-2.11 and Implementation Measure # 21, buildout-of the General Plan (including commercial uses for the Project site) would have a less than significant impact on groundwater in the short term and, in fact, a beneficial impact in the long term. (2035 General Update EIR, pp. 9-14 through 9-17.) Nevertheless, the City provides the following response.

As explained in the Water Supply Evaluation for the 2035 General Plan Update and the related study of agricultural credits (see Appendix F of the Water Supply Evaluation), the use of groundwater for municipal purposes in areas that have historically used groundwater for irrigation activities can result in a significant decrease in groundwater pumping.

See also Response to Comment 31-43 and Response to Comment 59.

Response to Comment 31-61:

Commenter states that the Water Supply Assessment allows for an increase in groundwater extractions in the north service area to 0.92 AF/ac/year whereas the Delta Water Supply Project Feasibility Report states a goal of 0.60 AF/ac/year.

See Master Response # 3. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. Pursuant to those sections, no further water supply evaluation is required for the Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. The General Plan Update EIR concluded that that with implementation of General Plan policies PFS-2.13, PFS-2.2, PFS-2.8, PFS-2.11 and Implementation Measure # 21, buildout-of the General Plan (including commercial uses for the Project site) would have a less than significant impact on groundwater in the short term and, in fact, a beneficial impact in the long term. (2035 General Update EIR, pp. 9-14 through 9-17.) Although not required, the City provides the following specific response.

The 0.92 AF/ac/year is based on a groundwater modeling study that looked at what maximum groundwater pumping could occur in the north service area and not impact the three criteria in comment 31-45. While this is not the goal, it is a safe sustainable yield that will not adversely impact the basin. More importantly, if the Delta Water Supply Project were never constructed, the basin can handle only up to this upper management limit. With the Delta Water Supply Project, the 0.60 AF/ac/year goal would be instituted.

See also Response to Comment 31-43.

Response to Comment 31-62:

Commenter states that the Water Supply Assessment relies on “naturally induced” recharge to make up for any increases in pumping.

Please see Master Response # 3. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. Pursuant to those sections, no

further water supply evaluation is required for the Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. The General Plan Update EIR concluded that that with implementation of General Plan policies PFS-2.13, PFS-2.2, PFS-2.8, PFS-2.11 and Implementation Measure # 21, buildout-of the General Plan (including commercial uses for the Project site) would have a less than significant impact on groundwater in the short term and, in fact, a beneficial impact in the long term. (2035 General Update EIR, pp. 9-14 through 9-17.) Although not required, the City provides the following specific response.

Naturally induced recharge is often referred to as a form of in-lieu recharge. If the groundwater basin were left to its own physical movement the steeper the gradient (or slope) of the groundwater "table", the more water will be depleted from the major rivers and streams that are hydraulically connected. Those rivers that are not hydraulically connected essentially are at their maximum rate of recharge and will not increase with a steeper gradient. City of Stockton Municipal Utilities District's goal is not to steepen the gradients but rather to reduce the gradient to slow the movement of the salinity front. The loss of water from the rivers in this manner is "naturally induced recharge" or recharge that would not have occurred unless groundwater levels were lower. In some groundwater basins, this can be used effectively to manage the basin to sustainable levels. In basins where the hydraulic connection has been lost with the rivers, measures are being taken to reestablish the connection. No specific recharge projects are included in the Water Supply Assessment; however, this is not to say that the City of Stockton Metropolitan Area (COSMA) will not be looking for opportunities and grant funding to implement recharge technologies such recharge basins and direct injection. There are significant regulatory hurdles that have to be overcome before the COSMA can affirm this approach.

See also Master Response #3 and Response to Comment 31-43.

Response to Comment 31-63:

Commenter states that the 0.92 AF/ac/year factor for groundwater is given in the north service area but no information is provided about other water supplies and how they will be available. Commenter further states that the Water Supply Assessment should not say the 0.92 AF/ac/year is available in the north service area and then go on to say that 0.75 AF/ac/year is available for the General Plan.

See Master Response # 3. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. Pursuant to those sections, no further water supply evaluation is required for the Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. The General Plan Update EIR concluded that that with implementation of General Plan policies PFS-2.13, PFS-2.2, PFS-2.8, PFS-2.11 and Implementation Measure # 21, buildout-of the General Plan (including commercial uses for the Project site) would have a less than significant impact on groundwater in the short term and, in fact, a beneficial impact in the

long term. (2035 General Update EIR, pp. 9-14 through 9-17.) Nevertheless, the City provides the following specific response.

The 0.92 factor is used only for a defined amount of acreage in the north service area. Once this acreage is met, any additional acreage is confined to the 0.75 factor. All areas outside the defined area are assumed 0.75 AF/ac/year. As mentioned in earlier responses to comments, a conjunctive use water system that relies on surface water in the wet years and wet months and groundwater in the dry years is by its very nature indistinguishable unless a single year is pulled out and examined. The Water Supply Assessment looks at the single dry and multiple dry years for a worst case and provides the amount of surface water and groundwater. The surface water supplies are indicated in Response to Comment 31-46.

See also Master Response #3 and Response to Comment 31-43.

Response to Comment 31-64:

Commenter asks if there is any difference between the Water Supply Assessment for the Project and the Water Supply Evaluation for the General Plan Update.

See Master Response # 3. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. Pursuant to those sections, no further water supply evaluation is required for the Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. The Water Supply Evaluation is incorporated into this EIR by reference. (See Master Response # 3, CEQA Guidelines, § 15150.) Although not required, the City provides the following specific response.

The Water Supply Evaluation prepared for the General Plan assumes commercial development of the Weston Ranch Towne Center project site and provides information on water supply and demand associated with build-out of the 2035 General Plan. Due to the decreased size of the Project, a Water Supply Assessment is no longer required for the Weston Ranch Towne Center project. The EIR, moreover, did not find any new or substantial increase in the water supply effects of the proposed project, as previously analyzed in the General Plan EIR. The Water Supply Assessment prepared for the larger project nevertheless provided further information on water supply and demand under existing, existing plus project, and existing plus project and foreseeable levels of urban development.

See also Response to Comment 31-43.

Response to Comment 31-65:

Commenter states that the Water Supply Assessment does not provide an explanation of how the City of Stockton Metropolitan Area will meet demand in dry years over the next 20 years.

Please see Master Response # 3. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. Pursuant to those sections, no

further water supply evaluation is required for the Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. The General Plan Update EIR concluded that adoption of the 2035 General Plan (including Policies PFS-2.2, PFS-2.8, PFS-2.11, PFS-2.13, and Implementation Measure # 21) would reduce impacts associated with supplying water to the City of Stockton Metropolitan Area and would ensure that development would not expand beyond available water supplies. (2035 General Plan Update EIR, pp. 9-12 through 9-14.)

See also Responses to Comment 31-43 and 31-46.

Response to Comment 31-66:

Commenter asks if supply is equal to demand, how can additional demand be met?

Please see Master Response # 3. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. Pursuant to those sections, no further water supply evaluation is required for the Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. Although not required, the City provides the following response:

The City of Stockton Municipal Utilities District made a conscious decision that 2003 represented a design year where water demands equated to the theoretical water demand of the customers and the output of the water system. Nowhere is it implied that growth in customers and in the water system would stop in 2003. As explained in the 2035 General Plan Update EIR and corresponding Water Supply Evaluation, additional surface water capacity and supplies will be acquired and new groundwater wells will be constructed to meet growing water demands over time.

See also Response to Comment 31-43.

Response to Comment 31-67:

Commenter states that the planning level studies referenced in the Water Supply Assessment should be included in the Water Supply Assessment.

Please see Master Response # 3. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. Pursuant to those sections, no further water supply evaluation is required for the Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. Although not required, the City provides the following response.

In most cases, the appropriate studies are included or have been adopted by the City of Stockton, such as the Delta Water Supply Project Feasibility Report and the Urban Water Management Plan. Groundwater studies can be found with the General Plan Update Water Supply Evaluation

(incorporated by reference herein) and documents at City of Stockton Municipal Utilities Department's offices.

See also Response to Comment 31-43.

Response to Comment 31-68:

Commenter states that water demand estimates must be based upon rationally derived actual estimates of water demand for the specific projects analyzed.

Please see Master Response # 3. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. Pursuant to those sections, no further water supply evaluation is required for the Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. Please see Response to Comment 31-43 regarding why a uniform demand factor is appropriate in estimating project water demand. See also Master Response # 3, providing updated estimate of project water demand for the revised Project.

Response to Comment 31-69:

Commenter asks why the more prolonged drought of the late 1980's was not used in the drought analysis of the Water Supply Assessment. The commenter also states that only the Second Amended Contract with Stockton East Water District of 1987 can be used in the analysis at page 24 of the Water Supply Assessment.

Please see Master Response # 3. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. Pursuant to those sections, no further water supply evaluation is required for the Project. Substantial evidence in the Draft EIR, the Water Supply Assessment and the General Plan Update environmental review documents demonstrates that sufficient supply is available to meet long-term demand as required by General Plan Policy PFS-2.13. Although not required, the City provides the following specific response.

While it is true that the 1987 drought was a prolonged drought of almost five years, the 1977 drought was acute with a back to back period of 2 to 3 years. Thus, the 1977 drought provides substantial evidence of drought conditions on which the multiple dry-year conditions analysis was based.

Regarding City of Stockton Metropolitan Area surface water supplies, please see Response to Comment 31-46.

See also Master Response #3 and Response to Comment 31-43.

Response to Comment 31-70:

Commenter states that the DEIR and the Water Supply Assessment (WSA) fail to take into account the cumulative impact of global warming. Commenter further quotes a publication from the Department of Water Resources (DWR) stating that a rise in sea level will adversely impact the

Delta. Commenter states that the DEIR and Water Supply Assessment must account for these changes when determining the availability of water for the project.

Please see Master Response # 1. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. The General Plan Update EIR provided a comprehensive discussion of climate change impacts, including its impacts on water supply. No further analysis is required. Nevertheless, the City notes that the impacts of sea level rise cannot be accurately defined within the timeframe required of a Water Supply Assessment. It would be speculative to place an amount on the water supplies that could be negatively affected by climate change. (See CEQA Guidelines, § 15145.)

See also Response to Comment 31-43.

Response to Comment 31-71:

Comment states that in addition to seal level rise, a publication from the DWR lists several other ways in which global warming will affect water demand and supply, including:

- Crop Irrigation,
- Landscape Irrigation,
- Domestic Water Uses (excluding landscape irrigation),
- Commercial and Industrial Water Use (including agro-industrial facilities, such as dairies, poultry farms, packing plants, etc.),
- Evaporation Losses from Natural Water Bodies and Open Water Storage and Conveyance Facilities, and
- Environmental Water Requirements.

Commenter states that the DEIR and Water Supply Assessment must specifically discuss each of these factors, as they relate to the water supply and demand created by the project. Commenter asks if the documents that the DEIR and Water Supply Assessment rely on account for cumulative impacts associated with climate change. Commenter further asks how cumulative impacts change the project's impact on existing and future water supplies.

Please see Master Response # 1. The City relies on Public Resources Code, section 21083.3 and CEQA Guidelines, section 15183, in response to this comment. The General Plan Update EIR provided a comprehensive discussion of climate change impacts, including its impacts on water supply. No further analysis is required.

This comment is noted; as with any planning activity of this scale, water supply planning has to be adaptive based on historical and forecasted regional information. The cause of global warming and its impact on the City of Stockton Metropolitan Area cannot be directly associated with this development. For this reason, it is considered in this Water Supply Assessment to be a regional impact that could affect the entire City of Stockton Metropolitan Area (and California Central Valley) and is not related directly to the project; this is not say that the project does not contribute

is some small part to this worldwide problem, as discussed in Master Response # 1. Please refer to Master Response # 1 for a quantitative assessment of the proposed Project's estimated greenhouse gas emissions.

For instance, water quality degradation due to global warming at the Delta Water Supply Project diversion structure and increased water demands of the City of Stockton Metropolitan Area service area are two regional issues that are not associated with a single project but are based on the cumulative effects of many natural and manmade activities throughout the world, past, present, and future, and are not within the control of this project or with the COSMA water retailers. Given the large scale of global warming, a large-scale comprehensive approach is necessary to address future phasing of the Delta Water Supply Project water treatment plant and the Stockton East Water District water treatment plant in order to meet the potential impacts of global warming. Losses of water supplies as a result of global warming may necessitate finding alternative water supplies for the City of Stockton Metropolitan Area or implementing technologies in groundwater recharge and extraction to produce more water in the dry and critical years. Large-scale treatment of high salinity water is technologically feasible and is currently being implemented and permitted in other portions of California. This is one of many solutions that can be implemented to address the implications of this impact on the City of Stockton Metropolitan Area water retailers.

See also Master Response #3, and Chapter 4, "Minor Changes and Edits to the Draft EIR."

Response to Comment 31-72:

Commenter states that the DEIR must provide a comparison of the environmental consequences of amending the general plan to authorize large scale commercial retail uses at the project site to a mixed use "infill development" adjacent to the Weston Ranch residential community, specifically a "village-type" alternative.

The alternatives analysis, Chapter 5 of the DEIR, includes a reasonable range of alternatives as required by CEQA. Not every possible use of a project site needs to be examined in the DEIR. One of the alternatives, Alternative 1, is the current zoning of the property, which includes both residential and commercial uses. It is acknowledged that this is not a true mixed-use development, but it provides some basis of comparison. Contrary to this comment, the project site is not designated as a "village" in the recently approved City of Stockton 2035 General Plan (see Response to Comment 31-35).

Response to Comment 31-73:

Commenter concludes letter stating appreciation for the opportunity to comment.

This comment is noted. No further response is required.

Response to Attachment 12 Comments:

Attachment 12 is a letter from Dan Smith, P.E., regarding the transportation and circulation section of the DEIR. The issues raised by Mr. Smith, and the responses to those comments are listed below.

Comment: New traffic caused by project underestimated because diverted-linked trips overstated.

The comment questions the assumption that 40 percent of traffic at the project driveways would be comprised of diverted-linked trips from the freeway, and that 10 percent of traffic at the project driveways would be comprised of pass-by traffic from French Camp Road, as information in the *Trip Generation Handbook*, June 2004, Institute of Transportation Engineers (ITE) indicates that an average of 34 percent of driveway traffic at retail centers is comprised of pass-by traffic and 16 percent of driveway traffic is comprised of diverted linked-trips from vehicles on nearby roadways. The use of the 10 percent pass-by rate assumes that people who routinely drive by the shopping center stop on average once every eight days.

The commenter is concerned that assuming 40 percent of the project's driveway volumes would consist of traffic already on I-5, who would deviate from an already planned trip to stop at the center, underestimates the Project's freeway impacts, as there is no overriding premise that a shopping center will automatically attract half its traffic from the combination of pass-by and diverted-linked trips.

The *Trip Generation Handbook*, June 2004, Institute of Transportation Engineers (ITE), in consultation with staff from the City of Stockton and Caltrans, was used to develop pass-by and diverted trip estimates for the proposed project. Information on pass-by and diverted linked trips for retail uses shows that the level of diverted-trip generation can range between 6 percent of driveway volumes to 44 percent, with an average of 16 percent of trips being diverted linked trips. The level of pass-by activity can range between 8 and 89 percent, with an average of 34 percent pass-by rate. However, it should be noted that these rates are based on shopping centers that range from small neighborhood retail centers of 9,000 square feet to large regional centers of 1.2 million square feet.

Of the 11 shopping centers surveyed within the size range of the proposed project, where information was provided on the percentage of primary trips, diverted linked-trips and pass-by trips, driveway volumes consisted of approximately 50 percent primary trips (range of 26 percent to 79 percent), 30 percent diverted linked trips (range of 7 percent to 43 percent), and 20 percent pass-by trips (range of 12 percent to 44 percent). Therefore, the assumption that 10 percent of project traffic would be from traffic already on French Camp Road and 40 percent of project traffic would be on the adjacent freeway is within the range of data presented by ITE. Use of a pass-by trip percentage that is lower than average and a diverted linked trip percentage that is higher than average is also reasonable given the characteristics of this site, where the fronting road (French Camp Road) currently serves a fairly limited amount of traffic while the adjacent freeway obviously carries very large traffic volumes.

As multiple uses are proposed within the site (gas station, drug store, restaurants, and general retail) and other retail options in the vicinity are limited, it is not unreasonable to expect that travelers who drive by the site on a daily basis would patronize at least one retailer on the site every eight days.

Fehr & Peers conducted a supplemental analysis of near-term conditions assuming a diverted trip rate of 16 percent (with all other assumptions presented in the DEIR remaining the same). Results of this analysis, presented in Table 3-6, indicate that no additional freeway impacts would occur in the near-term condition with use of the 16 percent diverted trip rate. The one freeway impact

TABLE 3-7
NEAR-TERM PEAK HOUR FREEWAY ANALYSIS

			Without Project			With Project (40 % Diverted Freeway Trips)				With Project (16 % Diverted Freeway Trips)			
Segment	Direction of Travel	Peak Hour	Volume	Density	LOS	Volume	Density	LOS	% Increase	Volume	Density	LOS	% Increase
North of Downing Avenue	North	AM	3,840	21	C	3,913	21	C	1.9	3,959	22	C	3.1
		PM	5,450	33	D	5,750	***36***	***E***	***5.5***	5,894	***38***	***E***	***8.1***
North of Downing Avenue	South	AM	5,230	30	D	5,345	32	D	2.2	5,391	32	D	3.1
		PM	4,780	27	D	5,082	29	D	6.3	5,227	30	D	9.4
North of French Camp Road	North	AM	2,950	16	B	3,000	16	B	1.7	3,032	16	B	2.8
		PM	4,830	27	D	5,037	29	D	4.3	5,136	29	D	6.3
North of French Camp Road	South	AM	4,640	26	C	4,719	26	D	1.7	4,751	27	D	2.4
		PM	3,790	21	C	3,997	22	C	5.5	4,098	22	C	8.1
South of French Camp Road	North	AM	2,680	15	B	2,778	15	B	4.0	2,831	15	B	5.6
		PM	4,460	25	C	4,744	27	D	6.4	4,880	28	D	9.4
South of French Camp Road	South	AM	4,370	24	C	4,439	24	C	1.6	4,482	25	C	2.6
		PM	3,440	19	C	3,722	20	C	8.2	3,858	21	C	12.2
South of Mathews Road	North	AM	3,600	20	C	3,715	20	C	3.2	3,761	20	C	4.5
		PM	3,770	20	C	4,072	22	C	8.0	4,217	23	C	11.9
South of Mathews Road	South	AM	3,920	21	C	3,993	22	C	1.9	4,039	22	C	3.0
		PM	3,310	18	B	3,610	20	C	9.1	3,754	20	C	13.4

Notes:

Density measured in passenger cars per mile per lane.
Mainline segment level of service based on vehicle density, according to the Highway Capacity Manual (Transportation Research Board, 2000).
Bold = deficient operations; Bold/italics = significant impact

Source: Fehr & Peers, 2007

previously identified on I-5 Northbound, north of Downing Avenue in the PM peak hour would worsen, although the proposed mitigation measure would reduce the impact to a less-than-significant level. Use of the 16 percent diverted trip rate is not expected to result in 2025 freeway impacts, as all freeway segments are projected to operate at acceptable service levels with additional capacity.

Comment: DEIR assigns traffic to paths between Weston Center and the I-5 freeway that are not logical.

The commenter questions the project trip assignment and states that approximately 1/3 of traffic approaching the site from the northbound direction will actually bypass the site and the interchange at French Camp Road, travel a mile further to the next freeway exit at Downing Avenue, then get off the freeway and backtrack another mile via surface streets to the project site.

The commenter also states that 2 percent of project trips were assumed to by-pass French Camp Road in the southbound direction and exiting the freeway at the Mathews Road interchange.

The commenter states that the assumed departure routes for the freeway must be clearly stated and that the analysis needs to be redone without irrational assumptions that substantial portions of project traffic would take radically longer travel routes instead of the most direct routes to the project site.

Project trip assignment is shown on Figures 4.7-7A and B, and 4.7-8A and B for the near-term and 2025 conditions, respectively. The commenter appears to have misunderstood these figures. As shown on these figures, inbound project traffic at the I-5 Southbound Ramp/Downing Avenue intersection consists of southbound vehicle traffic exiting the freeway from points north of Downing Avenue, and outbound project traffic at the I-5 Northbound Ramp/Downing Avenue intersection consists of vehicles entering the freeway to travel north. No project traffic was assumed to use either the southbound on-ramp or the northbound off-ramp to travel to and from the site.

At the Mathews Road interchange, inbound traffic using the northbound off-ramp and outbound traffic using the southbound on-ramp was assumed. No southbound inbound traffic by-passing French Camp Road and no northbound outbound traffic by-passing French Camp Road using the Mathews Road interchange was assumed in the analysis.

Table 3-7 presents the percentage of project traffic assumed to use each freeway ramp that serves the site. As illustrated by this table and the project trip assignment shown in the DEIR, the route choice assigned to project trips does not consist of the irrational routing as suggested by the commenter. Therefore, the analysis contained in the DEIR reflects expected travel patterns to and from the freeway to the project site.

Comment: Projected Baseline Freeway Volumes Illogical

The commenter states that the near-term and 2025 freeway forecasts are illogical, as traffic on some segments of I-5 are not projected to increase between the near-term and 2025 scenario, and that traffic volumes on some segments of I-5 are projected to decrease between the near-term and 2025 scenario.

The near-term and 2025 freeway forecasts were developed using different analysis tools. The near-term forecasts were developed using the City's Near-Term travel demand model which considers approved projects and development that could occur without future entitlements from the City. The 2025 forecasts were developed using the City's *1990 General Plan* travel demand model. The level of land use development in the near-term model is, in some areas of the City, higher than the level of development envisioned in the *1990 General Plan*. A supplemental analysis of conditions with build-out of the *2007 General Plan Update* (extending to year 2035) was provided in the appendix of the report, which shows that freeway traffic is expected to grow by approximately 122% between the near-term scenario and build-out of the *General Plan Update*. Additionally, it should be noted that Project freeway impacts in both the 2025 and 2035 scenario were found to be less-than-significant.

TABLE 3-8
NEAR-TERM PEAK HOUR FREEWAY ANALYSIS

			Without Project			With Project (40 % Diverted Freeway Trips)				With Project (16 % Diverted Freeway Trips)			
Segment	Direction of Travel	Peak Hour	Volume	Density	LOS	Volume	Density	LOS	% Increase	Volume	Density	LOS	% Increase
North of Downing Avenue	North	AM	3,840	21	C	3,913	21	C	1.9	3,959	22	C	3.1
		PM	5,450	33	D	5,750	***36***	***E***	***5.5***	5,894	***38***	***E***	***8.1***
North of Downing Avenue	South	AM	5,230	30	D	5,345	32	D	2.2	5,391	32	D	3.1
		PM	4,780	27	D	5,082	29	D	6.3	5,227	30	D	9.4
North of French Camp Road	North	AM	2,950	16	B	3,000	16	B	1.7	3,032	16	B	2.8
		PM	4,830	27	D	5,037	29	D	4.3	5,136	29	D	6.3
North of French Camp Road	South	AM	4,640	26	C	4,719	26	D	1.7	4,751	27	D	2.4
		PM	3,790	21	C	3,997	22	C	5.5	4,098	22	C	8.1
South of French Camp Road	North	AM	2,680	15	B	2,778	15	B	4.0	2,831	15	B	5.6
		PM	4,460	25	C	4,744	27	D	6.4	4,880	28	D	9.4
South of French Camp Road	South	AM	4,370	24	C	4,439	24	C	1.6	4,482	25	C	2.6
		PM	3,440	19	C	3,722	20	C	8.2	3,858	21	C	12.2
South of Mathews Road	North	AM	3,600	20	C	3,715	20	C	3.2	3,761	20	C	4.5
		PM	3,770	20	C	4,072	22	C	8.0	4,217	23	C	11.9
South of Mathews Road	South	AM	3,920	21	C	3,993	22	C	1.9	4,039	22	C	3.0
		PM	3,310	18	B	3,610	20	C	9.1	3,754	20	C	13.4

Notes:

Density measured in passenger cars per mile per lane.
Mainline segment level of service based on vehicle density, according to the Highway Capacity Manual (Transportation Research Board, 2000).
Bold = deficient operations; Bold/italics = significant impact

Source: Fehr & Peers, 2007

Comment: Analysis of closely spaced intersections as a coordinated system

The commenter questions use of the analysis tools Synchro and Corsim to evaluate closely spaced intersections at freeway interchanges, as those tools assume the interchanges and adjacent intersections operate as a coordinated system and that the analysis tool Traffix should have been used, as specified in the City's Transportation Impact Analysis (TIA) guidelines. The commenter also notes that historically it has been virtually impossible to coordinate the signals operated by local jurisdictions and Caltrans due to hardware, software/communications and institutional reasons.

City of Stockton Staff and Caltrans staff was consulted to determine the most appropriate analysis tool for the freeway interchanges in the study area.

Synchro 6.0 was used to evaluate operations of the I-5/Downing Avenue interchange as the analysis tool Traffix would treat each intersection as an isolated intersection and would not account for interrelationship of closely spaced signal operations.

CORSIM was used to evaluate the operations of the French Camp Road/I-5 interchange with construction of the new interchange, anticipated to begin construction in 2009, to be consistent with the Project Report/Environmental Document (PR/ED) prepared for the interchange by Caltrans. This analysis tool takes into consideration vehicle queue spillback when calculating intersection operations.

The analysis of 2025 conditions on French Camp Road between Manthey Road and Val Dervin Parkway/Sperry Road, Table 4.7-13 of the DEIR, shows that the intersections on French Camp Road are projected to operate at acceptable levels with the addition of project traffic. Additionally, the interchange ramps are projected to operate at Level of Service (LOS) C (southbound ramps) and LOS B (northbound ramps). Analyzing each intersection as an isolated intersection would not result in deficient (LOS E or F) operations, as suggested by the commenter.

Additionally, the City and Caltrans have historically worked together to coordinate signals along corridors with shared jurisdiction, including installation of GPS clocks on each signal within a corridor to develop time of day coordination plans to minimize delay and vehicle queue spillback.

Comment: Combined effects and conclusion.

The commenter states that based on the previous comments the DEIR traffic analysis needs to be completely revised. The traffic analysis was revised to account for the revised smaller project. Several impacts previously found potentially significant were reduced to a less-than-significant level. Please see above responses to Attachment 12 comments.

Response to Attachment 13 Comments:

Attachment 13 is a letter from Morris L. Allen, Consulting Civil Engineer, regarding the Water Supply Assessment for the project. Commenter states that, in his opinion, the plan fails to comply with the requirements of Water Code Sections 10910-10915.

Commenter questions the need for Table 1, which demonstrates the average existing water use per urban acre, as the law requires an actual water use for the project be calculated.

Commenter argues against planned water sources, both surface and ground, coming from SEWD and OID/SSJID

Commenter asks for clarification regarding the "various water supplies" referenced on page 13, as well as the amount of conservation and the measures that will be employed to achieve conservation identified. Commenter asks for the reason for mentioning speculative sources of water supply on pages 13 and 14 if they are not included in analysis.

Commenter states that discussion of the groundwater basin should include not only what is in the SEWD, but rather the entire San Joaquin Groundwater Basin.

Commenter notes concern over the increasing salinity, and how increased reliance on groundwater will affect the quality of groundwater in the area. commenter questions whether the area has began to be served by the South Stockton Aqueduct, and what impact this will have on surface water availability and groundwater extraction in north Stockton.

Commenter questions the disparity between the acre feet/acre/year of the DWSPEIR and the WSA

Commenter asks for clarification regarding the "planning level studies" referred to on page 18, as well as the "other sources" identified on page 18.

Commenter states that the analysis of water demand referenced on page 19 cannot be based on "saturation rate of new demand" but rather that estimates must be based upon rationally derived actual estimates of water demand for specific projects analyzed. Commenter also asks for clarification regarding what the "other supplemental sources" reference on page 19 are.

Commenter states that the WSA must explain how the "sustainable yield of groundwater" can be derived when the basin is in a "critical condition of overdraft." Commenter also asks for rationale as to the statement that the "sustainable yield" of the groundwater basin will increase as the agricultural area becomes urbanized.

Commenter questions use of 1977-1980 drought analysis instead of the 1987 drought. Commenter states that only the Second Amended Contract with SEWED of 1987 can be used in the analysis on page 24, as it is the only entitlement that COSMA has for treated surface water.

Commenter questions what is COSMA's "long term plan for preventing overdraft of the groundwater basin" as referred to on page 27. Commenter states that it should be specifically identified in the document.

The comments in Attachment 13 are incorporated into Comment Letter 31. Please see Responses to Comments 31-43 through 31-71, above. Also see also Master Response #3.

Letter 32. [San Joaquin Council of Governments]

Response to Comment 32-1:

Commenter introduces main concern of letter as being the need of a Park-and-Ride lot in the Weston Ranch Community. Please refer to Response to Comment 5-8.

Response to Comment 32-2:

Commenter describes existing transportation conditions, stating that 30% of Weston Ranch residents use alternative transportation to get to work. Comment noted.

Response to Comment 32-3:

Commenter notes that previous plans for a Park-and-Ride were developed and subsequently dropped. Commenter states that commuters that participate in vanpools are forced to leave their cars in front of the driver's home, causing tension, overcrowding of the frontage road, and opening cars to threats of break-ins or theft. Based on discussions between the City of Stockton Community Development Department and Public Works Department, the project will include 75 non-exclusive park-n-ride spots that will be shared between the Vestar site, the MCD site, and the Barkett property.

Response to Comment 32-4:

Commenter states that, as project manager for the Park-and-Ride Lot program, there is constant vocalization of the need for a Park-and-Ride and gives examples of concerns received. Comment

noted. Based on discussions between the City of Stockton Community Development Department and Public Works Department, the project will include 75 non-exclusive park-n-ride spots that will be shared between the Vestar site, the MCD site, and the Barkett property.

Response to Comment 32-5:

Commenter states that the City, not SJCOG, is responsible for taking action in this matter. The City of Stockton shares responsibility for transportation in the region with several other agencies, including SJCOG, the County of San Joaquin, neighboring cities, and the California Department of Transportation.

Response to Comment 32-6:

Commenter states that the proposed Weston Ranch Towne Center is an ideal location for a Park-and-Ride lot, as it is close to communities, will provide easy access to the major commuter corridor, and will benefit from increased potential customers activity that centers on the shopping center. Based on discussions between the City of Stockton Community Development Department and Public Works Department, the project will include 75 non-exclusive park-n-ride spots that will be shared between the Vestar site, the MCD site, and the Barkett property.

Response to Comment 32-7:

Commenter restates their desire for a Park-and-Ride facility, and comments on the potential for retailers to promote good feeling with the residents they are serving. See Response to Comment 32-6.

Response to Comment 32-8:

Commenter closes letter.

Letter 33. [San Joaquin Valley Air Pollution Control District]

Response to Comment 33-1:

Commenter states they have reviewed the Draft EIR and indicates that comments are provided below. Comment noted.

Response to Comment 33-2:

Commenter states that the Air Quality section of the Draft EIR adequately describes the regulatory and environment and existing air quality conditions, addresses short-term, long-term and cumulative effects on air quality, discusses applicable District regulations, and identifies mitigation measures to reduce air emissions. Comment noted. No further response is required.

Response to Comment 33-3:

Commenter states that the Air District concurs with the DEIR that development of the project would produce construction emissions that exceed the District's Thresholds of Significance of 10 tons per year for ROG and NOx, and concurs that even with implementation of mitigation measures identified, these emissions may not be lowered to a level of insignificance. Commenter further states that off-site mitigations are available to the project proponent to lower net emissions to a level of insignificance. Off-site mitigation is described in Comment 33-10.

This comment is noted. However, with the revised Project site plan and reduced sizing, the remodeled air quality emissions during construction would be less-than-significant for ROG and NOx. Response regarding off-site mitigation will be included in the Response to Comment 33-10. No further response is required.

Response to Comment 33-4:

Commenter states that the Air District concurs with the DEIR finding that implementation of appropriate asbestos measures and compliance with District Rule 4002 would reduce the short-term emissions of suspended asbestos to a level of insignificance.

This comment is noted. No further response is required.

Response to Comment 33-5:

Commenter states that the Air District concurs with the DEIR finding that the development of the project would produce operational emissions that exceed the District's Thresholds of Significance of 10 tons per year for ROG and NOx. Commenter also states that the Air District concurs that even with implementation of the mitigation measures identified, these emission may not be lowered to a level of insignificance. Commenter further states that off-site mitigations are available to the project proponent to lower net emissions to a level of insignificance. Off-site mitigation is described in Comment 33-10.

This comment is noted. Response regarding off-site mitigation is included in the Response to Comment 33-10. No further response is required.

Response to Comment 33-6:

Commenter states that the Air District concurs with the DEIR that the development of the project would not have a significant impact on localized carbon monoxide concentrations.

This comment is noted. No further response is required.

Response to Comment 33-7:

Commenter states that the Air District concurs that diesel particulate matter would not pose a significant risk to sensitive receptors if all mitigation measures identified in the DEIR are strictly abided by and enforced.

This comment is noted. No further response is required.

Response to Comment 33-8:

Commenter states that the Air District concurs with the EIR that because the project, as described, will have significant impacts on air quality, the project will have a cumulative air quality impact. Commenter states that off-site mitigations are available to the project proponent to lower net emissions to a level of insignificance. Off-site mitigation is described in Comment 33-10.

This comment is noted. Response regarding off-site mitigation will be included in the Response to Comment 33-10. No further response is required.

Response to Comment 33-9:

Commenter states that in addition to District Rules identified in the DEIR, the project will also be subject to the following regulations, and that the project may be subjected to additional District Rules not enumerated below. Commenter provides contact information for project applicant to utilize to identify any additional rules or regulations that apply to the project. Rules enumerated in the comment are as follows:

- Rule 2010 (Permits Required),
- Rule 4103 (Open Burning), and
- Rule 4601 (Architectural Coatings).

Please see Chapter 4, “Minor Changes and Edits to the Draft EIR” for this change.

Response to Comment 33-10:

Commenter states that mitigation measures are adequately identified in the DEIR. Commenter further states that identified measures alone do not lower emissions to a level of insignificance and although current technology limits the amount of on-site reductions possible, off-site reductions are available. Commenter describes additional mitigation programs. The project proponent may enter into voluntary Air Quality Mitigation Agreements with the District. These agreements require the District and the applicant to quantify operation emissions, and identify on-site mitigation to reduce the project’s impact on air quality. The applicant commits to providing funding on a per-ton of emission basis to the District to purchase emission reductions through its grant and incentive programs to mitigate the net emissions. The District commits to reduce the emissions and to manage and monitor the emission reduction projects over time. Commenter provides contact information for the District for further information.

As noted in Mitigation Measure 4.8.1c (on page 4.8-19) of the Draft EIR, the project applicant has committed to comply with Rule 9510, Indirect Source Review ("ISR"). Further, mitigation measure 4.8.3b requires the applicant to fully comply with all applicable San Joaquin Valley Air Pollution Control District ("SJVAPCD ") regulations and implement all feasible mitigation measures.

As described in the Draft EIR (page 4.8-11), the goal of Rule 9510 is to reduce emissions of NOx and PM10. As part of the Rule 9510 process, the applicant will select on-site measures that it will voluntarily implement to reduce operational NOx and/or PM10 and it must justify its decision not to implement the measures that it does not select. All selected on-site measures will count towards the on-site emission reductions. The ISR Application also requires the applicant to submit a "Monitoring and Reporting Schedule" that outlines how the mitigation measures will be implemented and enforced.

In addition, either the applicant or SJVAPCD will prepare an "Air Impact Assessment" that quantifies operational NOx and PM10. If the Air Impact Assessment finds that the project cannot meet the required reductions through on-site mitigation measures and air-friendly designs and practices, then SJVAPCD will quantify an applicable off-site mitigation fee that must be paid.. However, there is no substantial evidence available that such an off-site mitigation fee would reduce the project's air quality impact to below the existing thresholds. The significance determination for air quality impacts noted in the Draft EIR as Significant and Unavoidable are unchanged.

Response to Comment 33-11:

Commenter recommends the following change for clarification and to improve the document's accuracy:

Table 2-1, Mitigation Measure 4.8.3b should be amended to correctly cite District Rule 9510 requirements. The rule requires PM10 emissions to be reduced by 45% during construction and 50% during operations.

Please see Chapter 4, "Minor Changes and Edits to the Draft EIR" for this change.

Response to Comment 33-12:

Commenter recommends the following change for clarification and to improve the document's accuracy:

Page 3-9 should be amended to reflect that estimated floor areas are found in Table 3-2 Proposed Land Uses, not in Table 3-1 as the DEIR indicates.

Please see Chapter 4, "Minor Changes and Edits to the Draft EIR" for this change.

Response to Comment 33-13:

Commenter recommends the following change for clarification and to improve the document's accuracy:

Footnote 3 on page 4.8-16 should be amended to reflect the District's current Regulation VIII requirements. Regulation VIII was amended on August 19, 2004, and limits visible dust emissions to 20% opacity.

Please see Chapter 4, "Minor Changes and Edits to the Draft EIR" for this change.

Response to Comment 33-14:

Commenter states that to expedite further SJVAPCD review of the development within the project, the District recommends that project descriptions for those developments be identified as being part of the Weston Ranch Towne Center project.

As shown in Table 3-2 of the Draft EIR (page 3-11), the proposed land uses on the project site are as follows:

- Major Retail 1: 99,965 square feet
- Major Retail 2-7: 103,120 square feet
- Retail Pads A-G: 34,166 square feet
- Shops 1-7: 66,763 square feet

Because many of the business residents of the site are not yet known it is not possible to include descriptions of potential businesses in the project description beyond the quantification of square-footages. The revised air quality analysis provided in Chapter 4.0, "Minor Changes and Edits to the DEIR," has accounted for the proposed land uses and associated square footages.

Response to Comment 33-15:

Commenter states that District staff is available for further discussion of regulatory requirements associated with the project and provides contact information.

This comment is noted. No further response is required.

Letter 34. [Weston Ranch Towne Center Workshop]

On January 24, 2007, the applicant, in conjunction with the City of Stockton, held a public workshop in Weston Ranch. The purpose of the workshop was to provide information on the project and the environmental planning process. Written comments regarding the project were received at the workshop. Although this workshop was not a public hearing on the adequacy of the Draft EIR, the lead agency (City) is responding to written comments which raise important environmental issues.

Response to Comment 34-1:

Commenter suggested the use of the area for a Park N' Ride station or parking lot for Weston Ranch commuters. Please see Response to Comment 5-8. Based on discussions between the City of Stockton Community Development Department and Public Works Department, the project will include 75 non-exclusive park-n-ride spots that will be shared between the Vestar site, the MCD site, and the Barkett property.

Response to Comment 34-2:

Commenter noted concern that the project will attract noise pollution and increased traffic to the area. The potential for increased noise levels and increased traffic is addressed in the DEIR. Please see sections 4.7 and 4.9 of the DEIR as well as Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR.

Response to Comment 34-3:

Commenter stated concern for the flow of traffic with the closure of Henry Long Boulevard and Manthey Boulevard. The circulation pattern with implementation of the project (including the

closing of Henry Long at Manthey Road and the realignment of Henry Long) is analyzed in the traffic section of the DEIR and shown on Figure 4.7-5.

Response to Comment 34-4:

Commenter noted concern that the project will attract more crime to the area, resulting in the need for more police services. Please see Master Response #2.

Response to Comment 34-5:

Commenter noted concern that the project will result in increased traffic to the area, the blocking of Henry Long Boulevard and attract air pollution, as well as the commenter's concern over Wal-Mart's history of unfair competition and concern over security measures at the shopping center. Traffic impacts, including the realignment of Henry Long Blvd., are discussed in Section 4.7 of the DEIR. Please see Response 15-1 regarding the social and economic impacts of the project. Please see Master Response #2 regarding security concerns.

Response to Comment 34-6:

Commenter noted concern over Wal-Mart's impact on small stores and increased crime. Please see Response 15-1 and Master Response #2.

Response to Comment 34-7:

Commenter noted concern that the project will result in increased traffic and crime to the area. Traffic impacts are discussed in Section 4.7 of the DEIR and Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR. Please see Master Response #2 regarding crime.

Response to Comment 34-8:

Commenter noted concern that the project will result in increased traffic and crime to the area. Traffic impacts are discussed in Section 4.7 of the DEIR and Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR. Please see Master Response #2 regarding crime.

Response to Comment 34-9:

Commenter noted concern that the project will result in increased traffic to the area. Traffic impacts are discussed in Section 4.7 of the DEIR and Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR.

Response to Comment 34-10:

Commenter noted concern that the project will result in increased traffic and crime to the area. Traffic impacts are discussed in Section 4.7 of the DEIR and Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR. Please see Master Response #2 regarding crime.

Response to Comment 34-11:

Commenter noted concern that the project will attract more crime to the area, resulting in the need for more police services. Please see Master Response #2.

Response to Comment 34-12:

Commenter noted concern that the project will result in increased noise, crime, and traffic. The potential for increased noise levels and increased traffic is addressed in the DEIR. Please see sections 4.7 and 4.9 of the DEIR and Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR. Please see Master Response #2 regarding crime.

Response to Comment 34-13:

Commenter noted concern over the closure of Henry Long Boulevard. The circulation pattern with implementation of the project (including the closing of Henry Long at Manthey Road and the realignment of Henry Long) is analyzed in the traffic section of the DEIR (Section 4.7) and shown on Figure 4.7-5 and 4.7-7. Also, please see Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR.

Response to Comment 34-14:

Commenter noted concern that the project will result in increased traffic to the area. Traffic impacts are discussed in Section 4.7 of the DEIR and Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR.

Response to Comment 34-15:

Commenter noted concern that the project will result in increased traffic and crime to the area. Traffic impacts are discussed in Section 4.7 of the DEIR and Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR. Please see Master Response #2 regarding crime.

Response to Comment 34-16:

Commenter noted concern that the project will result in increased traffic to the French Camp Road area. Traffic impacts, including potential impacts on French Camp Road, are discussed in Section 4.7 of the DEIR and Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR.

Response to Comment 34-17:

Commenter noted concern that the project will result in increased traffic to the area around the high school. Traffic impacts are discussed in Section 4.7 of the DEIR and Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR.

Response to Comment 34-18:

Commenter noted concern that the project will increase noise pollution and traffic to the area. The potential for increased noise levels and increased traffic is addressed in the DEIR. Please see sections 4.7 and 4.9 of the DEIR and Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR.

Response to Comment 34-19:

Commenter noted concern regarding access to I-5. Traffic impacts are analyzed in Section 4.7 of the DEIR and Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR. The following I-5 interchanges are analyzed in the traffic section of the DEIR:

- I-5/Downing Ave.
- I-5/French Camp Road
- I-5/Mathews Road

Response to Comment 34-20:

Commenter noted concern over safety and that the project will attract more crime to the area. Please see Master Response #2.

Response to Comment 34-21:

Commenter noted concern that the project will attract more crime to the area. Please see Master Response #2.

Response to Comment 34-22:

Commenter noted concern over Wal-Mart's impact on local stores. Please see Response 15-1 regarding economic impacts and Section 4.4 of the DEIR regarding the potential for urban decay. Also, please see Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR.

Response to Comment 34-23:

Commenter noted concern regarding the traffic circulation. Please see Section 4.7 of the DEIR for a discussion if traffic impacts, including site circulation and access and Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR.

Response to Comment 34-24:

Commenter noted concern that the project will attract more crime to the area due to its close proximity to the freeway. Please refer to Master Response #2.

Response to Comment 34-25:

Commenter noted concern that the project will result in increased traffic and crime to the area. Traffic impacts are discussed in Section 4.7 of the DEIR and Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR. Please see Master Response #2 regarding crime.

Response to Comment 34-26:

Commenter noted concern that the project will result in increased air and noise pollution. Please refer to Section 4.8 and 4.9 of the DEIR for a discussion of air quality and noise, respectively. See also, Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR.

Response to Comment 34-27:

Commenter noted concern regarding the clarity and accessibility of the DEIR document. Comment noted.

Response to Comment 34-28:

Commenter noted concern over Wal-Mart's impact on small stores as well as the potential for increased crime to the area. Please refer to Section 4.4 of the DEIR for a discussion of impacts to other retailers and the potential for urban decay and Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR. See Master Response #2 regarding crime.

Response to Comment 34-29:

Commenter noted concern that the project will attract more crime to the area. Please refer to Master Response #2.

Response to Comment 34-25:

Commenter noted concern that the project will result in increased crime and traffic to the area. Please see Master Response #2 for a discussion of crime. Please see Section 4.7 of the Draft EIR and Chapter 4.0, "Minor Changes and Edits to the DEIR," of this FEIR for a discussion of traffic.

CHAPTER 4
Minor Changes and Edits to the Draft EIR

Introduction

This chapter will provide any revisions that are made to the text of the DEIR. Modifications will be organized by chapter and a page number (referring to the original text's location in the draft EIR) will also be provided. Text additions will be shown in underline and text deletions will be shown in ~~strikeout~~.

3.0 Project Description

The Project Description, pages 3-1 through 3-15 of the DEIR, is revised as follows:

3.1 Introduction

This environmental impact report (EIR) is being prepared by the City of Stockton to identify potential environmental effects that may result from implementation of the proposed Weston Ranch Towne Center project (project). The revised project site consists of approximately ~~65.8~~ 44.14 acres, located north of French Camp Road, west of I-5, and east of McDougald Boulevard, in the City of Stockton (Figure 3-1). The project consists of three phases. The project applicant, Vestar Development Company, is applying to the City to ~~amend the General Plan designation of the project site from Low/Medium Density Residential and Commercial to Commercial for the entire site and~~ develop the majority ~~(60 acres)~~ of the project site (±29.28 acres of the approximately 34-acre Vestar Property) with a regional shopping center. This shopping center represents Phase I of development. In addition to the Vestar Property, the Mill Creek Development property (approximately 4.3 acres, planned for 10,496 square feet of retail/commercial) is included in the project analysis. This site would be constructed as Phase II. The project also includes two additional parcels (APN 1689008 and 1689009), owned by Manthey Road Holdings, LLC, and known as the Barkett Property. The requested entitlement for the Barkett property is a rezone from low density residential to commercial large-scale. No development is currently proposed for this parcel. Any future development of this site would be undertaken during Phase III. While future commercial development of the Barkett property is contemplated within the scope of this EIR, additional CEQA review may be required for the Phase III, development of the Barkett Property. Other entitlements requested include a rezoning, development agreements, variance application (see section 3.5.1, below for variances), tentative map(s), ~~and~~ use permit~~s~~ for the shopping center and other uses, and design review ~~as required by the City's Development Code~~. The project site is currently zoned RL (Residential, Low density) ~~and CG (Commercial, General).~~ The proposed zoning designation is CL (Commercial Large-Scale) District.

This chapter provides background and setting information, a description of the proposed uses of the project site, and a description of government actions required for completion of the project.

3.2 Project Location

The project is located in Stockton, north of French Camp Road, west of I-5 at the northwest quadrant of the I-5/French Camp Road interchange, and east of McDougald Boulevard and the existing Weston Ranch residential subdivision (Revised Figure 3-2). The project is located within the City of Stockton and is bounded on the south by the Stockton City limit. The project site consists of ~~six~~ five parcels (Assessor's Parcels Numbers 16819010, 16819009, 16819008, 16819007 and~~,~~ 16819006)~~, and the southerly portion of 16817007)~~ of land totaling approximately ~~65.8~~ 44.14 acres (see Figure 4.2-2). The project site is located in portions of Sections 12 and 13, Township 1N, Range 6E, Mount Diablo Baseline and Principal Meridian, which is within the C. M. Weber Land Grant boundaries.

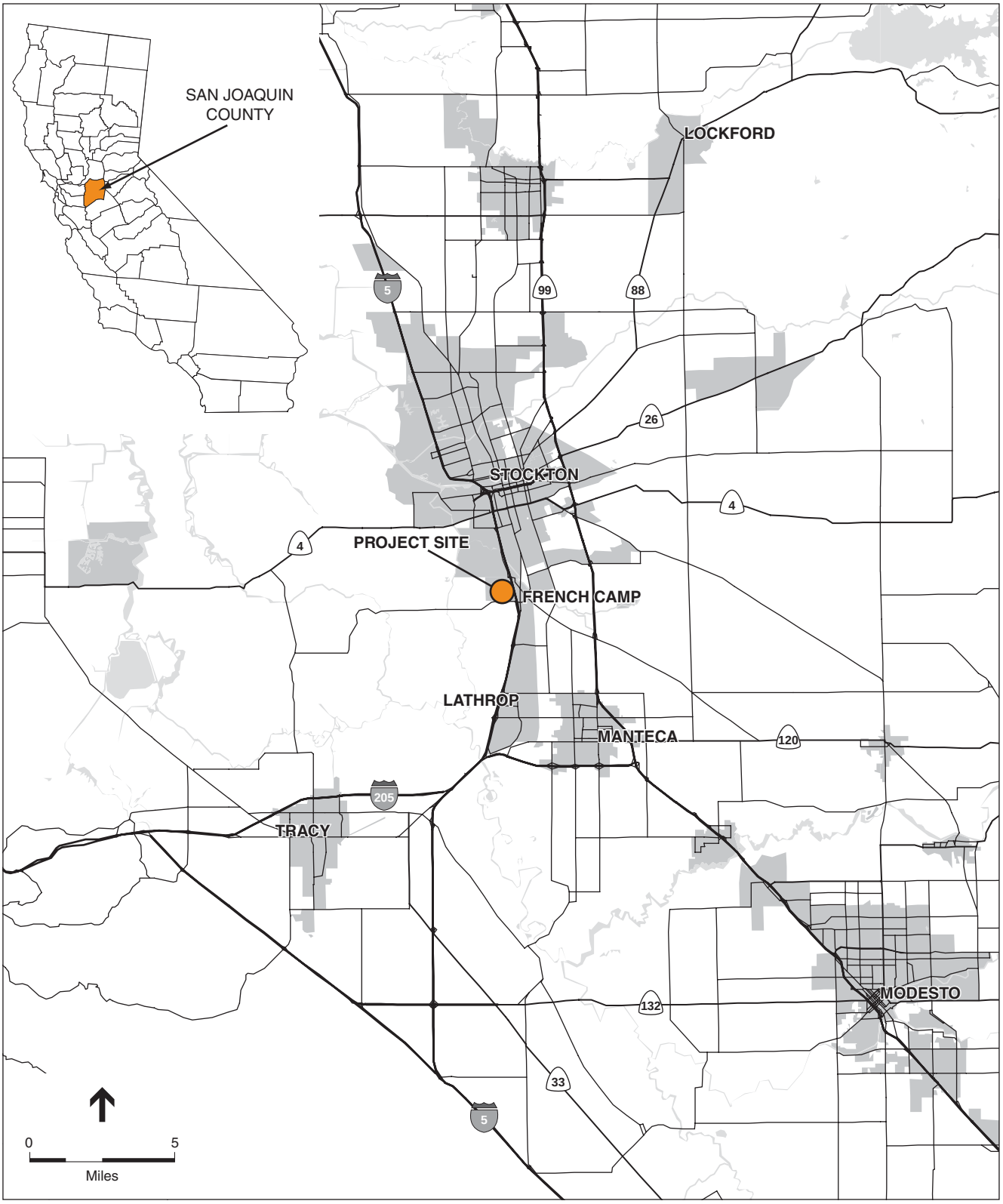
Vacant land designated under the General Plan Update for commercial use ~~and residential industrial~~ is located north of the project site. The existing Weston Ranch residential subdivision is located further north of the project site (north of William Moss Boulevard)~~ and also abuts a portion of the west side of the project site~~. Future residential development is planned to the west of the project site. Agricultural land is located adjacent to the site to the south and southwest. To the east of the project site Interstate-5 runs in a north-south direction.

Regional access to the project site is provided by I-5 (French Camp Road and Downing Avenue off-ramps). Local project access is provided at nine access points: four on French Camp Road, three on Manthey (west), and two on Henry Long Blvd. ~~by French Camp Road on the south and the realigned Henry Long Boulevard via Manthey Road via Downing Avenue and William Moss Boulevard on the north.~~

3.2.1 Project Background

In 1987, the City prepared and circulated for public comment a Draft EIR addressing the proposed annexation of 1,623 acres known as the Weston Ranch Development. The proposed annexation area included the entire project site. The Weston Ranch Annexation also involved a General Plan amendment and pre-zoning of the annexation area, including the project site, and development of 1,454 acres. Proposed pre-zoning in the areas encompassing the project site included both residential and commercial designations. The Weston Ranch Annexation, pre-zoning, and development project was approved by the City in 1988, concurrent with a General Plan amendment. The Weston Ranch area was annexed into the City in July 1988.

A Tentative Subdivision Map (Weston Ranch Phase 3 and portions of Phases 5, 6, 7, and 12) with planned residential development in areas comprising portions of the project site was filed in 1989 and approved in 1990, although no subsequent development occurred in the area comprising the project site.



SOURCE: DeLorme Street Atlas USA, 2000; and ESA, 2006

Weston Ranch Towne Center . 204152

Revised Figure 3-1

Regional Location

SOURCE: City of Stockton Community Development Department Planning Division, 2002; and ESA, 2008

Weston Ranch Towne Center . 204152

Revised Figure 3-2

Project Site

In 1998, the City of Stockton circulated a Supplemental EIR addressing a proposed General Plan amendment and rezoning of 85.6 acres within the Weston Ranch Annexation area. Portions of the proposed rezoned parcels included land within the project site. Proposed rezoning within the project site included Low-Medium Density Residential to Commercial (R-1 to C-2); and High Density Residential to Commercial (R-3 to C-2) in Parcels E, and F respectively.

The Final Supplemental EIR (September 1998) reflected a change in the proposed rezoning and General Plan amendment, reducing the size of the areas proposed to be rezoned (Parcels D and E) and changing the proposed High Density Residential to Commercial (R-3 to C-2) in Parcel F to a slightly larger area with a zoning of Low-Medium Density Residential (R-1) (Revised Figure 3-3). No residential, commercial, or other development has occurred in the project site subsequent to these analyses.

The project site is entirely within the Weston Ranch Annexation EIR project site, but the parcels directly adjacent to French Camp Road (southern portion of the project site) were not included in the development plan which was also analyzed in the EIR. Because the project is substantially different from the project addressed by the 1987 Weston Ranch EIR and because further discretionary actions by the City would be necessary, an EIR is considered to be the appropriate CEQA document to be prepared at this time.

In November of 2006 a Draft EIR was published for the Weston Ranch Towne Center project. The project included a 232,000 square foot Wal-Mart Supercenter (including a garden center) and a 134,720 square foot major retail space. In addition, the project included other retail stores for a total maximum floor area of 710,000 square feet. On August 14, 2007, subsequent to the publication and circulation of the Draft EIR, the Stockton City Council passed an ordinance which prohibited retailers from opening stores larger than 100,000 square feet which used at least 10 percent of their floor space to sell groceries. The Weston Ranch Towne Center project has subsequently been revised to comply with the ordinance passed in August, 2007. The revised project reduces the floor area of the proposed Wal-Mart Supercenter to 99,996 square feet and removes the second large major retail space ("Retail Major 2", identified in the DEIR and noted at 134,720 square feet). The size of the revised project (304,045 square feet for Phase I, 10,496 square feet for Phase II and 91,000 square feet for Phase III; Not to exceed 481,000 maximum square feet for all phases) is consistent with the Draft EIR's Alternative 4 - Reduced Density Alternative. Alternative 4 analyzed the impacts of a maximum total square feet of retail space of 500,000 square feet. As noted in the Draft EIR, the Reduced Density Alternative would have similar impacts as the originally proposed project with respect to land use, aesthetics, biological resources, cultural resources and hazards and hazardous materials (Draft EIR, pp. 5-15 through 5-17). Impacts under the Reduced Density Alternative would be slightly decreased for public services and utilities, transportation and traffic, air quality, noise and hydrology and water quality, however, the residual significance of these impacts would be the same as under the originally proposed project (Draft EIR, pp. 5-15 through 5-17). Thus, the analysis contained in the Draft EIR sufficiently analyzes all of the potentially significant adverse impacts of the revised project which is consistent with the Reduced Density Alternative. As with the Reduced Density Alternative, many impacts of the revised project are of lesser severity than those of the original project analyzed in the Draft EIR.

Additionally, the November 2006 Draft EIR included a General Plan Amendment to change the General Plan designation from Low-Medium Density Residential/Commercial to entirely Commercial. Since the publication of the Draft EIR the Stockton 2035 General Plan Update has been approved by the Stockton City Council (December 11, 2007). The Stockton 2035 Land Use Diagram designates the project area as Commercial, and a General Plan Amendment is no longer required for this project. However, at the time of publication of this Final EIR the Stockton 2035 General Plan Update has been sued. Because the lawsuit is pending it is not clear whether the Update will be upheld. If the Update is not upheld, then the project may again be required to include a General Plan Amendment to change the General Plan designation from Low-Medium Density Residential/Commercial to entirely Commercial.

3.2.2 Project Setting

The project site consists of nearly flat agricultural land which is currently fallow (Revised Figure 3-3). The site has an elevation of between 10 and 15 feet above mean sea level (msl) and slopes gently toward the west-northwest. The site contains two inhabited residences ~~and two dilapidated and abandoned residences~~. Several utility structures are located in the southern portion of the project site and along Manthey Road. These include a storage tank, pump, pump shed, and several sets of low-voltage electrical distribution lines.

A few scattered native trees including ~~heritage oaks,~~ cottonwood~~,~~ and walnut trees are also located within the project site. A drainage ditch, which flows north toward French Camp Slough, extends along the east edge of Manthey Road, outside the project site. Additional information regarding existing environmental conditions at the site is provided in each of the sections of Chapter 4 of this Draft EIR.

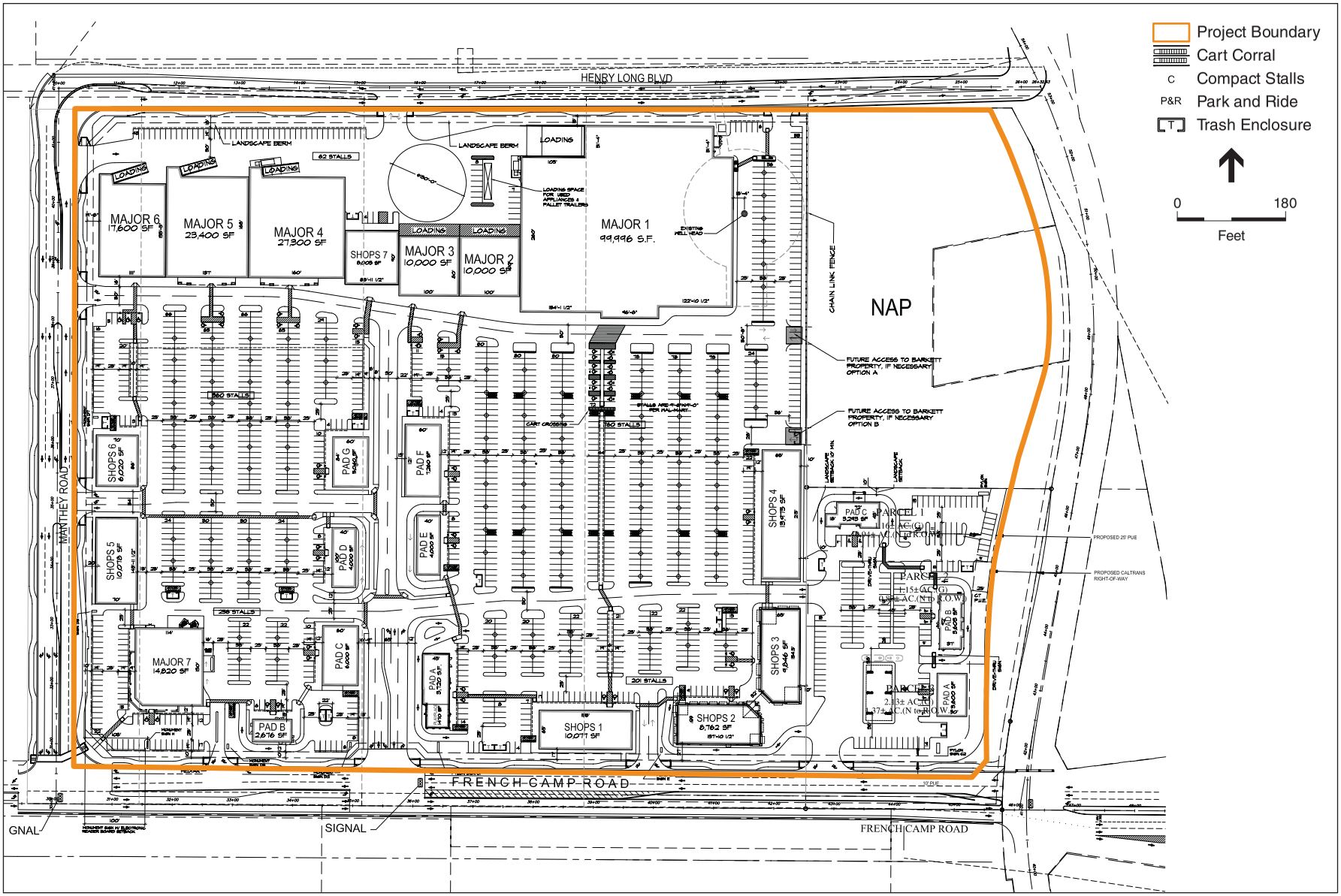
As previously noted, in addition to the Vestar Property two additional properties (Barkett Property and Mill Creek Development Property) are located along the eastern side of the project. ~~Two additional parcels, known together as the Barkett Property and totaling approximately 6.1 acres, are located along the eastern side of the project.~~ The Mill Creek Development Property will include 10,496 square feet of retail/commercial development and will be constructed during Phase II. The Mill Creek Development Property will be part of the shopping center Use Permit boundary to allow the establishment of a joined freeway sign on the property. Unlike the rest of the project site, specific uses and plans will be determined in a later phase (Phase III) of development for the Barkett Property, though it is anticipated that it will include 91,000 square feet of retail / commercial development at buildout. This Draft EIR considers the potential environmental impacts (~~particularly hazards~~including traffic) related to the future development of these additional ~~parcels, which are currently used as an asbestos disposal site~~properties. The Applicant does not own or control the Barkett property. The entitlements requested by the Applicant do not encompass the Barkett property. The City has, on its own initiative, included the Barkett property in the requested ~~General Plan amendment and~~ rezone of the site. The City has determined that it is appropriate to revise the ~~General Plan and~~ zoning designations on the Barkett property because of its physical relationship to the balance of the site, and the fact that the existing ~~General Plan and~~ zoning designations need to be revised to 'fit' with the balance of the property. In particular, in the City's

SOURCE: AFS (Aerial Photograph), 2003; and ESA, 2008

Weston Ranch Towne Center . 204152

Revised Figure 3-3

Aerial Photograph of Proposed Project Site



SOURCE: Nadel Architects, Inc., (PS-71), 2008; and ESA, 2008

Weston Ranch Towne Center . 204152

Revised Figure 3-4

Site Plan

view, it would not make sense from a planning perspective to allow the Barkett property to remain an isolated island of residentially-zoned land. Rather, the development of Weston Ranch Town Center means that the Barkett property would ultimately be more suitable for commercial development, rather than for residential development. Thus, from the City's perspective, it makes sense to change the ~~General Plan and~~ zoning designations now, rather than at some point in the future. The location of the Barkett property is shown on Revised Figure 3-3.

Existing conditions on land surrounding the site are as follows:

- Land to the west of the project site consists of a residential subdivision and ~~fallow agricultural~~ land where additional residential construction is planned. The additional planned residential subdivision has been approved and sitework is complete.
- Land to the south of the project site consists of agricultural land located on the opposite side of French Camp Road. Under the 2035 General Plan Update this land is now designated for Commercial and Administrative Professional uses.
- Land to the east of the site, between Manthey Road and the I-5 corridor, consists of vacant parcels zoned General ~~Business~~ Commercial (CG) and ~~Single Family~~ Residential, Low Density (RL). Under the both the old 1990 General Plan and the recently approved 2035 General Plan Update the entire area is designated as Commercial. It is likely that in the future the City will change the zoning of the area currently zoned Low Density Residential to some type of Commercial zoning to make the land use designation and zoning consistent. This site could be acquired by Caltrans for the future Interstate 5 right-of-way. On the opposite side of the I-5 corridor, the land consists of warehouses and light industrial uses.
- Land to the north consists of ~~an approximately 35 acre parcel of~~ vacant land zoned for residential and commercial uses. Further north is a residential neighborhood.

3.3 Description of the Project

3.3.1 Project Objectives

The City of Stockton is San Joaquin County's (County) largest metropolitan center and has the most extensive supply of developable urban land based on zoning classifications. Consequently, it is assumed under the County's General Plan that it will absorb the bulk of the County's growth through the year 2010 and that commercial activities and the need for commercial space will grow at a rate similar to population growth. Growth within the City of Stockton is described in the recently approved *2035 General Plan Update.* Continuing regional growth, as well as the cost and availability of housing in other parts of California are expected to promote continuation of strong housing demands in the Stockton area for the immediately foreseeable future. In light of these above-mentioned factors, the objectives of the project are as follows:

1. To construct a regional commercial and retail space along the Interstate 5 corridor in south Stockton that will accommodate the existing and future demand for such services in the southern portion of the City.
2. To augment the City's available commercial space for continuing growth demands.
3. To provide job opportunities for members of Stockton's work force.

4. To provide an expanded economic base for the City by generating substantial property and sales tax and fee revenue and by increasing the proportion of local income invested and spent locally.
5. To provide retail and commercial services at a currently vacant location that is safe and convenient for customer access by locating the project immediately adjacent to an existing regional interchange with Interstate 5 and where economic viability can be sustained.
6. To provide a commercial center on a large, undeveloped site in close proximity to an existing highway and near other commercial centers, that will minimize travel lengths and utilize existing infrastructure to the extent possible.
7. To provide a commercial center that provides sufficient development area to allow a mixture of uses in outlying parcels in addition to major anchor tenants, in order to create a destination commercial center that will attract various types of customers to the City.
8. To provide a commercial development that is of a high quality design and that can be adequately served by public services and utilities.
9. To provide large-scale retail activities that will compliment existing smaller scale retail activities located throughout the City.

3.3.2 Project Description

The project includes an application to the City of Stockton to ~~amend the General Plan designation and to~~ rezone the project site. The current and proposed ~~General Plan designation and~~ zoning are summarized in the following table:

TABLE 3-1
PROPOSED ~~GENERAL PLAN AND~~ ZONING AMENDMENTS

	Current (Stockton 2035 General Plan Update)	**Proposed**
~~General Plan designation~~	~~Low-Medium Density Residential; Commercial~~	~~Commercial~~
Zoning district	RL Residential, Low Density ~~CG Commercial; General~~	CL (commercial large-scale) district

The other entitlements requested by the applicants are Development Agreements, Tentative Maps covering the project site, and a Use Permit(s). No site specific entitlements are sought at this time on the Barkett property.

The project proposes development of the project site (~~Table~~ Revised Figure 3-2~~1~~) with a regional shopping center including ~~large-scale~~major retail stores; in-line shops (located contiguously between ~~large-scale~~major retail stores); retail pad stores; restaurants (including quick service restaurants and traditional restaurants); fuel centers; and parking (Revised Figure 3-~~5~~4, ~~Preliminary~~ Site Plan). The shopping center would be ~~located on 60 acres~~developed on +/- 29.28 acres of an approximately 34-acre site (consisting of two parcels, APNs 16819006 and 16819007) and would be developed in the near future. The Mill Creek Development would be constructed in the second phase after the construction of the regional shopping center and would be developed on approximately 4.3 acres (consisting of one parcel, APN 16819010). Timeframe for development of the additional approximately 6.1 acres (consisting of two parcels, APNs 16819008 and 16819009) would occur at a future date not yet determined, during a third phase.

The floor area and design of the stores, particularly the inline stores and pads, may change during the design process. ~~Therefore Table 3-1 shows estimated floor areas which exceed those shown on the current site plan.~~ The most recent site plan provides for approximately ~~619,000~~ 405,541 square feet (~~excluding~~ including the Mill Creek Development and Barkett properties~~y~~). This EIR assumes a maximum floor area of ~~710~~481,000 square feet. The larger "envelope", which is ~~91,000~~ 75,459 square feet larger than currently envisioned, allows the lead agency to consider future revisions to the regional shopping center and the Mill Creek Development site as well as ~~and future commercial~~ development of the Barkett property. The future development of the Barkett property, or additional development within the regional shopping center, allowable under the ~~proposed~~ recently adopted ~~g~~General ~~p~~Plan ~~amendment~~Update and proposed rezoning is considered part of the "whole of the action" for the purpose of this EIR.

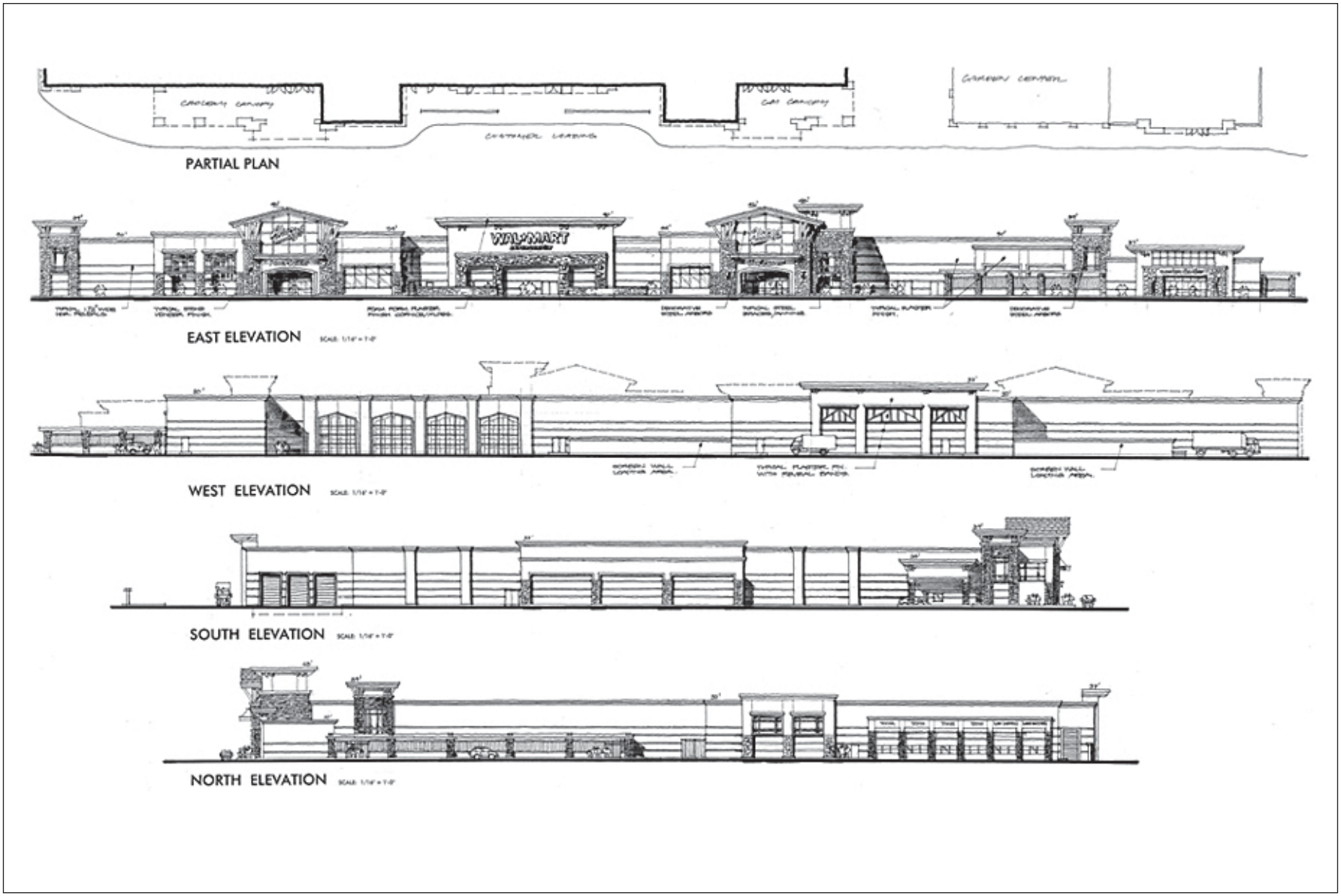
It is assumed for purposes of the EIR that the project, excluding the Barkett property (Phase III), would begin construction as early as 2009 and be fully operational ~~sometime in 2008~~ by 2010. This is the "buildout" year for the project, when the major tenants, and the majority of the in-line shops and pads would be occupied. Timeframe for development of the additional approximately 6.1 acres of the Barkett property would occur at a future date not yet determined.

The principal retail store~~s~~ planned to "anchor" the project ~~include~~ is a Wal-Mart Supercenter, ~~(~~a large-scale discount department store with a grocery department~~) and a major retailer (such as a warehouse-style retail club store)~~. Other smaller retail stores may include clothing stores, home furnishings and domestic supplies, pet supplies, electronics, and other types of retail sales, although specific prospective tenants have not been determined. The following descriptions for the Wal-Mart Supercenter and other commercial development have been provided by the applicant:

TABLE 3-2
PROPOSED LAND USES

Proposed Land Use	Proposed Maximum Space Use (Buildings)
Phase I	
~~Large-Scale Retail~~ Major Retail 1 (Wal-Mart Supercenter)	~~500,000~~ 99,996 square feet
Major Retail 2-7~~In-Line Shops~~	~~100,000~~103,120 square feet
Retail Pads~~, including 2 fuel stations~~ A-G[1]	~~60,000~~34,166square feet
~~Restaurants~~Shops 1-7[1]	~~50,000~~ 66,763 square feet
Total Phase I	**304,045 square feet**
Phase II	
Mill Creek Development Property (Retail/Commercial)	10,496 square feet
Total Phase II	**10,496 square feet**
Phase III	
Barkett Property	91,000 square feet
Total Phase III	**91,000 square feet**
Total All Phases	**~~710,000~~405,541 square feet**
Maximum Assumed Buildout	**481,000 square feet[2]**

~~*Total current phase rounded up from 342,065 square feet shown in the site plan (Revised Figure 3-4) to account for potential future changes to various building sizes.~~
[1] Includes restaurant uses
[2] Technical analysis in the EIR is based on 481,000 square feet identified in the Trip Generation Estimates from 5-12-2008.



SOURCE: Nadel Architects, Inc., 2006 ; and ESA, 2006

Weston Ranch Towne Center . 204152

Figure 3-5
Conceptual Elevations

Wal-Mart Supercenter

Wal-Mart intends its Supercenters to provide for one-stop family shopping. Supercenters combine full grocery lines and general merchandise under one roof. In addition to general merchandise, Supercenters feature bakery goods, deli foods, frozen foods, meat and dairy products, and fresh produce. Approximately 30% of the floor area in the Supercenter will be used for grocery lines. The November 2006 DEIR for this project identified a 232,000 square foot Wal-Mart Supercenter. At 30% floor area for groceries, this would have represented approximately 69,600 square feet of grocery space. The revised project reduces the Wal-Mart size to 99,996 square feet, of which a maximum of 29,999 square feet (30% of total) is planned for grocery space. Supercenters include many specialty shops such as vision centers, ~~Tire & Lube Expresses,~~ Radio Grill, McDonald's or Subway restaurants, portrait studios, one-hour photo centers, hair salons, banks, and employment agencies. Supercenters typically employ 400 associates and offer approximately 116,000 different items.

Description of Buildings/Operations

The Weston Ranch Towne Center Supercenter would be approximately ~~206,400~~ 99,996 square feet~~, excluding the outdoor areas of the garden center (20,900 SF)~~. It would include floor area for general merchandise sales, including ~~an enclosed garden center and~~ grocery sales as well as storage/stockrooms, and miscellaneous support functions (kitchen area, training room, break room, etc.) ~~The outdoor retail/garden center would include a canopy area; a fenced, unenclosed area; and an outdoor seasonal sales area. The store would also include a drive-through pharmacy and tire and lube express services.~~

The building design may change slightly prior to construction~~, so for purposes of environmental review, the EIR assumes a Supercenter of up to 232,000 square feet (including garden center and seasonal sales area)~~.The building architecture uses construction materials that are widely found in the local area. Architectural materials such as concrete masonry block, brick veneer, standing seam metal roof, and exterior plaster finish would be utilized on the building. Proposed colors are earth tone with multicolor accents. The walls would be broken up by offsets of the roofline, architectural pop-outs, articulated entry vestibules, accent wall colors, and other design features.

The truck loading dock~~s~~ would provide sealed rubber gaskets to reduce noise from loading and unloading activities. Unloading would take place directly from the truck to the interior of the building (with the reverse for loading). The sealed rubber gaskets would minimize the noise impacts from loading and unloading. Also, extended engine idling would be prohibited at the docks. A screen wall would be constructed at the edge of the truck wells to further mitigate noise impacts.

In addition, the roof top parapets would help mitigate noise from roof-top HVAC systems and a barrier would shield noise from ground-level mechanical equipment.

The proposed Supercenter would sell alcohol, including wine, beer and spirits and would operate 24 hours a day, seven days a week.

Security Measures

The following security measures would be undertaken at the proposed Supercenter:

- Conduct a risk analysis (crime survey) of the area to evaluate the security needs for the store and implement a security plan based upon this analysis.
- Install closed-circuit camera systems (surveillance cameras) inside and outside the store~~s~~.
- Establish a parking lot patrol for the~~both~~ Wal-Mart Supercenter ~~and other major retailer~~ in order to assist customers, ensure safety and take action to identify and prevent any suspicious activity (such as loitering and vandalism) both during the day and nighttime hours.
- Establish a plainclothes patrol inside the store~~s~~ to enhance safety and security.
- Establish a Risk Control Team, which is a team of employees responsible and trained to identify and correct safety and security issues at the site.
- Provide lighting in the parking area~~s~~ that would enhance public safety.
- Prohibit consumption of alcohol in the parking lot~~s~~ by having employees regularly "patrol" the parking areas while collecting shopping carts and report any inappropriate activity to the store managers. (Also, per state law, alcohol sales would be limited to the hours of 6 AM to 2 AM of the following day.)

Sustainable Features

The following measures will be included in construction and operation of the Wal-Mart building and associated facilities:

(1) Daylighting (skylights/dimming): The store will include a daylighting system, which automatically and continuously dims all of the lights as the daylight contribution increases. Over 90% of the facilities Wal-Mart builds from the ground up include a daylight harvesting system (skylights, electronic dimming ballasts, computer controlled daylight sensors, etc.). Nationwide, Wal-Mart has approximately 2,100 stores with this system in place, resulting in an annual savings of approximately 600,627,600 KWH.

(2) Night Dimming: The store will include lighting that will dim to about 75% illumination during the late night hours. Since many Wal-Mart stores are open 24 hours, Wal-Mart utilizes state-of-the-art Energy Management Systems to dim sales floor lighting during the evening hours, which results in annual savings nationwide of approximately 44,000,000 KWH.

(3) Energy efficient HVAC units: The store will utilize "super" high efficiency packaged HVAC units. While the industry standard EER (Energy Efficiency Ratio) is 9.0, the

Wal-Mart units are rated at approximately 11.25, which is approximately 6% more efficient than required by California Title 24.

(4) Central Energy Management: The store will be equipped with an energy management system that will be monitored and controlled from the Home Office in Bentonville, Arkansas. The system enables Wal-Mart to monitor energy usage, analyze refrigeration temperatures, observe HVAC and lighting performance, and adjust lighting, temperature, and/or refrigeration set points 24 hours per day, seven days per week.

(5) Light Sensors: The store will include occupancy sensors in non-sales floor areas. These sensors detect activity in a room and automatically turn off the lights when the space is unoccupied.

(6) Dehumidifying: The store will include a dehumidifying system that allows Wal-Mart to operate the store at a higher temperature, use less energy, and allow the refrigeration system to operate more efficiently.

(7) Food Displays: Wal-Mart does not use heating elements in the freezer doors to combat condensation. Instead, Wal-Mart uses a film on the doors that serves the same purpose but requires no energy.

(8) Water Heating: The store will capture waste heat from the refrigeration equipment to heat water for the kitchen prep areas of the store.

(9) White Roofs: The store will include a "white" membrane roof versus most applications that are a darker color. The high solar reflectivity of this membrane results in lowering the "cooling" load by about 8%.

(10) Interior Lighting Retrofit Program: All lighting in the store will utilize T-8 fluorescent lamps and electronic ballasts, which are the most efficient lighting on the market. The energy load is reduced by approximately 15-20% as a result. Also, the entire store will also use only "low-mercury" lamps, which are not considered to be a hazardous material and are considered to be very "green friendly." Although these lamps can be disposed of with no special precautions, out of concern for the environment, Wal-Mart has volunteered to recycle these lamps instead of simply placing them in a landfill.

(11) LED Signage Illumination: All internally illuminated building signage will use LED lighting. This application of LED technology is over 70% more energy-efficient than fluorescent illumination. With lamp life ranging to 100,000 hours, using LEDs provides an extended life span of 12 to 20 plus years. This significantly reduces the need to manufacture and dispose of fluorescent lamps.

(12) Poured Concrete: Cement production is estimated to produce 7% of all greenhouse gas. The store will include up to 25% fly ash in the exterior concrete mixes.

Additionally, up to 40% of the mix can be a combination of fly ash and ground granulated blast furnace slag. This reduces the amount of cement used for the store.

(13) Recycling: The store will include huge amounts of recycled material.

a. Steel recycling: Current construction standards on Wal-Mart buildings include a substantial amount of recycled steel. The store will be built with nearly 100% recycled structural steel. Wal-Mart structural steel suppliers use high efficient electric arc furnaces that use 50% less energy to manufacture recycled steel. Using recycled steel means less mining for new steel, and it is a material that can be readily recycled again if the building is demolished.

b. Recycled Plastic: All of the plastic baseboards, and many of the plastic shelving, are manufactured from recycled material.

(14) Water-Conserving Fixtures: All restroom sinks will include sensor-activated low flow faucets. The low flow faucets reduce usage by 84%. The sensors save approximately 20% of the remaining 16% usage over similar manual operated systems.

(15) Ozone-Friendly Refrigerants: Wal-Mart has converted to less ozone-depleting refrigerants as they become available. It uses R404a for the refrigeration equipment. For air conditioning, Wal-Mart has converted to R410a refrigerant.

(16) Non-PVC Roofs: The store will not include a PVC roof. Recognizing environmental concerns with the manufacture and disposal of PVC (polyvinyl chloride), Wal-Mart has eliminated all PVC roofing from its new stores.

3.3.3 Public Improvements and Facilities

The project would include installation of all necessary infrastructure to serve the development. It is anticipated that new (proposed) adjoining streets; existing and proposed streets within the project site; realigned streets; and utilities would be improved in conjunction with development of the project site, as required by adopted mitigation measures and/or conditions of approval by the City Department of Public Works, and in accordance with the Development Agreement. The Preliminary Site Plan and area of circulation plan is schematic and subject to revision/modification as part of the Use Permit and design review process. Relevant improvements expected to be completed prior to or in conjunction with development of the project include:

- Lighting for streets, parking, and other outdoor areas.
- Landscaping of the project site and street frontages.
- ~~A sign program~~Signage, including monument signs.
- ~~Design and installation of appropriate noise barriers adjacent to existing and proposed residences.~~
- Improvements to circulation and access to the site (see further discussion, below).

- Installation of off-street bikeways, curbs, gutters, and sidewalks in appropriate areas.
- Installation of streetlights, landscaping, signs, and signals in appropriate areas.
- Extension of sewer, water, and storm drain lines as required and in accordance with the Use Permit and Project Plan and Development Agreements for the project, and
- Installation/relocation of underground electrical, telephone, natural gas, and other utilities in the project site.

Some of the project facilities and improvements have not been designed in detail, but would be designed in conformance with applicable sections of the Stockton Municipal Code, Chapter 16, Development Code. Development and general uses would adhere to the standards set forth in section 16-230.110, pertaining to Commercial, Large Scale (CL) zoning districts. The provisions of the Development Code are generally considered to be minimum standards; more stringent requirements identified as Mitigation Measures in this document (see applicable sections of Chapter 4) and/or identified in the Development Agreement may supersede the standards set forth in the Development Code.

General Performance Standards are addressed in section 16-305 of the Development Code and include, but are not limited to, air pollution standards for the operation of proposed facilities (16-305.040) and light and glare standards (16-305.060). Standards for structure height are described in section 16-310.090, standards for screening and buffering in section 16-310.100; setback requirements in section 16-310.110; and landscaping standards and requirements are described in section 16-335. As described in section 16-325.060 of the Development Code, screening walls separating commercial uses from residential uses, which are proposed to be placed along the north and west edges of the project site, must be at least eight feet in height.

Requirements for other public improvements such as street improvements, storm drainage facilities, sanitary sewers, and utilities are addressed in section 16-355 of the Development Code.

Parking

Parking ~~would be provided in accordance with the requirements described in section 16-345.040 of the Development Code and~~ would include~~,~~ ~~at a minimum, 2,000~~ approximately 1,639 parking spaces in Phase 1 (Vestar) and 150 spaces in Phase 2 (MCD). ~~for 400,000 square feet of building space plus 1 additional parking space for each additional 250 square feet of retail space~~. Of the provided parking stalls, 75 will be non-exclusive park-n-ride stalls. Parking demand is analyzed in Section 4.07, Traffic.

Bicycle Parking

Based on City of Stockton Municipal Code 16-345.100, a minimum of one employee bicycle parking space for each 25,000 square feet of gross floor area plus one bicycle parking space for each 100 parking spaces is required. Therefore, based on a development of 304,045 square feet for Phase I (and 1,639 parking spaces) approximately 28 bicycle parking spaces should be provided. Bicycle parking will be located conveniently near the retail stores. Phase 2, with a proposed 10,496 square feet and 150

parking spaces, 2 bicycle spaces would be required. The development standards for bicycle parking outlined in the City Municipal Code should be met.

3.3.4 Proposed Access and Circulation

The project site is located at the northwest quadrant of the I-5/French Camp Road interchange~~, with primary project access provided from French Camp Road. Manthey Road would be realigned with the proposed project and would bisect the project site, intersecting French Camp Road approximately 800 feet west of the I-5 southbound off-ramp. A new private driveway extending north from French Camp Road would form the western boundary of the project site and provide additional site access.~~ Local project access is provided at ten access points: five on French Camp Road, three on Manthey (west), and two on Henry Long Blvd. Two full access signalized intersections and ~~one~~ two right-in/right-out intersections from French Camp Road are proposed to serve the project site. From ~~Manthey Road and~~ the realigned ~~Vacated~~ Henry Long Boulevard, ~~nine~~ six driveways are proposed to serve the project site. A detailed operations analysis of these access locations is proved in Section 4.07, Traffic.

3.4 Project Proponents

The project applicant and representative are listed below.

Applicant:

Vestar Development Company
7575 Carson Boulevard
Long Beach, CA 90808

Representative:

Jeffrey M. Axtell
Vestar Development Company
7575 Carson Boulevard
Long Beach, CA 90808

3.5 Regulatory Requirements, Permits, and Approvals

The principal discretionary permits and approvals for the project will be granted by the City. The City will use information contained in this EIR during the decision-making process. Other permits and approvals from other agencies may be necessary prior to the development of the project. For this project, site specific entitlements are not being sought for the Barkett property. The entire project would be constructed in a single phase, with the exception of the Barkett property, which would be developed at some undefined point in the future depending on whether or when the owners of that property decide to submit an application. Known entitlements, permits, and approvals required for the project by the City are identified below:

3.5.1 City of Stockton

- The project is consistent with the recent Stockton 2035 General Plan Update and therefore a General Plan Amendment is no longer required. However, as noted, the General Plan Update is currently being challenged in the Jan Joaquin County Superior Court. In the event that an adverse judgment overturns the Update, a General Plan Amendment would be necessary to re-designate the site from Low/Medium Density Residential to Commercial. ~~Adoption of a Stockton General Plan amendment including~~

~~re-designation of a portion of the site from Low/Medium Density Residential to Commercial.~~

- Approval of the rezone, from RL (Residential, Low Density)~~ and CG (Commercial, General)~~ to CL (Commercial Large-Scale) District, to provide for proposed commercial uses.
- Approval of Development Agreements.
- Approval of Tentative Maps.
- Certification of adequate water supply via a Water Supply Assessment (WSA), which is included as Appendix D of this EIR.
- Issuance of a Use Permit(s) including ~~a Project Plan~~:
  - a Project Plan,
  - an increase of monument sign up to 30-feet in height, and
  - adding additional monument signs (7-feet) within the shopping center
- Use permit(s) for the alcohol sales including off and on-sale alcoholic beverages
- Variance for the following:
  - location of driveways,
  - number of driveways along French Camp Road and Manthey Road,
- Design ~~and site plan~~ review ~~and~~ approval.
- Approvals for sewer, water, drainage and transportation connections and improvements.
- Review and recordation of parcel and final maps.
- Approval of grading and erosion control permits.
- Issuance of building permits.

3.5.2 Other Governmental Agency Approvals

Additional subsequent approvals and other permits that may be required from local, regional, state, and federal agencies are identified below.

- The San Joaquin Valley Air Pollution Control District may require an authority to construct and a permit to operate for equipment related to the operation of the project that emits air pollution.
- Issuance of Regional Water Quality Control Board (RWQCB) National Pollutant Discharge Elimination System General permit under Section 402 of the Clean Water Act for storm water drainage. In addition, the applicant must prepare and implement a Stormwater Pollution Prevention Plan (SWPP) and obtain a well destruction permit from the RWQCB.
- The project applicant would participate in and pay fees in accordance with the requirements of the San Joaquin County Multiple Species Habitat Conservation Plan.
- The Department of Toxic Substance Control (DTSC)~~, County Health and Waste Board and APCD approvals for development of Barkett site.~~ has approved a

Voluntary Cleanup Agreement (VCA) for the Barkett property and must approve the permission to excavate prior to development of that site.

4.2 Land Use and Agricultural Resources

On page 4.2-1 the second, third, and fourth paragraphs are revised:

The project is located in Stockton, north of French Camp Road, west of I-5 at the northwest quadrant of the I-5/French Camp Road interchange, and east of McDougald Boulevard and the existing Weston Ranch residential subdivision (Figure 3-2). The project is located within the City of Stockton and is bounded on the south by the Stockton City limit. The project site consists of five ~~six~~ parcels (Assessor's Parcels Numbers 16819010, 16819009, 16819008, 16819007, and 16819006~~, and the southerly portion of 16817007~~) of land totaling approximately ~~65.8~~ 44.14 acres.

The existing Weston Ranch residential subdivision is located north of the project site (north of William Moss Boulevard) ~~and also bounds a portion of the west side of the project site~~. The land directly north of the project site (north of Henry Long Blvd.) is designated for future commercial development. Future residential development is planned to the west of the project site. This subdivision has been approved and sitework is complete. Agricultural land is located adjacent to the southwest and southern portions of the project site.

Regional access to the project site is provided by I-5 (French Camp Road and Downing Avenue off-ramps). Local project access is provided at nine access points: four on French Camp Road, three on Manthey (west), and two on Henry Long Blvd. ~~Local project site access is provided by French Camp Road on the south and Manthey Road via Downing Avenue and William Moss Boulevard on the north.~~ The realigned Henry Long Boulevard will provide access and the northern oundary of the site and will become a public street.

On page 4.2-2 the second and third paragraphs are revised:

Land uses surrounding the project site include an existing residential subdivision and fallow agricultural land to the west where additional residential construction is planned. To the south, on the south side of French Camp Road is agricultural land. Land to the east of the site, between the existing Manthey Road and the I-5 corridor, consists of vacant parcels zoned Low Density Residential (RL). Under both the old 1990 General Plan and the recently approved 2035 General Plan Update the entire area is designated as Commercial. It is likely that in the future the City will change the zoning of the area currently zoned Low Density Residential to some type of Commercial zoning to make the land use designation and zoning consistent. On the opposite side of the I-5 corridor, the land consists of warehouses and light industrial uses. ~~To the east, between Manthey Road and the I-5 corridor, are vacant parcels zoned Commercial, General Business and Residential, Low Density. One the opposite side of the I-5 corridor, the land consists of existing warehouses and light industrial uses.~~ Land to the north consists of ~~a 35-acre parcel of vacant~~ land zoned for residential and commercial uses. Further north is a residential neighborhood.

Agricultural Resources

A majority of the 44.14-acre project site (approximately 42.24 acres)~~(59.68 acres of the 65.8 total acres)~~ is classified as prime farmland, according to the Important Farmland Maps for San Joaquin County (DOC 2002). Although the project site is currently considered fallow agricultural land, the parcels are not zoned for agricultural use. As a result of pre-zoning associated with the annexation of the Weston Ranch area, including the area of the project, and subsequent rezoning, the project site currently has a City of Stockton 2035 General Plan designation of Commercial ~~and Low Medium Residential~~ and City of Stockton zoning of ~~Commercial, General (CG) and~~ Residential, Low Density (RL).

On page 4.2-2 the fourth paragraph is revised and the City of Stockton 1990 General Plan policies are replaced with the following 2035 General Plan policies:

City of Stockton General Plan

The City of Stockton 2035 General Plan, ~~as amended (adopted 1990 [amended in 1998])~~ adopted December 11, 2007, serves as the principal land use planning document-guiding development within the City and would serve as the principal land use planning document for the project site. Goals and policies of the General Plan applicable to the project, as well as the General Plan-designated land uses are described in detail below.

~~**Urban Growth and Overall Development**~~

~~Goal 1: Ensure that Stockton's future growth will proceed in an orderly planned manner, thereby preventing urban sprawl and the wasteful use of land and promoting the efficient and equitable provision of public services.~~

~~Policies 1. The General Plan shall designate an Urban Service Area at or beyond the existing City limits where City services and facilities will be available for extension upon annexation and where future urban development shall be in conformance with City Council adopted master utility and circulation plans.~~

~~6. The city shall regulate the levels of building intensity and population density according to the standards and General Plan Diagram Designation stated in Section II (pages II-2 through II-5 of the General Plan).~~

~~7. The City will continue to apply the regulations and procedures of the zoning ordinance and will continue to utilize the environmental assessment and environmental impact review processes as methods to prevent and mitigate land use conflicts in the development review process.~~

~~Goal 2: Promote development and redevelopment within the City of those areas already served, or which may be readily served, by City Services and facilities in order to maintain and revitalize the existing urban area.~~

~~Policy 2. Vacant land already served by City services should receive development priority over vacant, unserved land.~~

~~Goal 4: Promote and maintain environmental quality and the preservation of agricultural land while promoting logical and efficient urban growth.~~

~~Policies 1. The wasteful and inefficient sprawl of urban uses into agricultural lands surrounding the urban area should be avoided by regulating the location or urban uses through the Urban Growth and Overall Development policies to maintain the consumption of agricultural and other open areas containing valuable natural resources or scenic beauty.~~

~~2. Urban growth shall be geographically limited by such environmental hazards as flood vulnerability and unstable soil characteristics.~~

~~3. Urban growth, particularly sensitive developments (i.e., homes, schools) should avoid locating in areas which are subject to adverse environmental or noise impacts.~~

~~4. Environmentally sensitive areas, such as the Delta, Oak Groves and areas of archaeological/historic value, should be preserved for the benefit of present and future generations.~~

~~5. Storm water quality measures shall be undertaken to enhance to the maximum extent practicable the quality of the water in the sloughs, creeks and rivers in this area.~~

~~Goal 5: Promote the balanced growth and development of all geographic areas of Stockton.~~

~~Policy 1. Seek the revitalization of south/central Stockton including increased employment opportunities, expanded private investment, construction of new housing and the provision of various services to address existing social problems.~~

~~City Concept and Design~~

~~Goal 1: Enhance the sense of community identity in Stockton.~~

~~Policies 1. Encourage the development of identifiable boundaries for the City to maintain a sense of community identity. The City should also consider the development of some type of "gateway" treatment at major entrances into the City.~~

~~3. Residential subdivisions shall be designed to provide for internal circulation within neighborhoods and to prevent through traffic from traversing neighborhoods.~~

~~Goal 2: Develop a balanced and complete community in terms of land use distribution and densities, housing types and styles, job opportunities and opportunities for social and cultural expression.~~

~~Policy: 2. Business and industry should be encouraged to provide job opportunities for members of Stockton's work force.~~

~~**Commercial Land Use**~~

~~Goal 1: Direct commercial development to areas where it is complementary to and compatible with surrounding land uses and will visually enhance the environment.~~

~~Policies 1. Support the City's growth in business and financial services while also reasserting Stockton's historic role as a major retail center (this will help increase the proportion of local income invested and spent locally).~~

~~3. The compatible integration of commercial and new residential uses shall be encouraged. Existing residential areas shall be buffered from new commercial uses through the provisions of the zoning code.~~

~~4. Commercial areas shall be provided with frontage roads and/or access controls to reduce traffic congestion. Landscaping and design controls should be utilized to create an aesthetically pleasing environment.~~

~~8. Signing in commercial development shall be planned to complement rather than detract from its overall design or the design of its surrounding environment.~~

~~10. The integration of new residential uses in commercial areas (existing or new) shall be subject to Use Permit review to insure compatibility.~~

~~Goal 2: Encourage commercial facilities at locations that provide convenient service where their economic viability can be sustained.~~

~~Policy 2. Clustering of commercial uses shall be encouraged and the splitting of commercial clusters or centers by roadways shall be discouraged.~~

Land Use Element

Goal LU-1. Ensure that Stockton's future growth will proceed in an orderly planned manner, encourage and provide incentives for infill development, prevent urban sprawl, and promote the efficient and equitable provision of public services.

Policy LU-1.2 Urban Service Area Boundary. The City shall designate an Urban Service Area boundary beyond the existing City limits within which City services and facilities will be available for extension upon annexation and where future urban development shall be in conformance with City Council adopted master utility and circulation plans.

Policy LU-1.5 Future Urban Development. Future urban development within the Planning Area should occur under the jurisdiction of the City. To this end, the City shall require that vacant unincorporated properties be annexed into the City prior to the provision of any City services, or that a conditional service agreement be executed agreeing to annex when deemed appropriate by the City.

Policy LU-1.6 Building Intensity and Population Density. The city shall regulate the levels of building intensity and population density according to the standards and land use designations set out in the Land Use Element and the City's Development Code.

Policy LU-1.7 Land Use Conflicts. The City shall continue to apply the regulations and procedures of the Development Code and shall use the environmental process to prevent or mitigate land use conflicts.

Policy LU-1.13 Growth Phasing. The City shall phase growth based on the availability of adequate water supplies, market forces, infrastructure financing capacity, and the timing of the design, approval, and construction of water supply and transportation facilities and other infrastructure.

Agriculture

Goal LU-2. To promote the protection of agricultural lands outside the Urban Service Area to the north and east, and to discourage the premature conversion of agricultural lands within the Urban Service Area.

Policy LU-2.1 Agricultural Land Preservation. The City shall limit the wasteful and inefficient sprawl of urban uses into agricultural lands.

Residential Development

Policy LU-3.7 Incompatible Uses. The City shall protect existing residential neighborhoods from the encroachment of incompatible land uses (i.e., traffic, noise) and environmental hazards (i.e., flood, soil instability).

Commercial/Mixed Use Development

Goal LU-4. To encourage commercial and mixed use commercial/housing development at locations that provide convenient neighborhood retail and services to existing and new housing areas, and that maximize regional shopping opportunities where their economic viability can be sustained.

Policy LU-4.3 Commercial-Residential Integration/Compatibility. The City shall encourage the compatible integration of commercial and new residential uses. Existing residential areas shall be integrated with new commercial uses through the provisions of the Development Code.

Policy LU-4.4 Commercial Area Access. The City shall require commercial projects to provide frontage roads and/or access controls to reduce traffic congestion.

Policy LU-4.5 Commercial Area Aesthetics. The City shall require that new commercial development incorporate landscaping and good design in accordance with Citywide Design Guidelines.

Policy LU-4.7 Commercial Signage. The City shall require that signage in commercial development complement rather than detract from the visual quality of the commercial development and surrounding neighborhood.

Policy LU-4.9 New Residential Uses in Commercial Areas. The City shall encourage the redevelopment and conversion of distressed commercial strips into housing and mixed use areas.

Policy LU-4.10 Commercial Cluster Encouragement/Protection. The City shall encourage the clustering of commercial uses and discourage the splitting of commercial clusters or centers by arterial roadways.

Land Use Designation

The project site currently has a City of Stockton land use designation of Commercial~~and Low-Medium Residential~~. Current general plan land use designations are shown in Revised Figure 4.2-1 (actual existing land use may not reflect the general plan classification). The project includes a General Plan amendment to redesignate the land use designation of a portion of the project site from Low-Medium Density Residential to Commercial. These General Plan Land Use designations are specifically defined as follows:

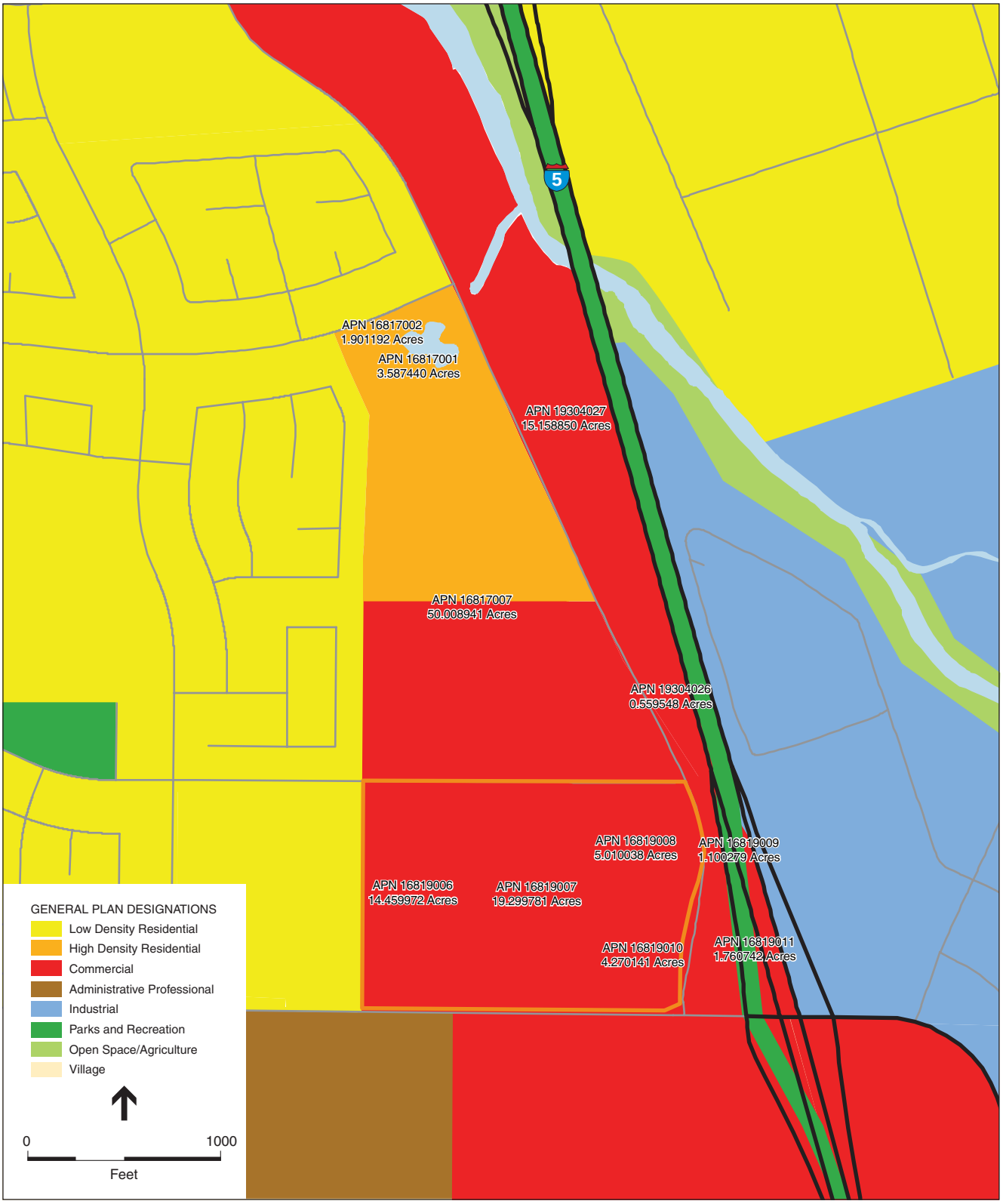
Commercial: This designation provides for a wide variety of retail, service, and commercial recreational uses, business, medical and professional offices, residential uses, public and quasi-public uses and other similar compatible uses. Community or regional commercial centers as well as freestanding commercial establishments are permitted. The building intensity standard is a maximum FAR of 0.3 outside of the downtown area. Within the downtown area, shown as an inset on the Land Use/Circulation Diagram, a maximum FAR of 5.0 is allowed. Residential densities are allowed up to ~~29~~ 23.2 dwelling units per gross acre outside of the downtown area.

~~**Low-Medium Density Residential:** This designation provides for single-family residential units, duplexes, triplexes, semi-detached patio homes, townhomes, public and quasi-public uses, and other similar and compatible uses. Residential densities are allowed up to 17.4 dwelling units per gross acre.~~

On page 4.2-5 the fourth and fifth paragraphs are revised:

The project site currently has a City of Stockton zoning of ~~CG Commercial, General and~~ RL Residential, Low Density (Revised Figure 4.2-2). As part of the project, the entire project site will be rezoned to CL Commercial Large-Scale District. These zones are defined below:

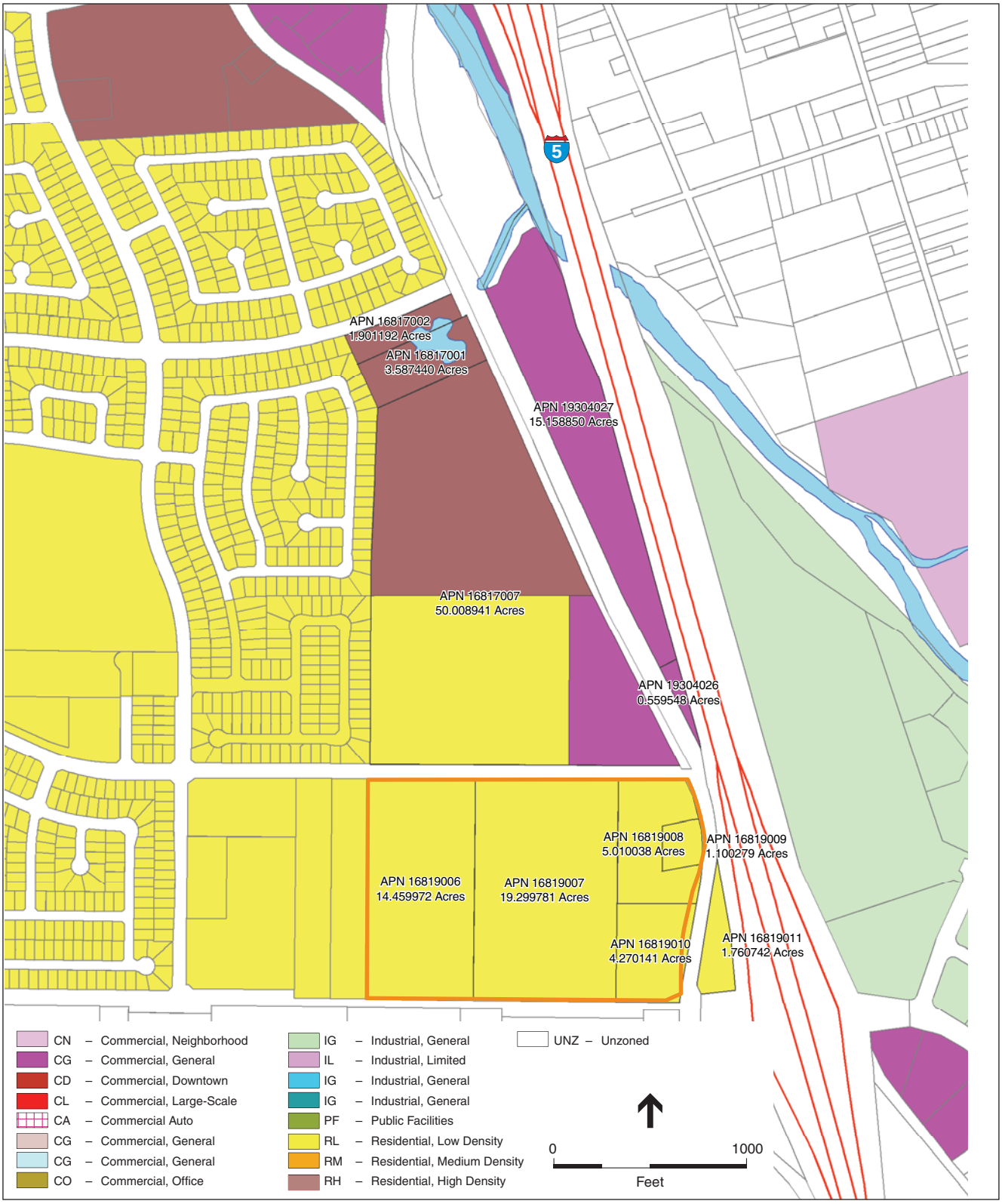
~~**CG Commercial General:** This zoning district closely corresponds to the General Plan designation of Commercial. Allows for a variety of uses, such as repair shops, antique stores, garment repair, and press shops.~~



SOURCE: City of Stockton, 2003; and ESA, 2006

Weston Ranch Towne Center . 204152

Revised Figure 4.2-1
City of Stockton General Plan
Designation Map



SOURCE: City of Stockton, 2003; and ESA, 2006

Weston Ranch Towne Center . 204152

Revised Figure 4.2-2
Project Area Zoning and
Assessor Parcel Numbers

On page 4.2-5 the eighth paragraph is revised:

When the Draft EIR for this project was published, the City was ~~The City is currently~~ in the process of updating its existing 1990 General Plan. As part of the ~~current~~ update, the City ~~is~~ also considered~~ing~~ expansions to both its existing Urban Services Boundary (USB) and Sphere of Influence (SOI).

On page 4.2-7 and 4.2-8, Figures 4.2-1 and 4.2-2 are revised:

On page 4.2-9 the first paragraph is revised:

To date the City has completed a General Plan Background Report, which provides a detailed description of the conditions (e.g., economic, housing, environmental, etc.) that existed within the study area during the development of the General Plan. ~~A draft policy document and several land use alternatives are currently being considered by the City and the General Plan Action Team (a reviewing body comprised of various public and private citizen groups). Additionally, an EIR addressing the environmental impacts of the proposed General Plan Update is currently being prepared. The City prepared a Notice of Preparation for the EIR, which will be released for public review during the spring of 2006.~~ Since the publication of the Draft EIR for this project, the Stockton 2035 General Plan Update has been approved by the Stockton City Council (December 11, 2007). The Stockton 2035 Land Use Diagram designates the project area as Commercial, and a General Plan Amendment is no longer required for this project. However, at the time of publication of this Final EIR the Stockton 2035 General Plan Update has been sued. Because the lawsuit is pending it is not clear whether the Update will be upheld. If the Update is not upheld, then the project will again be required to include a General Plan Amendment to change the General Plan designation from Low-Medium Density Residential/Commercial to entirely Commercial. Nevertheless, at the time of this writing, the current 2035 General Plan Update remains in place.

On page 4.2-9 the first paragraph under "Methodology" is revised:

The project is compared with the policies of the City of Stockton 2035 General Plan Update as well as the City's Development Code and Citywide Design Guidelines. The standard for consistency used here is based on *The Planners Guide to Specific Plans* (Office of Planning and Research [OPR] 2001): "An action, program, or project is consistent with the General Plan if, considering all its aspects, it will further the objectives and policies of the General Plan and not obstruct their attainment." Table 4.2-1 provides an overall assessment of the project's consistency with current General Plan policies contained within the City of Stockton 2035 General Plan Update.

On page 4.2-9 the first paragraph under Impact 4.2.1 is revised:

The project site is located within the City of Stockton planning area boundary. The project site is also located within the Urban Service Area. Adjacent lands are designated for low ~~medium~~ density residential, administrative professional and commercial, and are zoned for Residential, Low Density and Commercial, General. The proposed commercial uses of the project site would not result in

the physical division of the existing community. The commercial development would be a compatible use and would support the existing and planned residential uses of the surrounding area.

On page 4.2-10 the first paragraph under Impact 4.2.2 is revised:

The development of commercial uses at the project site is consistent with the land use designation of Commercial as identified in the City of Stockton 2035 General Plan Update.~~portion of the property that is designated under the General Plan as Commercial and zoned as Commercial, General.~~ However, the project is inconsistent with the ~~portion of the project site that has the General Plan designation of Low Medium Density Residential and~~ zoning of the entire project site as Residential, Low Density. As part of the project, the entire site will be rezoned from Residential, Low Density to Commercial, Large Scale. The rezone will eliminate the inconsistency between the proposed uses and the land uses allowed in the existing zoning.

On page 4.2-11, Table 4.2-1 is revised:

REVISED TABLE 4.2-1
GENERAL PLAN CONSISTENCY

General Plan Policy	Project Consistency
Land Use Element	
***Goal LU-1**. Ensure that Stockton's future growth will proceed in an orderly planned manner, encourage and provide incentives for infill development, prevent urban sprawl, and promote the efficient and equitable provision of public services.*	**Consistent.** The Project is contiguous with current development in the city and is easily accessible by major roadways.
Policy LU-1.2 Urban Service Area Boundary. The City shall designate an Urban Service Area boundary beyond the existing City limits within which City services and facilities will be available for extension upon annexation and where future urban development shall be in conformance with City Council adopted master utility and circulation plans.	**Consistent.** The Project is within the City and Urban Service Area.
Policy LU-1.5 Future Urban Development. Future urban development within the Planning Area should occur under the jurisdiction of the City. To this end, the City shall require that vacant unincorporated properties be annexed into the City prior to the provision of any City services, or that a conditional service agreement be executed agreeing to annex when deemed appropriate by the City.	**Consistent.** The Project is within the city limits.
Policy LU-1.6 Building Intensity and Population Density. The city shall regulate the levels of building intensity and population density according to the standards and land use designations set out in the Land Use Element and the City's Development Code.	**Consistent.** The Project will conform to City standards.
Policy LU-1.7 Land Use Conflicts. The City shall continue to apply the regulations and procedures of the Development Code and shall use the environmental process to prevent or mitigate land use conflicts.	**Consistent.** The Project proposes a General Plan amendment and zoning change, and an environmental impact report is being prepared for the project.
Policy LU-1.13 Growth Phasing. The City shall phase growth based on the availability of adequate water supplies, market forces, infrastructure financing capacity, and the timing of the design, approval, and construction of water supply and transportation facilities and other infrastructure.	**Consistent.** The Project is contiguous with current development within the city, and is served by city streets, sewer, water, and storm drainage utilities.

REVISED TABLE 4.2-1
GENERAL PLAN CONSISTENCY

General Plan Policy	Project Consistency
Agriculture	
Goal LU-2. *To promote the protection of agricultural lands outside the Urban Service Area to the north and east, and to discourage the premature conversion of agricultural lands within the Urban Service Area.*	**Consistent.** The Project is contiguous with current development in the city, surrounded on three sides by urban uses, and does not displace land currently in agricultural production. As discussed under Impact 4.2.5, the project involves the conversion of approximately 60 acres of prime farmland. MM 4.2.5 requires the applicant to provide a conservation easement at a 1:1 ratio on land of equal or better value, with the compensation land designated for agricultural uses. MM 4.2.5 will therefore provide permanent protection for land suitable for agriculture. The project, as mitigated, is therefore consistent with Goal LU-2.
Policy LU-2.1 Agricultural Land Preservation. The City shall limit the wasteful and inefficient sprawl of urban uses into agricultural lands.	**Consistent.** See above explanation.
Residential Development	
Policy LU-3.7 Incompatible Uses. The City shall protect existing residential neighborhoods from the encroachment of incompatible land uses (i.e., traffic, noise) and environmental hazards (i.e., flood, soil instability).	**Consistent.** The project is located on level ground and is not located within a 100-year flood plain. The project will incorporate mitigation measures that will reduce temporary construction-related traffic and noise impacts (see MM 4.9.1). The project will also incorporate design and operational features to minimize aesthetic and noise impacts (see MMs 4.9.2 and 4.9.3).
Commercial/Mixed Use Development	
Goal LU-4. *To encourage commercial and mixed use commercial/housing development at locations that provide convenient neighborhood retail and services to existing and new housing areas, and that maximize regional shopping opportunities where their economic viability can be sustained.*	**Consistent.** The project serves as a regional commercial center that will serve neighboring residential uses. The project design is consistent with this policy.
Policy LU-4.3 Commercial-Residential Integration/Compatibility. The City shall encourage the compatible integration of commercial and new residential uses. Existing residential areas shall be integrated with new commercial uses through the provisions of the Development Code.	**Consistent.** While the Project does not integrate new residential uses, existing residential units are buffered from the Project by an 8-foot sound wall. New walls will also be built along adjacent residentially zoned land.
Policy LU-4.4 Commercial Area Access. The City shall require commercial projects to provide frontage roads and/or access controls to reduce traffic congestion.	**Consistent.** The project provides sufficient access to the site to avoid traffic congestion. See Figure 4.7-2 in Section 4.7, Transportation and Circulation. The project was designed consistent with this policy.
Policy LU-4.5 Commercial Area Aesthetics. The City shall require that new commercial development incorporate landscaping and good design in accordance with Citywide Design Guidelines.	**Consistent.** The project has been designed in accordance with the design standards contained in the Citywide Design Guidelines. A landscape plan is part of the project and subject to approval by the City.
Policy LU-4.7 Commercial Signage. The City shall require that signage in commercial development complement rather than detract from the visual quality of the commercial development and surrounding neighborhood.	**Consistent.** The project was designed consistent with this policy.
Policy LU-4.9. The City shall encourage the redevelopment and conversion of distressed commercial strips into housing and mixed use areas.	**Not applicable.**
Policy LU-4.10 Commercial Cluster Encouragement/Protection. The City shall encourage the clustering of commercial uses and discourage the splitting of commercial clusters or centers by arterial roadways.	**Consistent.** The Project would result in a cluster of commercial use, undivided by major roadways.

REVISED TABLE 4.2-1
GENERAL PLAN CONSISTENCY

General Plan Policy	Project Consistency
Economic Development Element	
Goal ED-3. *To maintain and enhance Stockton's role as a regional commercial center, while continuing to support downtown and neighborhood services for local residents.*	**Consistent.** It is a main objective of the project to serve as a regional commercial and retail space within the City in addition to providing large-scale retail activities that will complement existing smaller scale retail activities throughout the City.
Policy ED-3.12 Regional Commercial Centers. The City shall provide for larger scale regional retail development. The City shall designate sites in the following locations: a. Sites in the vicinity of I-5 and intersecting major arterials for a 200+ acre regional mall of 2 million square feet or greater to effectively compete within the regional market. b. Sites for a discount center (power center) in the Southwest area of the city in the vicinity of I-5 and French Camp Road to address the shopping needs of the southern and western parts of the city and to draw from the adjacent areas. c. Sites for a discount center (power center) in the northeast area of the city in the vicinity of SR 99 and Eight Mile Road to address the shopping needs of the northern and eastern parts of the city and to draw from the adjacent areas.	**Consistent.** See above explanation.
Community Design Element	
Goal CD-1. *To improve the overall visual quality of the urban environment.*	**Consistent.** The Project is being designed as a "gateway."
Policy CD-1.5 Gateways. The City shall define a set of distinctive gateway districts that provide a sense of arrival. Gateway districts shall use a combination of streetscape, building orientation and placement, and signage to create memorable community entries.	**Consistent.** See above explanation. One of the goals of the project is to provide a defined gateway to the City.
Goal 2. *Develop a balanced and complete community in terms of land use distribution and densities, housing types and styles, job opportunities and opportunities for social and cultural expression.*	**Consistent.** The Project will create commercial retail uses in an area of the City that lacks such facilities, serving residential development in the area.
Goal 2, Policy 2. Business and industry should be encouraged to provide job opportunities for members of Stockton's work force.	**Consistent.** The Project will provide approximately 600 temporary construction jobs and 800 permanent jobs when complete.
Transportation and Circulation Element	
Goal TC-1. *To develop an integrated transportation system that provides for the safe and efficient movement of people and goods.*	**Consistent.** The project design contributes to the improvement and expansion of adjacent and connecting roadways. See Section 4.7, particularly mitigation measures 4.7.1 through 4.7.4 and 4.7.8.
Policy TC-2.4. The City shall require at least two (2) independent access routes for all major development areas.	**Consistent.** The Project would provide multiple access routes, including Interstate 5, French Camp Road, and Manthey Road.
Policy TC-2.5 Multiple Transportation Modes. The City shall require that significant trip-generating land uses be served by roadways and transit connections adequate to provide efficient access by multiple transportation modes with a minimum of delay.	**Consistent.** See above explanation.
Policy TC-2.6 Priority for Street and Highway Improvements. The City shall give priority to street and highway improvements that increase safety,	**Consistent.** See Sections 4.8, 4.9 and 4.11 for discussions considering the project's impact on air quality, noise and biological resources.

REVISED TABLE 4.2-1
GENERAL PLAN CONSISTENCY

General Plan Policy	Project Consistency
minimize maintenance costs, improve air quality, increase the efficiency of the street system, and reduce the dependence on single occupant vehicles (SOV) for commuting.	
Public Facilities and Services Element	
Goal PFS-1. *To ensure the provision of adequate facilities and services that maintain service levels are adequately funded and allocated strategically.*	**Consistent.** The Project will be accessible to the public and provide public infrastructure.
Goal 1, Policy 2. Capital improvements and facility needs generated by new development shall be financed by new development. The community should not be burdened by increased taxes and fees or by lowered service levels to accommodate the needs created by new development. Exceptions to this policy may be considered in an effort to encourage affordable housing.	**Consistent.** The Project will generate net revenue for the city.
Policy PFS-1.2 Urban Service Area Expansion. The City shall not expand the Urban Service Area without ensuring adequate funding for services and facilities for newly expanding areas.	**Consistent.** See Section 4.6.2 for a discussion of potential impacts to public facilities and services. All potential impacts will be mitigated by the project proponent to a less-than-significant level.
Policy PFS-1.5 Funding for Public Facilities. The City shall continue to utilize developer fees, the City's public facilities fees, and other methods (i.e., grant funding and assessment districts) to finance public facility design, construction, operation, and maintenance.	**Consistent.** See above explanation.
PFS-1.8 Impact Mitigation. The City shall review development proposals for their impacts on infrastructure (i.e., sewer, water, fire stations, libraries, streets) and require appropriate mitigation measures if development reduces service levels.	**Consistent.** That analysis is documented within Section 4.6 of this document. The project would not create impacts on infrastructure that could not be reduced to less than significant with mitigation measures.
Water Supply and Delivery	
Goal PFS-2. *To ensure the adequate, reliable, and safe provision of water to all existing and future City of Stockton development, even through drought periods.*	**Consistent.** The project will not interfere with any existing groundwater or surface water resources.
Policy PFS-2.1 Water Conservation. The City shall continue to implement water conservation programs that save significant amounts of water at a reasonable cost.	**Consistent.** The project proposes the use of drought-tolerant plants.
Wastewater	
Policy PFS-3.1 Sanitary Sewer Service Area. The City shall require that all new urban development is served by an adequate collection system to avoid possible contamination of groundwater from onsite wastewater disposal (septic) systems.	**Consistent.** The project area is served with sewage collection lines adequate to serve the Project. See Section 4.6.
Policy PFS-3.3 Compliance with Federal Standards for Surface Water Protection. The City shall comply with the requirements of the Clean Water Act with the intent of minimizing the discharge of pollutants to surface waters.	**Consistent.** The Stormwater Management Division within the City's Municipal Utilities Department has developed the Model SWPPP for Construction Activities
Stormwater	
Policy PFS-4.2 Watershed Drainage Plans. The City shall require the preparation of watershed drainage plans for proposed developments within the urban services boundary. These plans shall define needed drainage improvements and estimate construction costs for these improvements. The plans will also identify a range of feasible measures	**Consistent.** See above comments; a drainage plan has been prepared. Storm water quality measures to be taken are described in Section 4.10. See in particular Mitigation Measures 4.10.2a through 4.10.2c. Mitigation Measure 4.10.2c directs the use of best management practices for the Project's Drainage Plan.

REVISED TABLE 4.2-1
GENERAL PLAN CONSISTENCY

General Plan Policy	Project Consistency
that can be implemented to reduce all public safety and/or environmental impacts associated with the construction, operation, or maintenance of any required drainage improvements (i.e., drainage basins, etc.).	
Policy PFS-4.3 Best Management Practices. The City shall require, as part of watershed drainage plans, Best Management Practices (BMPs), to reduce pollutants to the maximum extent practicable.	**Consistent.** Storm water quality measures to be taken are described in Section 4.10. See in particular Mitigation Measures 4.10.2a through 4.10.2c. Mitigation Measure 4.10.2c directs the use of Best Management Practices for the Project's Drainage Plan.
Fire Protection	
Goal PFS-8. *To provide protection to the public through effective fire protection services and the incorporation of fire safety features in new development.*	**Consistent.** Appropriate fire safety precautions will be incorporated into this project.
Policy PFS-8.3 Provision of Station Facilities and Equipment. The City should provide fire station facilities, equipment (engines and other apparatus), and staffing necessary to maintain current levels of service throughout the City, including newly developed areas.	
Policy PFS-8.6 Adequate Emergency Access and Routes. The City shall require that new development provide adequate access for emergency vehicles, particularly firefighting equipment, as well as provide evacuation routes.	**Consistent.** Emergency vehicle access is considered in the design of the project.
Policy PFS-8.9 Fire Hazards Protection for City Programs. The City shall consider protection from fire hazards in all planning, regulatory and capital improvement programs.	**Consistent.** Fire hazards are considered in the design of the project.
Health and Safety Element	
Goal HS-1. *To protect the community from injury and damage resulting from natural catastrophes and hazardous conditions.*	**Consistent.** The project site is not subject to any pronounced natural hazards to public health and safety. Potential hazards are discussed in Section 4.13. All are deemed less than significant after mitigation.
Policy HS-1.1 Development Constraints. The City shall permit development only in areas where the potential danger to the health and safety of people can be mitigated to an acceptable level.	**Consistent.** The Project area is on level ground, and is outside the 100 year floodplain of the San Joaquin River.
Noise	
Goal HS-2. *To protect the community from health hazards and annoyance associated with excessive noise levels.*	**Consistent as mitigated per Section 4.9.** See Section 4.9 for a discussion of noise impacts and Mitigation Measures.
Policy HS-2.3 Noise Analysis. The City shall require noise analysis of proposed development projects as part of the environmental review process and to require mitigation measures to reduce noise impacts to acceptable levels. The acoustical analysis shall: a. Be the responsibility of the applicant. b. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics. c. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions. d. Estimate existing and projected (20 years) noise levels in terms of Ldn/CNEL and compare the levels to the adopted policies of the Public Health and	**Consistent.** A detailed evaluation of noise impacts is described in Section 4.9. See above explanation.

REVISED TABLE 4.2-1
GENERAL PLAN CONSISTENCY

General Plan Policy	Project Consistency
Safety Element. e. Recommend appropriate mitigation to achieve compatibility with the adopted noise policies and standards of this Public Health and Safety Element. Where the noise source in question consists of intermittent single events, the acoustical analysis must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance. f. Estimate noise exposure after the prescribed mitigation measures have been implemented. If the project does not comply with the adopted standards and policies of the Public Health and Safety Element, the analysis must provide acoustical information for a statement of overriding considerations for the project. g. Describe a post-project assessment program, which could be used to evaluate the effectiveness of the proposed mitigation measures.	
Policy HS-2.14 State Noise Insulation Standards. The City shall enforce the State Noise Insulation Standards (California Administrative Code, Title 24) and Chapter 35 of the Uniform Building Code.	**Consistent.** The project is designed to California Administrative Code, Title 24 noise insulation standards.
Policy HS-2.17 Commercial Uses. The City shall require that noise produced by commercial uses not exceed 75 dB Ldn/CNEL at the nearest property line.	**Consistent as mitigated per Section 4.9.** Noise level increase would be significant at the nearest property line, but with Mitigation Measures described in Section 4.9, will not exceed 75 A-weighted Ldn or CNEL.
Policy HS-2.18 Noise Easements. The City shall grant exceptions to the noise standards for commercial and industrial uses only if a recorded noise easement is conveyed by the affected property owners.	**Does not apply.** See above comment.
Seismic and Other Geologic Hazards	
Goal HS-3*. To protect the community from the hazards of expansive soils, seismic dangers, including threats from liquefaction potential of soils, and other geologic activity.*	**Consistent.** The project does not place the community at significant risk from natural geologic hazards.
Policy HS-3.2 Seismic Safety of Structures and Public Facilities. The City shall require that new structures intended for human occupancy, public facilities (i.e., treatment plants and pumping stations, major communication lines, evacuation routes, etc.), and emergency/disaster facilities (i.e., police and fire stations, etc.) are designed and constructed to minimize risk to the safety of people due to ground shaking.	**Consistent.** The project is designed to withstand the most severe probable earthquake.
Air Quality	
Goal HS-4. *To improve air quality and to minimize the adverse effects of air pollution on human health and the economy.*	**Consistent.** Air quality impacts are reviewed in Section 4.8.
Policy HS-4.5 City Review of Development Proposals. The City shall use the SJVAPCD Guidelines for Assessing and Mitigating Air Quality Impacts (GAAMAQI) for determining and mitigating project air quality impacts and related thresholds of significance for use in environmental documents. The City shall continue to cooperate with the SJVAPCD in the review of development proposals.	**Consistent.** Air quality impacts are reviewed in Section 4.8.
Policy HS-4.6 CEQA Compliance and Air Quality Mitigation. The City shall ensure that air quality impacts identified during the CEQA review process are fairly and consistently mitigated. The City shall	**Consistent.** Air quality impacts are discussed in Section 4.8 and mitigated where feasible, according to the guidelines of the San Joaquin Valley Air Pollution

REVISED TABLE 4.2-1
GENERAL PLAN CONSISTENCY

General Plan Policy	Project Consistency
require projects to comply with the City's adopted air quality impact assessment and mitigation process, and to provide specific mitigation measures as outlined in policies of Chapter 8 Transportation and Circulation.	Control District.
Flood Hazards	
Goal HS-6. *To minimize the risk to the community from flooding.*	**Consistent.** The Project area is on level ground and outside the 100-year floodplain of the San Joaquin River.
Policy HS-6.1 New Urban Development. The City shall approve new urban development only when the project is shown to be protected from a 100-year flood.	**Consistent.** See above explanation.
Natural and Cultural Resources Element	
Goal NCR-1*. To protect, restore, and maintain natural and cultural resources in Stockton.*	**Consistent.** The project is contiguous with an urbanized part of the city and does not take agricultural land out of production.
Policy NCR-1.1 Protect Natural Resources. The City shall strive to protect natural resource areas, fish and wildlife habitat, scenic areas, open space areas, agricultural lands, parks, and other cultural/historic resources (including Oak trees) from encroachment or destruction by incompatible development.	**Consistent.** As described in Section 4.11, the project, with mitigation measures, would result in a less-than-significant impacts to wildlife or natural vegetation.
Goal NCR-2. *To preserve and protect sensitive habitats and species in the Planning Area and the Sacramento-San Joaquin Delta.*	**Consistent.** See policy specific responses, below.
Policy NCR-2.1 Protect Sensitive Habitats. The City shall support preservation, restoration, and enhancement of habitats of State or Federally-listed rare, threatened, endangered and/or other sensitive and special status species.	**Consistent.** As described in Section 4.11, the project, with mitigation measures, would result in a less-than-significant impacts to wildlife or natural vegetation.
Policy NCR-3.2 Historic Structures and Sites. The City shall support public and private efforts to preserve, rehabilitate, and continue the use of historic structures, sites, and districts. Where applicable, preservation efforts shall conform to the current Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Building.	**Consistent.** No historically or culturally resources of importance are know to be located on the project site. Potential damage to previously unidentified buried archaeological and/or human remains is mitigated as described in Section 4.12.
Policy NCR-3.5 Archaeological Resource Surveys. Prior to project approval, the City shall require project applicant to have a qualified archeologist conduct the following activities: (1) conduct a record search at the Central California Information Center located at California State University Stanislaus and other appropriate historical repositories, (2) conduct field surveys where appropriate, and (3) prepare technical reports, where appropriate, meeting California Office of Historic Preservation Standards (Archeological Resource Management Reports).	**Consistent.** See explanation above.
Policy NCR-4.1 Continued Agricultural Use. The City shall promote the continuation of existing agricultural operations until such time that areas are needed for planned urban expansion.	**Consistent.** See above explanation.

On page 4.2-17 the first, second, and third paragraphs (Impact 4.2.2) are revised:

~~The City will amend its General Plan to redesignate a portion project site from Low Medium Density Residential to Commercial. The General Plan Amendment will eliminate the inconsistency between the proposed use and the existing General Plan Land Use Designation.~~

~~As a part of t~~The entire project ~~the~~ site will be rezoned from ~~Commercial, General and~~ Residential, Low Density to Commercial, Large Scale. The rezone will eliminate the inconsistency between the proposed uses and the land uses allowed in the existing zoning. As noted above, Table 4.2-1 provides an overall assessment of the project's consistency with current General Plan policies.

~~Under the proposed 2035 General Plan Update, it is anticipated that the project site would be designated for commercial uses. The project would be consistent with this land use designation.~~

On page 4.2-18 the first paragraph under Impact 4.2.5 is revised:

Implementation of the project would convert 42.24 acres~~59.68 acres of~~ prime farmland to commercial use. Significant unavoidable environmental impacts resulting from conversion of agricultural land in the project site have been addressed in previous documents and have been considered and accepted through previous Statements of Overriding Considerations in connection with the approval of Weston Ranch Annexation. Nevertheless, the project, if implemented, would result in direct conversion of prime farmland to a non-agricultural use, and the impact is therefore considered potentially significant.

4.3 Aesthetics

On page 4.3-1 the second, third, fourth, fifth and sixth paragraphs are revised:

The project is located in Stockton, north of French Camp Road and west of I-5 at the northwest corner of the Interstate 5 (I-5)/French Camp Road interchange. The project area is located within the Stockton city limits. The project site consists of ~~six~~ five parcels of land totaling approximately ~~65.8~~ 44.14 acres.

The existing Weston Ranch residential subdivision is located to the northwest of the project area. ~~and borders a portion of the western edge of the project site.~~ Agricultural land is located adjacent to the southwest and southern portions of the project site.

The project area is accessed from I-5 using the French Camp Road and Downing Avenue off-ramps. Local project access is provided at ten access points: five on French Camp Road, three on Manthey (west), and two on Henry Long Blvd. ~~Local project access is provided by French Camp Road on the south and the realigned Henry Long Boulevard via Manthey Road via Downing Avenue and William Moss Boulevard on the north.~~ The realigned Henry Long Boulevard will provide access and the northern boundary of the site and will become a public street. ~~Local project access is provided by French Camp Road on the south and Manthey Road via Downing Avenue and William Moss Boulevard on the north.~~

Built Environment

The project site is located on a nearly flat piece of land just west of I-5, at the southern end of the Stockton city limits. The project area consists of approximately ~~65.8~~44.14 acres of what is mostly fallow agricultural land and annual grassland. The site has an elevation of between 10 and 15 feet amsl that slopes gently toward the west/northwest. The project area is bordered on the south by French Camp Road and active agricultural fields, to the west and north by medium density suburban housing developments, and on the east by both Manthey Road (frontage road) and I-5. A drainage ditch, which flows north toward French Camp Slough, extends along the east edge of Manthey Road, outside the project site. ~~There is an unlined drainage ditch located along the eastern edge of the project area and a concrete lined drainage ditch along the western edge which flow northward to French Camp Slough, which is outside the project area.~~

The site area contains two inhabited residences and two dilapidated abandoned residences. Aerial utility lines are located along Manthey Road to the corner of French Camp Road, crossing the project area from French Camp to Henry Long, and along both sides of Henry Long Boulevard. Land uses surrounding the project site include an existing residential subdivision and fallow agricultural land to the west where future residential construction is planned. To the south is agricultural land. Land to the east of the site, between Manthey Road and the I-5 corridor, consists of vacant parcels zoned Low Density Residential (RL). Under both the old 1990 General Plan and the recently approved 2035 General Plan Update the entire area is designated as Commercial. It is likely that in the future the City will change the zoning of the area currently zoned Low Density Residential to some type of Commercial zoning to make the land use designation and zoning consistent. On the opposite side of the I-5 corridor, the land consists of warehouses and light industrial uses. ~~To the east, between Manthey Road and the I-5 corridor, are vacant parcels zoned General Business and Single Family Residential. On the opposite side of the I-5 corridor, the land consists of existing warehouses and light industrial uses.~~ Land to the north consists of a ~~35-acre~~ parcel of vacant land zoned for residential and commercial uses. Further north is an existing residential neighborhood.

On page 4.3-2 the fourth paragraph is revised:

~~Approximately 28.5 acres of a~~Approximately 29.16 acres of annual grassland (agricultural land that has remained fallow for several years) and 2.92 acres of agricultural fields are located ~~occur~~ in the project area~~, mainly in the northern half of the project area~~. ~~This field~~ The agricultural land has historically been cultivated, but is now barren, except for new growth of grasses and other weed species. Approximately ~~5.8~~5.34 acres of developed lands and 6.87 acres of asbestos landfill also occur on the project site (see Figure 4.11-1)~~in the southeast and western portions of the project area~~.

On page 4.3-10 second paragraph under Impact 4.3.1 is revised:

The project site consists primarily of agricultural land and rural residential uses. Implementation of the project would result in the permanent conversion of the ~~65.8~~ 44.14-acre site to commercial development. Conversion of the project area from agricultural and rural residential uses to

commercial development would result in a substantial alteration of the local visual character of the project area. Sensitive receptors of the post-project altered visual character of the project site would be the current residents living in Weston Ranch residential housing development, the scattered rural residents living in the vicinity of the project area, any future residential development planned for areas west of the project area, and travelers on I-5. As noted in the project description, the Weston Ranch Towne Center project has been revised since the publication of the Draft EIR. The revised project reduces the land area of the site to 44.14-acres, with the revised northern boundary of the site being Henry Long Boulevard. This change in the site footprint means that no part of the site will be located adjacent to existing residences. However, land designated and zoned for residential use still occurs to the west of the project site.

On page 4.3-11 first paragraph is revised:

Altered southeast facing views would be most affected for those residents~~ees~~ living nearest the western edge of the project area and to the northwest. An approximately 10 foot concrete soundwall exists along the eastern edge of the housing development located to the northwest of the project site, which already blocks most of the east and southeast facing views for the single story residences. However, the majority of these houses ~~along what would become the western edge of the commercial center~~ are two storey structures that currently command an open east and southeast facing viewshed. This open viewshed is moderately interrupted by I-5 but the mature trees and vegetation along the highway and the open area in between prevent I-5 from being a visual nuisance. Views from the residential developments located beyond and to the north of the project area, north of William Moss Boulevard, and those residences located further to the west of the project area, west of Mossbrook Lane would be become interrupted with the development of the project area. However, residential development to the west will be separated by a public road (Manthey Road).

On page 4.3-11 Mitigation Measure 4.3.1 is revise:

Mitigation Measure 4.3.1. Impacts will be reduced by the project's compliance with all municipal design guidelines (e.g., design review, landscaping, building articulation, etc.).

On page 4.3-12 the second and third full paragraphs are revised:

Impact 4.3.3. Architecture and Design – Consistency with City of Stockton 2035 General Plan Update, Municipal Code, and Citywide Design Guidelines. The project has been designed in accordance with the design standards contained within the City of Stockton 2035 General Plan Update, Municipal Code, and Citywide Design Guideline. Therefore, this impact is considered less-than-significant.

The project site is located along the I-5 freeway corridor just north of the French Camp Road~~n~~/I-5 freeway interchange, an identified City freeway corridor gateway and is therefore subject to the Freeway Corridor Design Guidelines contained within the Citywide Design Guidelines.

4.4 Urban Decay

The Urban Decay section, pages 4.4-1 through 4.4-45 of the DEIR, is revised as follows:

Introduction

This chapter of the EIR analyzes the potential of the proposed revised Weston Ranch Towne Center Project ("project") to result in urban decay impacts. The chapter discusses the various factors involved in assessing such impacts, evaluates relevant current economic and demographic trends in the Stockton area, and considers whether implementation of the proposed project would lead to significant adverse physical effects on retail and other properties within its market area, either by itself or cumulatively.

For the purposes of this section, "project" refers to the proposed reduced Wal-Mart ~~Supercenter and a second major retailer,~~store as well as the associated smaller retail developments planned for the revised Weston Ranch Towne Center. This section presents key data, analysis, and findings of the urban decay analysis for the proposed project~~, which can be found in its entirety in **Appendix C**~~ that differ from the DEIR analysis performed for the original larger Weston Ranch project that included the Wal-Mart Supercenter and secondary big box discount retailer. Specific analysis of future development of the Barkett property was not included because it is uncertain when the property will be developed and with what uses. However, the total size of the proposed revised project and the associated urban decay analysis is sufficient to include potential development of the Barkett property.

Background

According to the California Environmental Quality Act (CEQA) Guidelines (15358 [b]), impacts to be analyzed in an environmental impact report (EIR) must be "related to physical changes" in the environment. While the CEQA Guidelines (15131 [a]) do not directly require an analysis of a project's social or economic effects because such impacts are not in and of themselves considered significant effects on the environment, the guidelines also state:

> An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes caused in turn by economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes.

The CEQA Guidelines also provide that physical effects on the environment related to changes in land use, population, and growth rate induced by a project may be indirect or secondary impacts of the project and should be analyzed in an EIR if the physical effects would be significant (see Guidelines 15358[a][2]).

The State of California Fifth District Court of Appeal recently ruled that CEQA can require analysis of physical urban decay or deterioration resulting from the development of new shopping centers

(*Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) F044943 (Super. Ct. No. 249669)).[1] The Court also ruled that the cumulative impact analysis for the proposed shopping centers should consider all other past, present, or reasonably foreseeable future retail projects within the project's market area.

In a second recent case (*Anderson First Coalition v. City of Anderson* [2005] 130 Cal. App. 4th 1173) the Third District Court of Appeal upheld an EIR analyzing a proposed shopping center. In this case, the EIR included an economic analysis that evaluated the proposed retail development project's impact on other businesses. In upholding the EIR, the court determined that the lead agency had evaluated the urban decay issue adequately and had provided sufficient substantial evidence to support its findings.

Urban Decay Analysis Approach

Since the project is likely to compete with a number of existing businesses within Stockton, ESA performed an urban decay impact analysis for the project. Particular attention was devoted to assessing the extent of the contributory effect associated with the project and other proposed retail development on local urban decay.

ESA has updated the previous DEIR urban decay impact analysis for the revised project. Particular attention was devoted to updating the data used for the analysis to represent changes in the current and expected future economic conditions within Stockton. Significant changes in the assumptions, methodology and data are noted wherever they have been applied.

The analysis presented in this chapter of the EIR:

- Evaluates the expected economic effects of the project on Stockton's retail businesses.
- Considers the extent to which these effects would be expected to result in changes in the extent and severity of urban decay in Stockton.

The project would provide additional retail competition with existing retail businesses within Stockton and in the general Stockton area. Depending on the nature of this new competition and the retail market at the time of project completion, the project could cause the closure of businesses. If insufficient retail demand exists for the vacated properties to be re-tenanted, these business closures could result in long-term or permanent vacancies, which could, in turn, contribute to, or be the cause of, urban decay within Stockton. A number of factors in addition to changes in retail sales influence changes in levels of financial decay and are therefore considered in this analysis. These factors include property value trends, demographic changes, and governmental programs and actions aimed at ameliorating or preventing urban decay.

[1] The Appeals Court specifically noted that "urban decay" is distinct from "urban blight," which, per the California Health & Safety Code (Sections 33030 to 33039) definition, is not applicable to this project.

Method

The analysis presented in this chapter of the EIR is based upon the more detailed assessment of economic factors relevant to urban decay in **Appendix C**. The following tasks were conducted as part of the detailed assessment:

- Compilation of a comprehensive inventory and assessment of the major local retail businesses and shopping centers to identify the competing retailers that could potentially be most impacted by the project *(see: Inventory of Existing Retailers)*.
- Analysis of Stockton's current retail sector and demand conditions *(see: Current Retail Sales in Stockton, Retail Leakage Analysis, Retail Demand Trends)*.
- Identification of Stockton's current economic development policies and programs for urban renewal *(see: Current Redevelopment Policies and Projects)*.
- "Leakage" analysis assessing the inflows and outflows of consumer retail spending to and from the Stockton economy *(see: Retail Leakage Analysis)*.
- Analysis of the current commercial and residential real estate markets in the Stockton region (*see: Real Estate Analysis)*.
- Estimation of the project's future sales by retail category *(see: Retail Sales for the Project)*.
- Projection of future sales by potential/likely future new Stockton retailers by retail category *(see: Sales by Potential Future Stockton Retail Developments).*
- Market analysis to identify the project's expected market area *(see: Market Analysis)*.
- Estimation of the average annual expected growth in Stockton's future retail demand *(see: Future Retail Demand Growth)*.
- Projection of potential "sales shift" impacts on existing retailers both from the project and from potential new Stockton retailers, in order to evaluate the likelihood of project-related business closures *(see: Potential Sales Shift Impacts to Existing Retailers)*.
- Real estate analysis to evaluate the potential for re-tenanting of vacated properties and the likelihood of project-related long-term building vacancies and related urban decay impacts *(see: Real Estate Analysis)*.

The analysis presented in this chapter of the Final EIR is based upon the previous detailed urban decay analysis performed for the DEIR and its accompanying **Appendix C**. The former analyses approach and assumptions were re-assessed and where necessary additional information was collected and used for the supplemental urban decay analysis. Key additional data and information is noted and present in the analysis below.

4.4.1 Existing Conditions

The existing conditions analysis ~~identifies~~for the ~~current~~FEIR re-examined the former retail sector conditions in the DEIR to identify and ~~understand~~when necessary make adjustments to adequately represent the baseline conditions for the ~~subsequent~~FEIR impact analysis. In addition to re-evaluating ~~the~~ Stockton current retail sector and foreseeable major potential project competing retailers, ~~the section~~analysis also ~~identifies~~reviewed Stockton's current economic development policies and its program for fostering urban renewal within Stockton.

Inventory of Existing Retailers

For the previous DEIR analysis, ESA conducted an extensive inventory of the retailers currently operating in Stockton and the neighboring cities of Manteca, Tracy, and Lathrop to evaluate general retail conditions for Stockton and south San Joaquin County.[2] The inventory included background research, data collection, and site visits to most of the principal retailers and shopping centers. In addition, key contacts were identified and, when possible, interviewed to gather additional information on the region's retail market. However, most of this information is qualitative in nature. Some financial information was obtained from Info-USA on store sales, although the data may under-report actual sales due to survey response biases and data collection approaches. Retailers were selected, based on their reported Standard Industrial Classification (SIC) codes and operations.[3,4] The retailers selected for analysis were those expected to be in direct competition with the Weston Ranch project due to similarities in goods and customer base. This previous inventory analysis remains applicable to the current FEIR.

The DEIR analysis concluded that most of the retail stores in the Stockton region are relatively well-established in the market. Numerous major large-scale discount retailers have been operating in Stockton and the region for many years. Furthermore, during the last several years, several national retailers have added new stores or upgraded their facilities, thereby indicating confidence in and a commitment to the local retail market. **Tables 3-1** and **3-2** in **Appendix C** identify most of the major general department store retailers, groceries, and drugstores in the Stockton area expected to compete with the proposed project. **Figures 4.4-1** to **4.4-3** show the major competing retailers' locations. As the figures indicate, most of Stockton's retailers are clustered in north Stockton, with a very limited number serving the south and central Stockton areas despite the considerable residential populations living in those areas.

The City of Stockton was contacted in order to obtain information on the square footage estimates for the major retailers within Stockton and thus develop estimates of sales per square foot for the major retailers. The retailer list was cross-verified for selected retailers that were either missing from the Info-USA database or that appeared to have inaccurate or incomplete data. ESA contacted

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2 An initial assessment of the greater Stockton region was performed to understand the Stockton retail sector's broader context.

3 SIC Codes for General Merchandise Stores (53), Food Stores (54), Apparel & Accessory Stores (56) and Miscellaneous Retail (59) were searched.

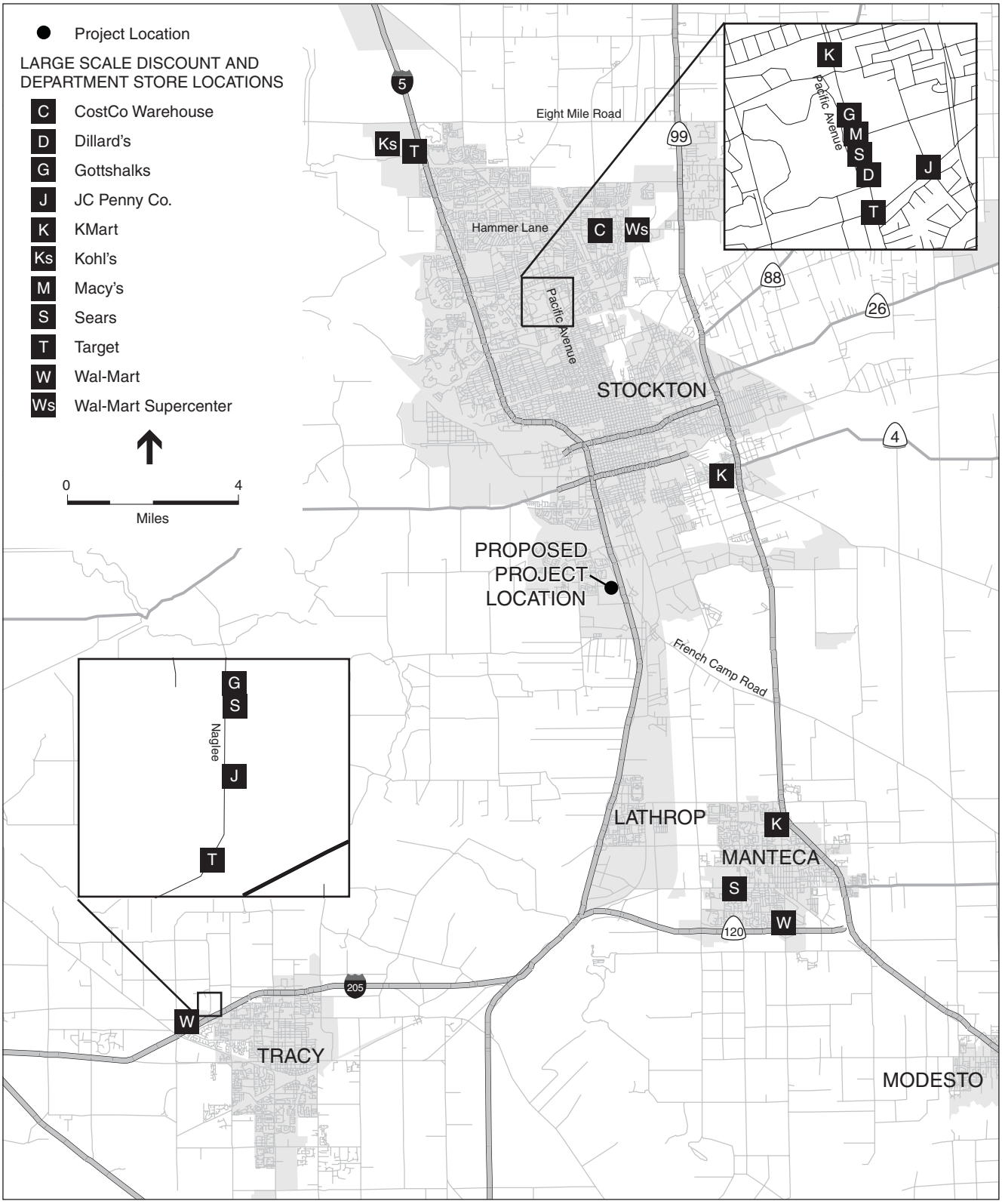
4 Initial data was collected for all such business with 10 or more employees

individual store managers and reviewed public financial reports to obtain the best available data for these retailers. The primary retailers expected to experience the majority of the retail impact from the proposed Weston Ranch project are major general merchandise department store retailers (i.e., those other retailers most similar to Wal-Mart), major supermarkets, and drugstores. Therefore ESA did not include smaller grocery stores and drugstores (with less than 15,000 square feet) in the inventory of competing retailers (see **Tables 3-1** and **3-2 in Appendix C**).

As the figures indicate, most of Stockton's retailers are clustered in north Stockton, with a very limited number serving the south and central Stockton areas despite the considerable residential populations living in those areas. During the 1990s, Stockton went through a prolonged period when little retail development occurred. As a result, many of the real estate brokers who were interviewed for the retail market analysis indicated that the recent~~,~~ retail development boom ~~ongoing~~ in the early 2000's can be partially attributed to the market "catching up" after years of inactivity. ~~This~~ The previous period of low retail development activity in the 1990s also likely explains much of the deferred maintenance conditions at many of the area's shopping centers.

Since the inventory was originally performed, numerous upscale retailers including REI, Eddie Bauer, Ann Taylor Loft are expected as tenants at the new Stonecreek Village Shopping Center (located at the former Sherwood Plaza previously anchored by the K-Mart on Pacific Avenue and Robinhood Drive). In February 2008, the former vacant Golfland property (located at the Hammer and West Lane intersection) was redeveloped as small neighborhood shopping complex (approximately 43,000 square feet) anchored by a new Walgreens and several small local serving food and services business (e.g. El Pollo Loco, H&R Block and Western Dental among others).

Other retail store changes since the previous DEIR analysis include the closure and subsequent re-tenanting of the S-Mart neighborhood grocery store in Normandy Village Shopping Center as SF Supermarket (an asian specialty grocer). Another vacant S-Mart property at 1060 North Wilson Way was re-tenanted by Grocery Outlet in April 2006 that relocated from its previous location on West March Lane. The vacated Grocery Outlet in the College Square shopping center was itself almost immediately reoccupied by Carter's Pet Mart. Similarly, the former Wal-Mart property on Hammer Lane that had been a furniture store retailer changed ownership during 2007 to reopen primarily as a Burling Coat Factory store.



SOURCE: InfoUSA, 2005; MapQuest, 2005; and ESA, 2006

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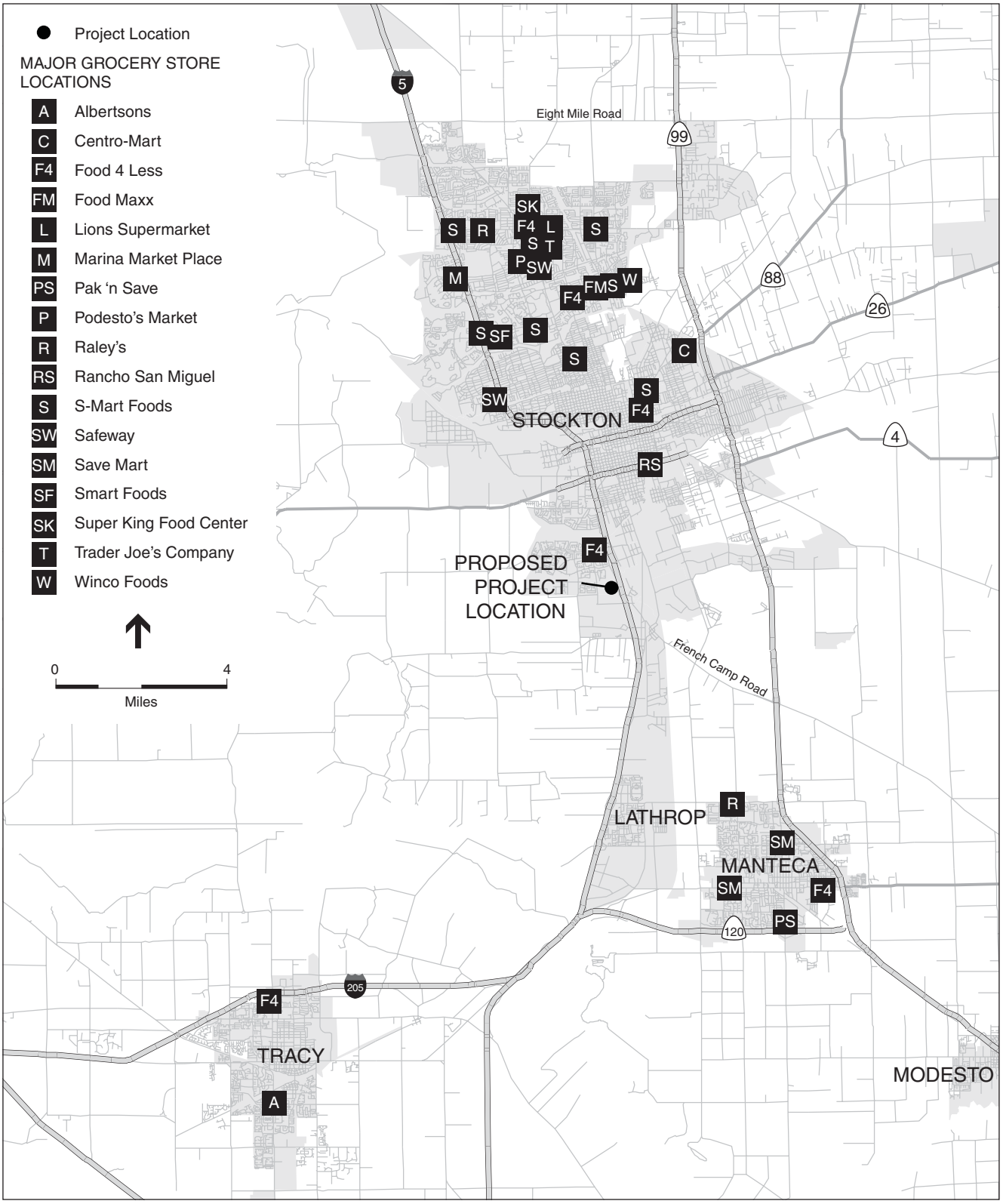
Figure 4.4-1

Major Large Scale Discount and Department Store Retailers Operating in the Stockton Region (2005)



SOURCE: InfoUSA, 2005; MapQuest, 2005; and ESA, 2006

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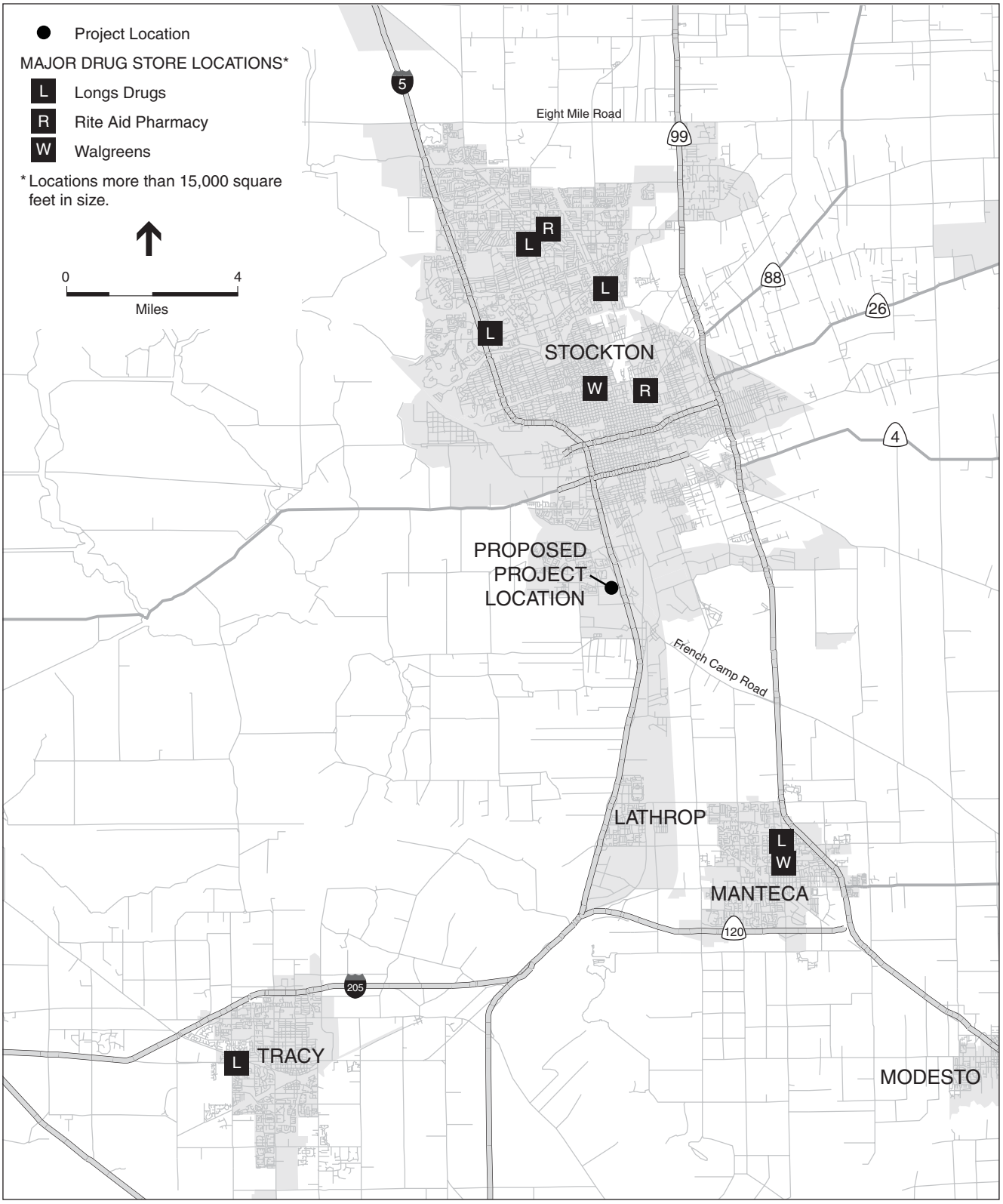
Figure 4.4-2
Major Grocery Stores
Operating in the Stockton Region (2005)



SOURCE: InfoUSA, 2005; MapQuest, 2005; and ESA, 2006

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Figure 4.4-3
Major Drugstore Retailers Operating in the Stockton Region (2005)

Major Stockton Area Shopping Centers

Brief descriptions of major existing Stockton retail shopping centers, based on site surveys conducted in March 2005~~,~~ are presented in **Appendix C**. Consistent with recent decisions by the Courts of Appeal concerning urban decay analyses in CEQA documents, the occupancy levels and physical condition of facilities are noted in these descriptions, as well as the types of retail activity and goods stocked. The names, primary anchor tenants, estimated size, and date of construction of the principal major shopping centers in Stockton are presented in **Appendix C** (see **Table 4-2**). **Figure 4.4-4** shows their locations; the centers are listed in order of their increasing distance from the proposed Weston Ranch project.

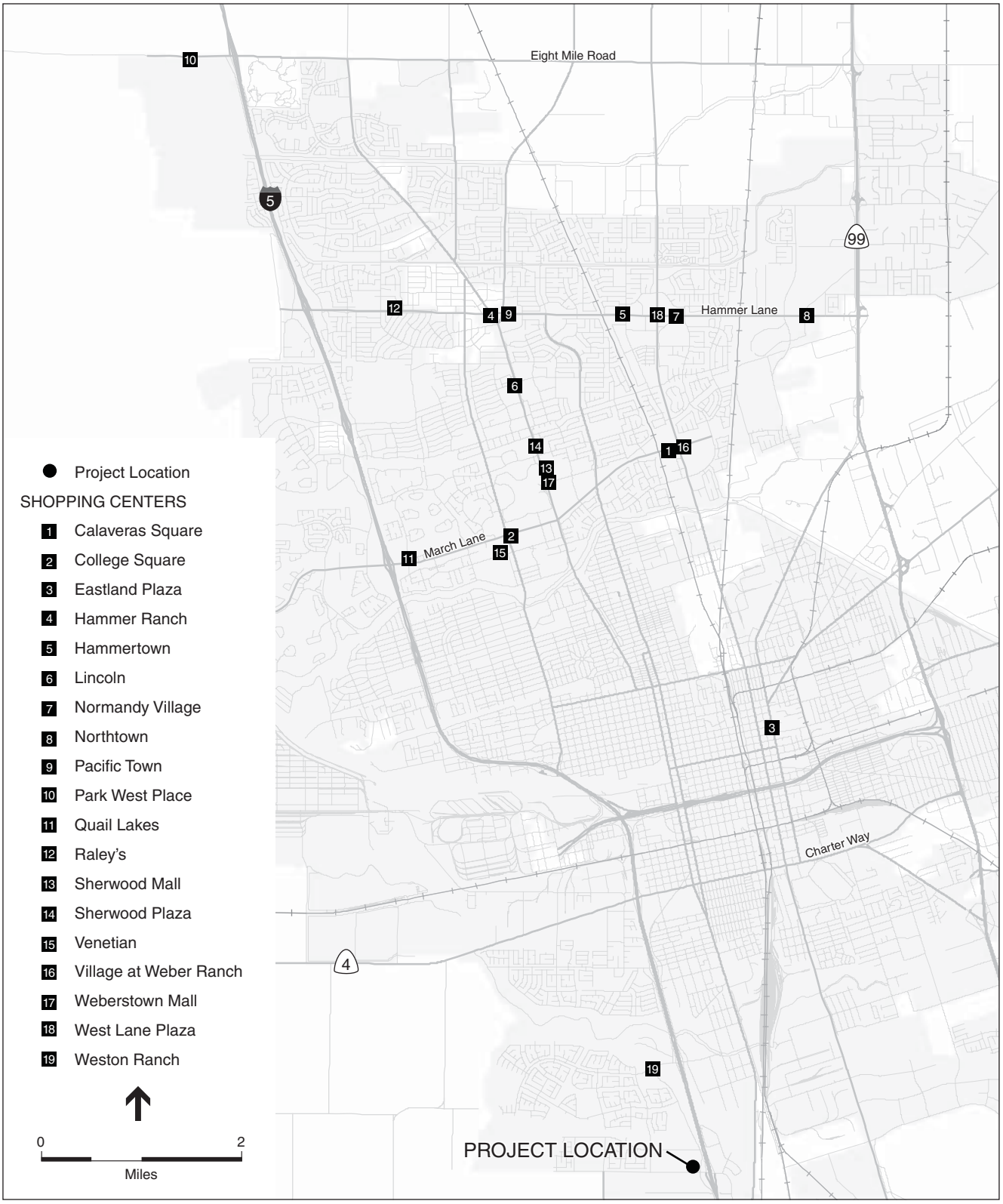
Apart from the current redevelopment of the former Sherwood Plaza (anchored by the K-Mart), no other major changes to the existing Stockton retail shopping centers have occurred that are substantially relevant to the FEIR analysis. As can be seen from the **Figures 4.4-1** through **4.4-4**, there is relatively little retail development in south and central Stockton. The great majority of retail development is located in north Stockton, generally along the principal retail corridors of Hammer Lane, Pershing Lane, Pacific Avenue, and March Lane. Stockton's central downtown area currently has relatively little retail business activity, and the area has been undergoing significant redevelopment efforts under the City's waterfront redevelopment plan. ~~Recent and planned new development includes the new City Center Cinema complex, the Stockton Ballpark, hotel redevelopment, and the Stockton Events Center, now under construction.~~

Many of Stockton's shopping centers were constructed before 1991, after which relatively little new retail development occurred until considerable new retail development in Stockton occurred~~-~~in the late 1990s. This retail expansion is ~~continuing~~continued through the early 2000s as the strong local housing and commercial real estate markets generated demand for new retail development.

Major Competing Retailers

~~In addition~~The competing retail assessment performed for the DEIR remains relevant to ~~surveying the principal shopping centers, information was also collected on most of~~ the ~~principal retailers operating~~revised Weston Ranch project which, while substantially reduced in ~~Stockton to qualitatively evaluate their condition, operations, product selection,~~its size (as discussed in greater detail later in the section), will likely be comparable in type and ~~clientele.~~ market reach of its future sales (except for the large discount warehouse retailer).

The purpose of ~~these~~ the retail assessments for the DEIR was to determine which stores would be expected to be most competitively affected by the project and to evaluate the ability of these businesses to absorb and respond to additional retail competition. While the detailed findings and observations are presented in **Appendix C**, the major observations are summarized below. Large-scale discount retailers such as Wal-Mart, Target, and K-Mart are classified as "general merchandise stores" by the California Board of Equalization and these retailers compete extensively through the country. Other big-box retailers and grocery stores such as Costco, Food 4 Less and Winco are present in the Stockton region and may also be expected to compete with the proposed project. In addition, many smaller grocery stores or specialized retailers are currently operating in Stockton that could be affected by increased retail competition from the proposed project.



SOURCE: USGS, 1993; San Joaquin County; City of Stockton; and ESA, 2006

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Figure 4.4-4
Major Shopping Centers Operating in the Stockton Region (2005)

According to several local commercial real-estate brokers interviewed as well as in ESA's professional opinion provided~~As conclude~~ in the DEIR, most of the retail and grocery stores in the Stockton region are well-established in the market. Most of the major large-scale discount retailers have been operating locally for many years. More recently, several national retailers have upgraded or added new stores, thereby showing their confidence in and commitment to the local retail market. The long standing presence of large-scale discount retailers has likely ensured that most of the less profitable retailers that were unable to compete effectively with these large-scale discount retailers have already ceased their retail operations in the region. In past retail impact studies, the greatest impacts on existing retailers from new retail development typically occurs in more rural communities, where prior to the discount retailers arrival there generally had been relatively limited retail competition. In more urban and relatively mature retail markets like Stockton's, smaller retailers may be affected by a new large-scale discount retailer but a major portion of the proposed project's competition for customers is likely to be from similar larger retailers.

Current Redevelopment Programs and Projects

In addition to the inventory and assessment of major retailers in Stockton, site visits were used to evaluate the project surroundings and to evaluate the extent of existing urban decay and current City of Stockton urban renewal efforts. Extensive background research and telephone interviews were conducted with local government agencies and organizations to obtain background information and analysis on the nature of existing urban decay within Stockton. Agencies contacted included: the City of Stockton Redevelopment Department, the City of Stockton Economic Development Department, the City of Stockton-Neighborhood Services Section, the San Joaquin Council of Governments, and the San Joaquin Partnership.

While there is very limited quantitative data or analysis, respondents generally agreed that the areas of Stockton subject to urban decay are generally located within Stockton's redevelopment areas. Although there are urban decay conditions associated with other buildings and businesses within Stockton, staff from the City of Stockton's Neighborhood Services Section indicated that run-down residential buildings in low-income neighborhoods are the main contributors to blight in most of Stockton (Daly, 2005). ~~Over the last ten years, major efforts have been made to improve Stockton's.~~ Since 1995, the Neighborhood Services Section's staff has increased from 3 to 16 employees and other staff resources and program funding within the City have also expanded considerably, greatly increasing the City's resources and capacity to monitor and enforce code compliance. Previously, enforcement was relatively weak and consequently non-compliance by local residents was common.

Stockton redevelopment areas as well as the City's recently completed and ongoing redevelopment projects are identified and discussed below. The City's key economic development programs and funding sources focused on urban decay are also discussed below.

City of Stockton Redevelopment Programs and Funding

The City works in partnership with housing organizations and relies on numerous federal, state, local and private entities to fund its housing and community development programs. It currently

operates several programs that are specifically intended to assist and encourage Stockton residents to improve and maintain their homes. The City's main funding sources and principal redevelopment programs include:

- The Community Development Block Grant (CDBG) program provides federal funding specifically targeted to: (1) provide benefits to low- and moderate-income persons; (2) eliminate slums and blight; and (3) meet urgent community needs. ~~Stockton successfully obtained a total $15.5 million budget for the 2005–2006 fiscal year.~~
- The Home Investment Partnership (HOME) Program provides funding for housing rehabilitation, new construction, and/or the acquisition of affordable. ~~The City acquired a total $9.6 million budget for the 2005–2006 fiscal year (City of Stockton, 2005).~~
- The U.S. Department of Housing and Urban Development provides additional loan assistance to CDBG entitlement communities for large-scale economic development. ~~Since 1998, the City has received Section 108 loans totaling $29 million for numerous urban renewal projects in the downtown and surrounding areas.~~
- Stockton also receives support for its housing and economic development efforts from a variety of state loans and grant assistance programs including: the Low Income Housing Tax Credit Program; Tax Exempt Bond Program; Proposition 46 Housing Bond; Cal Home Program and tax incentives from the State Enterprise Zone Program.
- The Stockton Redevelopment Agency uses tax increment funds earned from businesses and property owners within designated redevelopment areas to foster redevelopment within these areas. The City also offers tax and fee deferral incentives to foster new housing and business development within Stockton.

Redevelopment Areas within Stockton

City governments throughout California establish redevelopment areas to assist in eliminating blight and urban decay by encouraging reconstruction and rehabilitation of deteriorated and underused urban areas. As a result, redevelopment areas are frequently strong indicators of a city's economic health. Areas of urban blight or areas that are vulnerable to potential future decay impacts are often targeted by redevelopment agencies specifically to avoid potential future adverse economic impacts. ~~**Figure 4.4-5** shows the six redevelopment areas that encompass most of the existing urban decay within Stockton.~~

Recent and Ongoing City Redevelopment Projects

Over the last several years, the City has completed a number of major individual redevelopment projects designed to foster economic redevelopment and address urban decay within Stockton. Recently completed redevelopment projects now contributing to Stockton's downtown revitalization include:

- **Children's Museum**;
- **City Center Cinemas Project**;
- **Stockton Event Center –** the baseball stadium and a 10,000-seat Stockton Arena has been built~~. A future hotel and conference center is under construction~~;
- **Gateway Block** – the 60,000-square-foot commercial development was completed in 2001 to attract visitors and local residents downtown;

- **Weber Point Event Center** – this public space development complements the ongoing Weber Avenue Streetscape Beautification project and recent Fox Theater restoration;
- **Downtown Transit Center**;
- **Stockton Sheraton Hotel**
- **Renovation of the Historic Hotel Stockton** – adaptive reuse of the hotel ~~will include~~was completed in March 2005 and includes 156 low-income and senior apartments and 20,000 square feet of new retail; and
- **Edmund Coy Parking Garage**.

Other economic development projects now planned or under construction include:

- ~~**Stockton Event Center** – A hotel and conference center is under construction;~~
- **Gleason Park Master Development Area** – 96 affordable housing units and an elementary school will be built first followed by additional residential, commercial, and
- **University Park at the CSUS Campus** – approximately 500,000 square feet of primarily office space will be built with some other mixed use development.

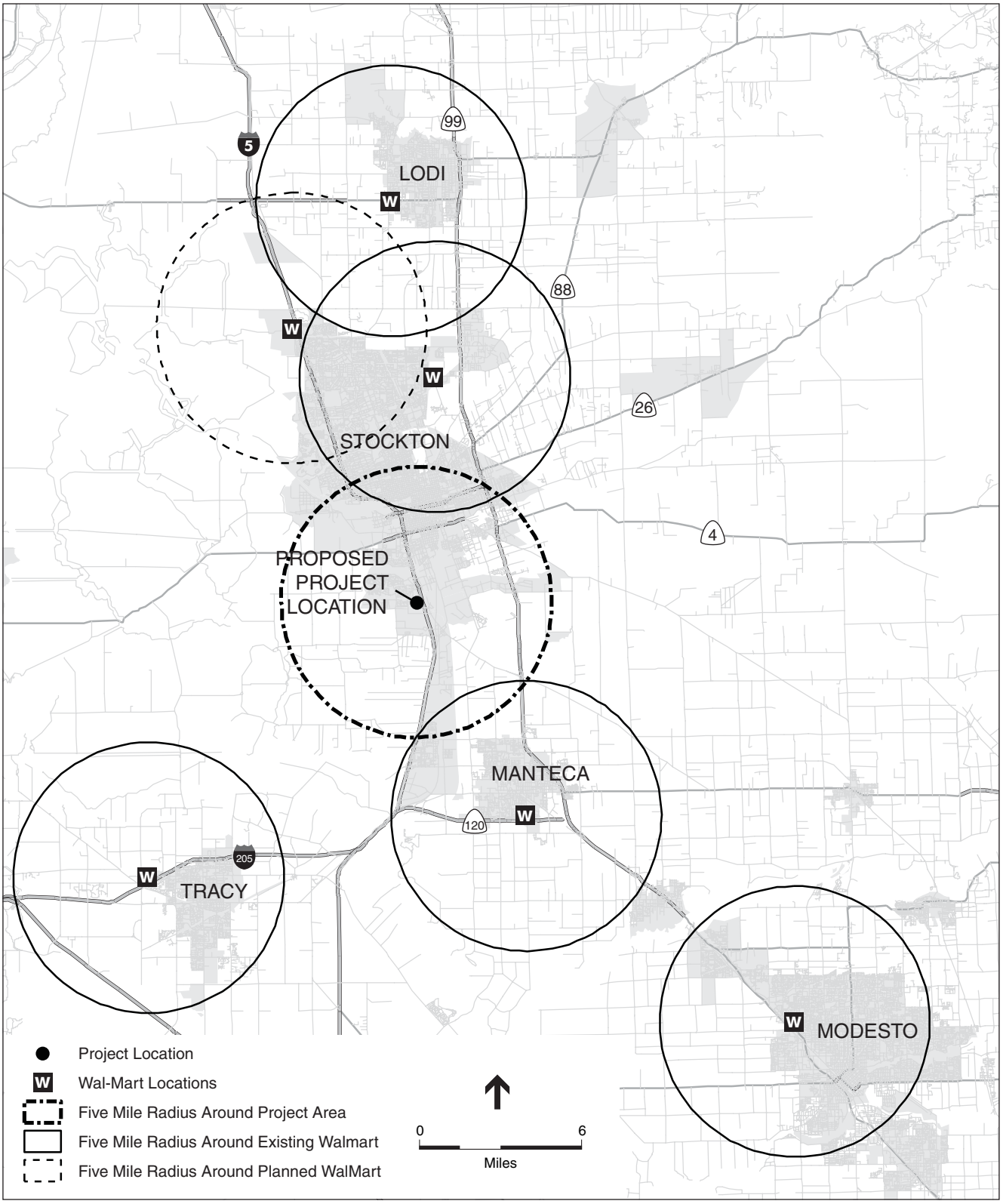
While most of its current economic development efforts are focused on the downtown area, the City is also creating redevelopment plans for other areas throughout the City. The successful revitalization of Stockton's downtown is expected to have a positive influence throughout the City by improving the quality of life for residents and visitors, as well as improving its general attractiveness to commercial businesses.

Current Retail Sales in Stockton

Taxable Sales

The most recent taxable sales data for ~~2003,~~ the first three quarters of 2006 were obtained from the California State Board of Equalization~~, into~~. Fourth quarter sales for 2005 were used to estimated the annual levels of retail sales within Stockton. These sales figures were adjusted in 2008 dollar terms using the Consumer Price Index for all Urban Consumers. In addition, the taxable sales estimated were adjusted to account for untaxed sales to estimate the total annual gross sales by Stockton retailers.

~~The major new retailers entering the Stockton retail market were identified and their annual sales have been estimated and combined with the year 2003 sales data to estimate the Stockton retail sector's total gross sales in 2005. These gross sales estimates were then reduced to isolate only the retail sales of project-competing goods and thus determine the baseline conditions for the subsequent retail impact analysis.~~



SOURCE: InfoUSA, 2005; MapQuest, 2005; and ESA, 2005

Weston Ranch Towne Center . 204152

Figure 4.4-5
Existing and Planned Wal-Marts in San Joaquin County

Taxable Sales

Taxable sales information for ~~2003~~ 2006 published by the California State Board of Equalization provides the most current, as well as the most reliable and comprehensive, retail sales information available for Stockton (California State Board of Equalization, ~~2005~~2008). The California State Board of Equalization reports quarterly on retail sales activity within California, which is measured by observing the sales transactions subject to state sales and use tax. Taxable sales statistics are reported (categorized according to type of business) for all California counties and most cities. State Board of Equalization data represents a primary source of sales data for retail businesses operating in California.

The ~~2003~~ 2006 taxable sales figures were used as the basis for estimating total gross sales in Stockton ~~through 2005, the year the revised Notice of Preparation for this EIR was issued and thus~~for the environmental setting's baseline year. The ~~2003~~estimated 2006 taxable retail sales by all retail groups for Stockton and California are presented in **Table 4.4-1**. Stockton's reported ~~$2.5~~3.07 billion in total taxable retail in ~~2003~~2006 qualified it as the sixteenth largest retail market in California and the fourth largest in Northern California (Eureka Group, ~~2005~~2008). The City of Tracy reported ~~$850 million~~$1.0 billion in taxable retail sales in ~~2003~~2006; combined retail sales for Stockton and Tracy were almost as large as the City of Sacramento's retail sales in the same year.

In terms of retail sales growth, over the five year period from 1998 to 2003, the Stockton region had the third highest annual growth rate in California. San Joaquin County's retail sales grew by an average of 10.8 percent per year between 1998 and 2003, with Stockton itself the fastest growing area of the County. In comparison, California's annual retail growth in the same period was 6.9 percent (Eureka Group 2005). Furthermore, Stockton itself has been the fastest growing area San Joaquin County. While Stockton's taxable retail sales continued to grow rapidly in 2004 (12.7%) Stockton's sales growth has slowed in subsequent years. In 2005 retail sales grew 7.7% (to a total of $3.05 billion) at rate comparable but less than the statewide average of 9.4%. However Stockton's 2006 retail sales fell very slightly to $3.04 billion (equivalent in nominal terms to a 0.25% decrease from the 2005 sales levels). Despite the recent slowdown in sales growth, ~~These~~ these figures indicate both the continuing ~~increasing~~ importance that the retail sector plays in the Stockton region's economy and the importance of the Stockton region as a major retail center in California.

Gross Sales

As shown in Table 4.4-1, the total taxable retail spending in Stockton was over ~~$2,511~~$3,069 million in 2006. On a per capita basis, Stockton's average taxable sales are approximately ~~$9,382~~$12,861 per capita (in ~~2003~~2008 dollars) ~~and were more than 5 percent higher than the~~ that were comparable to the corresponding statewide average of ~~$8,911~~$13,123. A significant portion of grocery store and general merchandise retail sales consist of non-taxable items that are unreported in the California Board of Equalization figures. Therefore, taxable sales were adjusted to determine gross retail sales estimates that account for sales of non-taxable goods. Based on discussions with State Board of Equalization analysts, it was determined that to estimate gross general merchandise sales, taxable sales should be increased by 5 percent to account for un-taxed drug store sales. State Board of Equalization analysts estimated that taxable sales at grocery stores likely range

REVISED TABLE 4.4-1
GROSS RETAIL SALES IN STOCKTON AND CALIFORNIA (2006)

	California			Stockton		
		Gross Sales			Gross Sales	
Retail Sector Categories	**Taxable Sales Total** (2006 $)	**Total** (2008 $)[a]	**Per Capita** (2008 $)[a]	**Taxable Sales Total** (2006 $)	**Total** (2008 $)[a]	**Per Capita** (2008 $)[a]
Apparel	$19,444 m	$21,885 m	$585	$119 m	$126 m	$438
General Merchandise[b]	$58,807 m	$69,497 m	$1,857	$553 m	$616 m	$2,141
Food[c]	$21,831 m	$75,604 m	$2,020	$189 m	$618 m	$2,148
Eating and Drinking	$48,525 m	$54,615 m	$1,459	$276 m	$293 m	$1,018
Home Furnishings and Appliances	$17,550 m	$19,753 m	$528	$102 m	$108 m	$374
Building Materials[d]	$40,609 m	$45,705 m	$1,221	$521 m	$553 m	$1,920
Auto Dealers and Auto Supplies	$71,599 m	$80,575 m	$2,153	$629 m	$667 m	$2,318
Service Stations	$43,572 m	$49,040 m	$1,310	$210 m	$222 m	$773
Other Retail Stores[e]	$66,206 m	$74,516 m	$1,991	$470 m	$498 m	$1,731
Total – All Retail	**$388,133 m**	**$491,189 m**	**$13,123**	**$3,069 m**	**$3,702 m**	**$12,861**

NOTES: Totals may not add up exactly, due to rounding; m = millions.
Stockton MSA population for July 2006 estimated to be 287,900.
State of California population for July 2006 estimated to be 37,429,000.

a 2006 dollar terms adjusted into 2008 dollar terms assuming a 3% annual rate of inflation.
b General Merchandise taxable sales increased by 5% to account for non-taxed drug store sales.
c Grocery sales increased to account for sales of non-taxable goods which are estimated to account for 65% to 70% of total sales.
d Gross sales shown in this table include farm equipment dealers.
e Gross sales shown in this table include specialty goods (such as sporting goods, office supplies, jewelry) as well as garden supplies.

SOURCE: ESA; State Board of Equalization, 2007; California Department of Finance, Demographic Research Unit, 2007.

between 30 percent and 35 percent of their total sales revenues (California State Board of Equalization, 2005). The reported taxable grocery sales were approximately tripled to estimate gross sales of grocery items. It is estimated that gross average grocery sales reported in the food category were ~~$2,109~~$2,148 (i.e., assuming taxable sales are 32.5 percent of the total sales).

Based on these gross retail sales estimates and census population figures shown in **Table 4.4-1**, total average per-capita gross retail spending in Stockton was estimated to be ~~$12,397~~$12,861 (in 2008 dollars).[5] For the general merchandise and food categories, it was estimated that the average person spent ~~$2,047~~$2,141 and ~~$2,109~~$2,148, respectively, per year (in 2008 dollars).

Sales by Major New Stockton Retailers

To estimate the total Stockton retail sales conditions facing ~~or 2005~~the proposed project at its projected opening in mid 2010, the Stockton~~2003~~ retail sales were adjusted to incorporate

[5] Retail sales estimates for the impact analysis are expressed in 2008 dollars to facilitate comparisons of past and future retail sales projections. ~~2008 dollars are used because, if approved, the project would be completed in 2008.~~

additional sales ~~from the new retail sales~~ by the major new competing retail development that will have~~has~~ occurred within Stockton since late~~January~~ 2006~~3~~.[6]

The new Stockton retail development consisted primarily of the current redevelopment of the former Sherwood Plaza (anchored by the K-Mart) as the new Stonecreek Shopping Center. No other major changes to the existing Stockton retail shopping centers have occurred that would be substantially relevant to the FEIR analysis. ~~and several minor stores identified below:~~ This new shopping center development is located at the former Sherwood Shopping Center location (previously anchored by the 71,000 square foot Kmart). The project plans for approximately 100,000 square feet of new higher end apparel retailers including REI, Ann Taylor Loft and Eddie Bauer. In addition 17,000 square feet of new food businesses (including BJ's Brewhouse Restaurant) and 30,000 square feet of office space is planned. Construction is ongoing and full completion is expected in Spring 2008.

The new Stonecreek Shopping Center would add a net increase of 29,000 square feet of in new retail and 17,000 square feet of new food and beverage business at the site. Based on inflation the self-reported sales by the K-Mart (See Table 3-1 in Appendix C) for 2004 adjusted for inflation, it is estimated that the former K-Mart likely had sales of approximately $18.6 million – equivalent to $261 per square foot (in 2008). By comparison, it is expected that the 100,000 square feet of new higher end specialty realtors at Stonecreek Shopping Center would have average apparel sales of $400 per square foot (in 2008 dollars) which would result in approximately $40 million in new apparel sales. In addition, the 17,000 new food and beverage businesses may be expected to generate future sales of approximately $7.2 million per year (based on an expected $423 per square foot of sales in 2008 dollars). Based on these sales estimates, the net new retail sales from the new Stonecreek Shopping Center would be approximately $28.6 million.

- ~~**Pacific Town Shopping Center.** Approximately 170,000 square feet of new retail opened at the shopping center in August 2003. Since the Pacific Town retailers operated and reported retail sales during part of 2003, the net pro-rata adjustment for annual retail sales for subsequent years is estimated to be $20.0 million in 2008 dollars (furniture sales were excluded because such sales will not compete with the proposed project's expected future retail development).~~

- ~~**Spanos Park West**. Approximately 765,000 square feet of new retail construction at the site was completed between 2004 and 2006. Based on national sales per square foot averages and the retail configurations detailed in the NOP submission for the Spanos Business Park (LSA, 2006), it is estimated that the new Park West Place will generate approximately $217.8 million in annual total retail sales, of which $157.6 million will be from goods that would also be sold by Weston Ranch retailers (i.e., excluding sales at Lowe's and large-item furniture stores).~~

- ~~**Hammer Lane Wal-Mart Supercenter.** The relocation of the North Stockton to the new 3223 East Hammer Lane site added another 83,000 square feet of retail for a total of 208,000 square feet that would have annual sales of up to $85.9 million. It has been conservatively~~

~~[6] New retailers since January 2003 were identified so that annualized adjustments to the State Board of Equalization 2003 data could be made, to represent the retail sales of Stockton for 2005.~~

~~estimated that the former site at 3702East Hammer Lane has been back-filled by new retail that competes with the project.[7]~~

- ~~**Other minor miscellaneous retail development.** Several other individual new retail and restaurants have also opened since 2003 throughout Stockton. However, most of these businesses are small (i.e. less than 3,000 sq. ft.). Due to their small size and local market focus, these minor developments would be expected to have negligible effects on major retail centers. The Downtown City Centre Cineplex added approximately 18,000 square feet of retail development, which is primarily focused to serve downtown visitors and therefore is not considered likely to compete directly with the project. In 2004, Food-4-Less opened a new store of its Rancho San Miguel supermarket franchise in South Stockton. The 41,000 square foot grocery store also has an associated gas station operation. Together, Rancho San Miguel is estimated to add $19.4 million in sales annually.~~

~~As shown in **Table 4.4-2**, new retail development within Stockton between 2003 and 2005 is estimated to have added $283.3 million in gross sales to the Stockton 2003 retail sector's economy. As discussed in detail in the Market Analysis for the project in **Appendix C**, a considerable portion of these sales may be expected to be generated from secondary and tertiary market customers who are not Stockton residents. A conservative reduced market area assumption of 15 percent for these customers has been applied. Accordingly, it is projected that approximately $241.8 million (85 percent) of these new sales have been generated as new sales from Stockton residents. Otherwise, these new retail developments would be expected to draw retail sales away from existing Stockton retailers.~~

In the DEIR analysis, retail sales performance had to be *projected* for the recent new retail developments (e.g. the Pacific Town and Spanos Park West shopping centers) to estimate the total Stockton gross retail sales levels. However during the course of the intervening years since the DEIR analysis was performed these businesses have subsequently reported their *actual* sales to the California State Board of Equalization which are published in the 2006 retail sales data. Actual sales data is inheritantly more accurate than data projections. Therefore, to best represent Stockton's existing and expected future retail sales conditions when the project is completed, the most recent available California State Board of Equalization data on actual sales has been used instead of the previous adjusted 2003 data.[8]

According to City of Stockton staff, no other major new retailers have entered the Stockton retail market since the fourth quarter of 2006.[9] Consequently, unlike the DEIR, to estimate Stockton's

~~[7] The former North Stockton Wal-Mart building (at 3223 East Hammer Lane) was sold in May 2005 to Lifestyle Furniture who current operates a furniture store at the location.~~

[8] The DEIR used 2005 as the baseline year for the urban decay analysis. According to subsequently published California State Board of Equalization data it is evident the actual taxable sales exceeded the DEIR analysis's previous retail sales projections. To best represent the existing and more accurately project future Stockton retail sales conditions, the most recent available retail sales data has been used for the baseline data. Since the 2006 retail sales were virtually unchanged from 2005 sales levels (and consequently decreased in real terms), use of the 2006 retail sales is a more conservative approach for the urban decay analysis of the revised project since use of the 2005 retail sales data which, all else being equal, would understate the magnitude of the projected sales impacts.

[9] As discussed in the retail inventory discussion, the urban decay analysis is primarily focused on the impact of larger retailers which would have the potential for significant urban decay impacts. Consequently, the analysis does not analyze the specific impacts of smaller and neighborhood serving store openings and other non-competing retailers.

current gross sales conditions no adjustments are necessary to recognize the additional direct sales effects of any other major new competing retailers.

As shown in **Table 4.4-2**, Stockton's estimated gross sales were then adjusted to isolate only the retail sales of project-competing goods and thus determine the appropriate comparison conditions to identify the future project-related "retail sales shifts" for the subsequent impact analysis.

The per capita gross retails sales for Stockton estimated in **Table 4.4-1** were multiplied by the Stockton's estimated ~~2003~~ 2006 population to estimate the total gross sales in Stockton for all goods as shown in **Table ~~4.4-3~~4.4-2**. It is estimated that the gross retail sales for all goods were approximately ~~$3,319~~$3,702 million (in 2008 dollars). Based on analysis identifying the expected retail goods to be sold by the proposed Weston Ranch project, the total gross sales were then adjusted to determine the gross sales project competing goods. As shown in **Table ~~4.4-3~~4.4-2**, in 2006 the ~~Stockton's estimated~~ annual gross sales of project competing goods in Stockton is estimated to be approximately ~~$2,071 million~~$2,280 million.

According to City of Stockton staff, no other major new retailers have entered the Stockton retail market since the fourth quarter of 2006.[10] Therefore no adjustment to the baseline gross sales estimated was necessary since the sales of more recent new retail developments (e.g. the Pacific Town and Spanos Park West shopping centers) will have had their sales included in the California State Board of Equalization Stockton retail sales data. These gross sales estimates were then adjusted to isolate only the retail sales of project-competing goods and thus determine the baseline conditions for the subsequent retail impact analysis.

The total gross sales have been adjusted to represent the expected sales of retail goods to be sold by the proposed revised Weston Ranch. As shown in **Table 4.4-2**, in 2006 the annual gross sales of project competing goods in Stockton is estimated to be approximately $2,280 million.

The per capita gross retails sales for Stockton estimated in **Table 4.4-1** were multiplied by the Stockton's estimated 2006 population to estimate the total gross sales in Stockton for all goods as shown in Table 4.4-~~3~~**2**. It is estimated that the gross retail sales for all goods were approximately $3,~~319~~702 million (in 2008 dollars)~~.~~

[10] As discussed in the retail inventory discussion, the urban decay analysis is primarily focused on the impact of larger retailers which would have the potential for significant urban decay impacts. Consequently, the analysis does not analyze the specific impacts of smaller and neighborhood serving store openings and other.

~~TABLE 4.4-2~~
~~MAJOR NEW STOCKTON RETAILERS (2003-2005) SALES OF PROJECT-COMPETING GOODS~~

~~State Board of Equalization Retail Sector Category~~	~~Retail Sales of Project-Competing Goods by Major New Stockton Retailers~~					~~Estimated Stockton Originating Sales[b]~~ ~~(f = e x 85%)~~
	~~Pacific Town[a]~~ ~~(a)~~	~~Spanos Park West~~ ~~(b)~~	~~Hammer Lane Wal-Mart~~ ~~(c)~~	~~Other~~ ~~(d)~~	~~Total~~ ~~(e = a+b+c+d)~~	
~~Apparel~~	~~$4.5 m~~	~~$15.1 m~~	~~$7.9 m~~	~~≃~~	~~$27.6 m~~	~~$23.5 m~~
~~General~~	~~≃~~	~~$65.6 m~~	~~$15.1 m~~	~~≃~~	~~$80.8 m~~	~~$68.9 m~~
~~Food~~	~~≃~~	~~≃~~	~~$36.4 m~~	~~$16.5 m~~	~~$53.0 m~~	~~$45.1 m~~
~~Eating and Drinking~~	~~≃~~	~~≃~~	~~≃~~	~~≃~~	~~≃~~	~~≃~~
~~Home Furnishings~~	~~$2.4 m~~	~~$6.4 m~~	~~$9.4 m~~	~~≃~~	~~$18.2 m~~	~~$15.7 m~~
~~Building~~	~~≃~~	~~≃~~	~~≃~~	~~≃~~	~~≃~~	~~≃~~
~~Auto Dealers~~	~~≃~~	~~≃~~	~~≃~~	~~≃~~	~~≃~~	~~≃~~
~~Service Stations~~	~~≃~~	~~≃~~	~~≃~~	~~$3.2 m~~	~~$3.2 m~~	~~$2.8 m~~
~~Other Retail Stores~~	~~$13.1 m~~	~~$70.6 m~~	~~$17.2 m~~	~~≃~~	~~$101.0 m~~	~~$85.9 m~~
~~**Total**~~	~~**$20.0 m**~~	~~**$157.6 m**~~	~~**$85.9 m**~~	~~**$19.7 m**~~	~~**$283.3 m**~~	~~**$241.8 m**~~

~~NOTES: Figures expressed in 2008 dollar terms; Totals may not add up exactly due to rounding; m = millions of dollars.~~

~~a Net sales adjustment accounting for reported 2003 sales.~~
~~b Estimated Stockton originating sales based on conservatively assuming 85% of sales generated from Stockton residents.~~

~~SOURCES: ESA; City of Stockton, 2005; Urban Land Institute, 2002.~~

~~The 2005 existing Stockton retail sector sales are estimated to be $2,313 million, as shown in **Table 4.4-3**. Total retail sales in 2005 were determined by adding the new Stockton retailers' (i.e., from the new retail developments between 2003 and 2005) estimated $240.8 million of additional competing goods sales from Stockton residents to the 2003 gross sales of project competing goods.~~

REVISED TABLE 4.4-2
STOCKTON RETAILERS SALES OF PROJECT-COMPETING GOODS - BASELINE CONDITIONS (2006)

	Gross Sales in Stockton	
Retail Sector Categories	**All Retail Goods (2006) [b]**	**Project Competing Goods[a] (2006) - Baseline Conditions[d]**
Apparel	$126 m	$126 m
General Merchandise	$616 m	$616 m
Food	$618 m	$618 m
Eating and Drinking	$293 m	$293 m
Home Furnishings	$108 m	$108 m
Building Materials	$553 m	~
Auto Dealers and Auto Supplies	$667 m	~
Service Stations	$222 m	$222 m
Other Retail Stores	$498 m	$297 m
Total – All Retail	**$3,702 m**	**$2,280 m**

NOTES: Figures expressed in 2008 dollar terms; totals may not add up exactly due to rounding; m = millions of dollars.
a Retail sales have been adjusted to include only those sales of goods sold by the Weston Ranch project.
b Figures taken from Table 4.4-1.

SOURCES: ESA.

Current Retail Leakage Analysis

An updated retail sales leakage analysis was performed to determine the extent to which Stockton residents currently shop within Stockton or travel to other destinations to make their retail purchases.

A leakage analysis evaluates an area's retail market performance by comparing the actual reported retail sales made in an area to the potential purchases that residents would be expected to make, based on average shopper behavior. If actual sales are greater than would be expected, this "sales surplus" suggests that the area is attracting people from outside to shop within the area and/or that the local residents have a higher than average amount of per capita retail spending. Conversely, a "retail leakage" (i.e., when actual sales are less than would otherwise be predicted) indicates that local residents are making their retail purchases outside their local shopping area.

Using the estimates of California and Stockton per capita gross spending from **Table 4.4-1**, the leakage analysis was performed to estimate the amount of retail sales attraction or leakage by the Stockton retail sectors (see **Table 4.4-43)**. As can be seen in **Table 4.4-43**, Stockton is a sales

attractor for ~~all~~most retail categories.~~11~~ While the "~~auto dealers" and "~~building materials" retail ~~sectors have~~ sector has the strongest retail attraction, ~~both the~~auto sales, general merchandise and food categories also show a high degree of sales attraction. Overall, it is estimated that Stockton retail businesses draw more than $1 billion annually in retail sales (in 2008 dollars) from non-residents and/or from greater than average local spending. This effect could indicate that little consumer retail demand by Stockton residents is unmet locally and, therefore, that only minor retail sales are leaking out of Stockton. The findings may also indicate that Stockton's retail market currently has a major impact on the regional economy as non-Stockton residents are being drawn to make purchases from Stockton retailers. Stockton's current position as a major regional retail hub would also suggest that there are limits to the extent that any new Stockton retailers may be expected to increase retail sales from current residents in the region.

However, interviews with City economic development specialists and local commercial realtors suggest that north Stockton's strong regional retail attraction effect may be obscuring significant ongoing retail leakage, particularly among south Stockton residents. Unfortunately, due to insufficient sales data as well as restrictions on proprietary information, a south Stockton-specific leakage analysis could not be performed to quantify the magnitude of this effect. Several local real estate brokers have suggested that much of Stockton's current shopping attraction is being generated from Lodi and residents of unincorporated San Joaquin County areas, particularly the northern and eastern areas. Additional retail sales may be coming from Sierra foothill residents traveling significant distances westward to shop in Stockton due to the limited retail options locally. Stockton retail real estate brokers also stated that residents of south and central Stockton that are currently under-served by retailers may do a major portion of their retail shopping at other locations outside Stockton such as Tracy or Livermore. This spending behavior is considered particularly likely to be prevalent among recently relocated homeowners who commute daily to typically higher-paying jobs in Contra Costa or Alameda Counties. Local real estate brokers expect that new and more convenient retail development in south Stockton could recapture a major proportion of these Stockton residents' spending that is currently lost from the Stockton economy.

Retail Demand Trends

~~The~~In the early 2000s Stockton region ~~has~~ experienced a major housing construction boom and large influx of new residents who are purchasing homes and moving into the area. Between 2000 and 2004, San Joaquin County's population grew by approximately 3.1 percent annually; nearly half of that population growth was the result of domestic immigration as new residents moved to San Joaquin County from other areas of California, while the remaining population growth came from other immigration and new births (California Department of Finance, 2004). These new residents ~~have~~ added ~~and will continue to add~~considerable new customer demand for Stockton retailers. The Stockton General Plan projects future population growth at an average 2.~~6~~5% per year.

According to local realtors, the majority of these new residents are derived from the Bay Area and many commute daily to work in the Bay Area (Hodgeson, 2005). Real estate analysis by Grubb &

~~11 Apparel sales, home furnishing, and service stations categories show a very minor sales attraction effect.~~

Ellis estimated that in 2004, more than 10 percent of San Joaquin County's population identified themselves as county residents commuting to the Bay Area for work as a result of the housing/employment imbalance in the Bay Area (Grubb & Ellis, 2004). At least an estimated 60,000 commuters travel daily from San Joaquin westward to jobs in the Bay Area (San Joaquin Partnership, 2005). Generally, these new residents have significantly higher average per capita incomes than typical Stockton residents. As a result of their higher incomes, these new residents can generally support greater retail spending. Considerable new retail demand is expected to be associated with the continuing population growth anticipated in Stockton over the foreseeable future.

Real Estate Analysis

Current residential real estate trends influence population growth and socioeconomic changes that will support continued strong growth in overall consumer demand by local residents. New consumers added to the market and/or changes in existing consumer demand are likely to expand activity in Stockton's retail sector. In addition to the increased retail demand effects associated with local housing growth, real estate demand for commercial properties (and especially retail properties) also directly determines the likelihood of re-tenanting properties vacated by current retailers leaving the area as a result of the competition from new retail development including the proposed project.

Stockton's housing market has been growing strongly for many years. Between 1998 and 2005, the median price of existing detached homes rose from approximately $100,000 to $350,000. Between 2004 and 2005, the median home price increased by 26.6 percent with even faster rates of appreciation in the neighboring cities of Manteca, Lodi, and Tracy (California Association of Realtors, 2005). As noted above, Stockton has experienced an increasingly large influx of new residents with generally high incomes from other parts of California and outside the state who are purchasing homes in the area.

The Stockton real estate brokers interviewed for the DEIR generally agreed that both current residential and commercial real estate markets are very strong and ~~are~~were expected to continue to remain so. The residential market in Stockton and throughout San Joaquin County has grown vigorously since the late 1990s (Hodgson, 2005).~~, and~~ The real estate brokers consulted in preparing this study~~ reported that currently and for the foreseeable future the commercial retail real estate market will remain strong with very low property vacancy rates (Hodgson, 2005). They expect~~ expected strong local housing demand to continue and to support continued growth in both general commercial and retail real estate demand (Dougherty, 2005).

However, in mid 2006 real estate prices peaked and subsequent additional downward economic effects of the sub-prime mortgage crisis has affect real estate values throughout California and nationally. As a result, in the last year or so there have been substantial declines in home values. Stockton and most of the Central Valley has experienced a high number of foreclosures and decreases in local home prices. The resulting influx of foreclosed or developer owned properties on the local market has resulted in highly discounted home prices as the real estate market seeks to clear out the excess inventory. Real estate markets are typically cyclical as a result may be expected to re-appreciate in value. Real estate brokers and agents suggest that these bank or developer owned properties are creating a temporary false bottom to the local real estate market as they slash prices

to get the properties off their books. After these foreclosed properties are sold off in the next year or so sales prices and equity values the realtors believe that home values should rise considerably (Stockton Record, 2008a). Recent upturns in the number of countywide home sales also suggest that the local residential real estate conditions may be stabilizing. Real estate analysts suggest that the apparent recent "rebound" in the existing-home sales market may be an indicator that the excess inventory of new homes may be "drying" up so that the market for new home will stabilize and recover (Stockton Record, 2008b)

Real estate brokers interviewed about the revised Weston Ranch project stated that the underlying and positive fundamentals of the Stockton real estate market are likely to support continued positive economic development and growth in Stockton over the longer term periods. Stockton's locational advantages will be further improved on completion of the Altamont Pass roadway improvements to the Bay Area (Heffernan, 2008). Furthermore, the recent Downtown Stockton revitalization with its enhanced cultural amenities and the on-going retail redevelopments are adding to Stockton's attractiveness both to potential residents and business owners. Combined with Stockton's local educational institutions and comparative affordability will ensure that the longer term prospective for local growth will remain strong in most of the local real estate broker's opinions (Hodgson, 2008) (Thompson, 2008).

In the ~~Strong~~ DEIR, strong demand for retail space in particular ~~is~~was evident in CB Richard Ellis's most recent annual real estate report (CB Richard Ellis, 2005), which ~~estimates~~ estimated that Stockton's current retail vacancy rate is less than 1 percent (excluding the former Wal-Mart store on 3701 Hammer Lane). Similarly, the retail real estate markets in Manteca and Tracy ~~are~~were estimated to have 1 percent and 0.5 percent vacancy rates, respectively. CB Richard Ellis projected that vacancy rates would continue to decrease throughout 2005, resulting in increased net absorption, lease rates and new construction activity (CB Richard Ellis, 2005). Similarly, Grubb & Ellis's retail property assessment (Grubb & Ellis, 2004) for Northern California notes that the retail real estate market has generally been strong, and it emphasizes in particular strong investor demand for grocery-anchored centers. While it acknowledges the potential competitive effects of large-scale retailers, the report concludes that the future economy may be expected to provide continued support to the commercial real estate market.

However, since then as a result of the decline in the residential real estate market there has been a softening of the retail market. Consequently, the longer term perspective for both the residential and retail real estate demand remains less certain and clear. Nonetheless, in most of the interviewed real experts' opinion retail property vacancy rates have increased slightly but remain around the range of 4% - representing reasonably stable and healthy market conditions in which most commercial properties are re-tenanted within six months to a year (Hodgson, 2008) (Lee & Associates, 2008). Larger "junior anchor properties" (e.g. 20,000 to 25,000 square feet) may face slightly longer periods before re-tenanting, but this is generally a natural reflection of both the more limited market of potential tenants for the bigger properties and greater importance for

REVISED TABLE 4.4-3
STOCKTON LEAKAGE ANALYSIS

Retail Categories	California	Stockton					
		Sales Per Capita			Sales Attraction (+) / Leakage (–)		
	Sales Per Capita[a] (a)	Expected[b] (Estimated) (b = a x 70.6%)	Actual[a] (Reported) (c)	Gross Sales (Estimated) (d)[c]	Sales Per Capita (e = c - a)	Net Sales Attracted (f = d x pop.)	% (g = f / d)
Apparel	$585	$413	$438	$126 m	+$25	+$7 m	+5.8%
General Merchandise[d]	$1,857	$1,311	$2,141	$616 m	+$831	+$239 m	+38.8%
Food[e]	$2,020	$1,426	$2,148	$618 m	+$722	+$208 m	+33.6%
Eating and Drinking	$1,459	$1,030	$1,018	$293 m	-$12	-$4 m	-1.2%
Home Furnishings and Appliances	$528	$373	$374	$108 m	+$1	+$0 m	+0.4%
Building Materials	$1,221	$862	$1,920	$553 m	+$1,058	+$305 m	+55.1%
Auto Dealers and Auto Supplies	$2,153	$1,520	$2,318	$667 m	+$799	+$230 m	+34.4%
Service Stations	$1,310	$925	$773	$222 m	-$152	-$44 m	-19.7%
Other Retail Stores	$1,991	$1,406	$1,731	$498 m	+$326	+$94 m	+18.8%
Total - All Categories	**$13,123**	**$8,386**	**$12,861**	**$3,702 m**	**+$4,011**	**+$1,073 m**	**+28.0%**

NOTES: m = millions of dollars
[a] Retail sales are based on 2006 reported taxable sales figures and are expressed in 2008 dollar terms assuming an annual inflation rate of 3%. See Table 4.4-1.
[b] Stockton residents' annual per capita spending by category, based on California averages and adjusted for average income.
[c] See Table 4.4-1.
[d] General merchandise taxable sales increased by 5% to account for non-taxed drug stores sales.
[e] Grocery sales were adjusted to account for sales of non-taxable goods, which are estimated to account for 67.5% of total sales.

SOURCE: State Board of Equalization, 2007.

owners to find appropriate tenants compatible with their other existing occupants. Real estate specialists continue to believe that Stockton is still relatively under-served by more upscale retails and more contemporary retail configurations for the local market. Consequently they believe that continuing new retail development interest from larger regional and national chain stores will remain for the foreseeable future (Hodgson, 2008).

While residential and retail real estate markets are typically inter-related, differences to their underlying supply and demand conditions can result in very different real estate market conditions. Residential real estate generally has more potential price fluctuations than commercial real estate which generally serves a smaller market of potential tenants and/or buyers. Commercial properties (and especially retail) are generally more dependant on location and other building factors for determining their attractiveness to potential clients. Similarly, the time between tenants is typically longer than for residential units – reflecting the importance of appropriate matches between businesses and their locations as well as the longer leases terms / occupancy that business will have.

~~These indicators suggest that the current strong demand for commercial retail properties in Stockton will continue for the foreseeable future. Vacancy rates are low and expected to remain so; since real estate demand is strong then vacated properties will likely be re-tenanted or redeveloped.~~ Over the last few years, several major retail locations vacated by Stockton retailers have been successfully re-tenanted shortly after coming on the real estate market. Within approximately a year after Montgomery Wards bankruptcy resulted in its store closure at Sherwood Mall, Best Buy occupied the location in mid-2002. Similarly, following Wal-Mart's departure from its former Hammer Lane location, Lifestyle Furniture purchased the site and has re-tenanted the building.

Lisa Hodgson at Colliers International also reported that the K-Mart on Pacific Avenue is expected to close in the near future and that there are already plans for redevelopment of the site for a "Lifestyle Center" ~~anchored by a Whole Food Grocery~~ that would cater to higher-income customers (Hodgson, 2005).~~[12]~~ As discussed earlier in the new retail development section earlier, the site is currently near final construction as the Stonecreek Shopping Center and will be anchored by a new REI. She maintains that this development and the similar redevelopment of the former Golfmart location on Hammer Lane are important and significant indicators of the Stockton retail real estate market on-going growth and positive evolution. The interviewed retail specialists suggested that while the pace of retail growth and redevelopment may slow down in the near term as investors and developers wait out the recent residential real estate correction, Stockton's fundamental and underlying real estate conditions and infrastructure will ensure that considerable growth in both the residential and retail real estate markets may be expected (Thompson, 2008) (Hodgson, 2008). Real estate specialists also suggested that future major new industrial redevelopment projects expected for the South Stockton area over the next three to five years will also add considerable additional local employment that will also encourage greater Stockton residential and retail demand (Tochterman, 2008).

Re-tenanting can occur by several different means including occupancy by new retailers with similar products and customers but also adaptive re-use by other businesses (such as service businesses

~~[12] K-Mart officials contacted would not confirm the store's future closure.~~

or offices). In addition, the strong real estate market also suggests that site redevelopment may be expected, particularly for well-situated, in-fill properties within north Stockton.

These indicators suggest that the current stable demand for commercial retail properties in Stockton is likely to continue for the foreseeable future. Vacancy rates are relatively stable and expected to remain so for the foreseeable future. Consequently, most vacated retail properties will likely be re-tenanted or redeveloped. The on-going redevelopment and re-tenanting of retail properties also indicate that the Stockton's commercial retail market remains relatively healthy and suggest that future commercial properties vacancies will likely be similarly re-used or redeveloped within a reasonable period of time.

Consistency with Applicable General and Regional Plans

The City of Stockton's current redevelopment programs and projects addressing its existing economic development needs and urban decay conditions have been discussed in this section above.

The adoption of the Stockton City Council ban on big box development in August 2007 precludes the future development of new retail stores of more than 100,000 square feet that include full-size grocery stores. As a result, several previously planned future retail developments for Stockton have been modified – most notably the Weston Ranch project and the Morada Ranch / Cannery Park projects. These and other project modifications to other local planned retail projects are discussed below.

The proposed revised Weston Ranch project does not conflict with any applicable redevelopment or urban renewal plan. The revised project configuration also conforms with the City of Stockton's August 2007 "big box ban." Other plans applicable to the project, including the Stockton General Plan, are discussed in Chapter 4.2 - Land Use of this EIR.

4.4.2 Impacts and Mitigation Measures

Significance Criteria

Under criteria based on the CEQA Guidelines and the professional judgment of City staff and consultants, a project would be considered to have a significant urban decay impact if it would result in the following:

- A substantial adverse change in the physical condition of any shopping area(s) in Stockton.

Urban decay impacts result in physical deterioration sufficient in magnitude and extent to diminish the proper use of the properties affected. Physical changes typically indicative of urban decay may include (but are not limited to) higher than average business vacancies; abandoned and deteriorating properties; inadequately maintained buildings (frequently chained off by unsightly chain-linked fencing; widespread graffiti, litter, and trash; unkempt trees and shrubbery and excessive weeds; parked trucks and long-term unauthorized use of property and parking lots; and homeless encampments.

Several interrelated causal links must be demonstrated to properly establish and ascribe future urban decay impacts on a retail development from a proposed new project. As the Court of Appeal for the recent Bakersfield urban decay ruling states in its findings:

> "CEQA is not a fair competition statutory scheme." *(citation omitted).* Therefore, the economic and social effects of proposed projects are outside of CEQA's purview *(unless they will lead to adverse physical changes in the environment* [italicized qualification added]*)*.

The court's judgment also states that (1) it "explicitly reject(s) certain philosophical and sociological beliefs that some of the parties have vigorously expressed" and (2) existing CEQA case law clearly establishes that construction of a new shopping centers does not in and of itself trigger a conclusive presumption of urban decay. Rather, a determination that a significant urban decay impact is likely to result from a proposed project relies upon a showing that the following sequence of events is likely to occur:

- The project will introduce new retail competition that will cause existing retailers to go out of business.
- The failed retailers' vacated properties will not be re-tenanted (or otherwise reused) due to insufficient real estate demand.
- These untenanted properties will be vacant for prolonged periods of time and will be abandoned or otherwise permitted to deteriorate significantly by their owners.

The analyses of the proposed Western Ranch project in this section assess whether the revised proposed project, either in itself or together with other ~~existing and~~ probable future developments, will result in substantial adverse physical impacts, specifically a substantial increase in physical deterioration to ~~in~~ retail property within any Stockton shopping centers. In order to determine the nature and extent of the revised project's potential effects on Stockton's urban decay conditions, ~~several related~~the DEIR's previous analyses were ~~performed~~updated according.

The types and magnitudes of the revised project's future retail sales were estimated to reflect its reduced size and retailer composition. To assess the future effects of the project's retail sales on its competitors, a market analysis was performed. Future expected growth in retail demand (both from increased population and demographic changes) was also determined to estimate the extent of future "sales shift" impacts the project could have on other retailers, including possible business closures. Local real estate brokers were interviewed to asses the local retail and other real estate demand to assess: (1) the likelihood of future re-tenanting of any vacated properties (either by other business or adaptive reuse); and (2) the extent to which property-owners would be expected to neglect any long-term vacant properties so that urban decay impacts could result.

Retail Sales for the Project

Total future retail sales for the project at buildout in ~~2008~~ 2010 are estimated to be approximately ~~$268~~$158.4 million in 2008 dollars (see **Table 4.4-~~5~~4**). This retail sales projection was based on the latest national average sales-per-foot for Wal-Mart~~,~~ from its 2007 SEC reports. Recent declines in Wal-Mart's corporate performance have resulted in a ~~discount warehouse retailer (such as Sam's~~

~~Club), and~~ revised sales per square foot estimates that reduced the sales projections by approximately 10% from the DEIR analysis to $370 per square foot. An average specialty ~~retailers,~~retailer sales estimate of $300 per square foot was based on Urban Land Institute and other industry data partially adjusted to account for the Stockton region's relatively lower income levels. The revised sales estimate for specialty retailers increased the sales estimate used in the revised urban decay analysis by approximately 13.5%.

REVISED TABLE 4.4-4
WESTON RANCH RETAIL DEVELOPMENT PROJECTED FUTURE ANNUAL SALES

Store Types	Predominant Retail Categories	Proposed Maximum Space Use	Dollars per Square Foot	Annual Sales
Large Retail				
Wal-Mart	Food, Other Retail, General Merchandise, Home, Apparel	99,585	$370	$36.8 m
In-line Shops				
Specialty Retailers	General, Home, Other, Apparel	334,990	$300	$100.5 m
Retail Pads				
1 x Fuel Stations	Service Stations	5,000	@ $3.5 m	$3.5 m
Restaurants	Eating and Drinking	41,425	$425	$17.6 m
Total Retail		**481,000**		**$158.4 m**

NOTES: All sales figures are expressed in 2008 dollars; total may not add up exactly due to rounding; m = millions of dollars.

SOURCES: ESA; Urban Land Institute, 2007; Hinderliter, de Lamas, 2007.

Market ~~Analysis~~Area for the Revised Project

The full market analysis for the project is presented in Appendix C. The following section summarizes the key factors determining retailer's trade areas and performance. The primary, secondary and tertiary market trade areas determined for the original Weston Ranch project are also identified as well as the proportion of store sales expected to be generated from each trade area.

Factors Affecting Store Trade Areas and Sales Performance

Using the methodology discussed in **Appendix C**, a representative market area for the project's proposed retail development was determined. The retail market analyses identified both primary and secondary trade areas that reflect differences in the origin of customers, their shopping patterns, and the proportion of sales they generate for a retailer. A tertiary trade area identified customers distinctly different from those living in the secondary trade area.

The primary trade area defines the area around the store from which the majority of a store's sales are expected to be generated. Typically, the primary trade area is the area from which 60 to 80 percent of the store's sales originate. According to ICSC (2004), for a power center such as the proposed retail development, the primary market area will be 5 to 10 miles. For a specific store, the trade area and its sales performance may be determined by several factors:

- **Other Stores:** The locations of the other store branches are likely to be major factors in determining the trade area as these will represent a ready substitute retail option.
- **Competing Retailers:** The proximity and/or accessibility of alternate comparable and competing retailers will also be an important factor in determining a store's market area. Consumers in more rural locations with few retail store options will likely be willing to drive greater distances to shop. Accordingly, retailers near rural locations and/or few competing business will have larger trade areas than stores in predominantly urban locations.
- **Convenience:** All else being equal, consumers generally will choose to shop at a closer and/or more convenient retail location. However, if a store is located in a frequently congested part of town or the store itself is frequently overcrowded, consumers may redirect their business to other stores.
- **Type of Goods:** The type of goods will also affect a store's trade area. Typically, general retailers have larger trade areas than grocery stores, reflecting consumer shopping habits and preferences for convenience in everyday shopping. For more frequent shopping and service needs, consumers typically travel shorter distances. According to ICSC, trade areas of three miles are common for supermarkets.
- **Attraction of Complementary Businesses:** Under certain circumstances, another business may enlarge the customer capture area by drawing customers to a store's location, which will increase the store's potential customers. This is the foundation of shopping center anchor stores that can pull customers from a wider geographical area.

Urban sites in more mature retail markets with other competing retailers (such as Stockton) will be expected to have a smaller primary trade area. Typically, larger stores or stores with attractive additional retail components (such as Superstores) may be expected to have somewhat wider trade areas because they can attract customers to travel longer distances to their stores.

According to industry experts, value-oriented anchor tenants, such as those proposed for the project, generally have smaller trade areas than department stores anchoring traditional malls. Value-oriented retailers generally have less demanding demographic and market requirements and often locate in rapid growth markets (Lam, 2002).

Project Trade Area

The market analysis performed for the urban decay analysis is discussed in greater detail in **Appendix C**. The market analysis identified all the existing and planned Wal-Mart stores and other major competing large discount retailers in San Joaquin County. To assist in determining an appropriate market area for the proposed retail development, for each Wal-Mart a five-mile radius (representing a typical urban trade area) was examined and presented in Appendix C of the DEIR. Although the revised Weston Ranch project has a reduced retail square footage, the revised project would still qualify as a regional shopping center and given the relative under-retailed character of Southern Stockton may be expected to still attract customers from a fairly broad radius. Furthermore, if the proposed Eight Mile Wal-Mart Supercenter ~~at Eight Mile Road~~ in ~~northwest~~ North Stockton is ultimately not built[13] ~~,~~the proposed revised Weston Ranch Wal-Mart's ability to draw customers would be further enhanced. ~~all of the Wal-Marts have relatively limited overlapping populated~~

[13] In November 2007, the California Court of Appeals upheld the previous San Joaquin County Superior Court ruling to revoke the project's previous planning approval for the "Eight Mile" Wal-Mart Supercenter at Spanos Park West. The decision is in the process of being appealed to the California Supreme Court. Irrespectively, the urban decay's cumulative analysis conservatively assumes that the project will be approved.

~~areas between them. Also~~In any case, as discussed in the existing conditions section, south Stockton is currently underserved by retailers (see **Figures 4.4-1** through **4.4-4**). Nearly all of the past and recent new retail development has been located in north Stockton. While there has also been considerable residential development in north Stockton, the housing-retail imbalance within Stockton continues. As a result, south and central Stockton remain underserved by retail stores and its residents must either travel north or out of the city to shop.

~~will enhance the proposed revised Weston Ranch Wal-Mart's ability to draw customers.~~ Based on general and site-specific considerations discussed above and the previously performed market analysis, for purposes of ~~this~~the revised urban decay analysis, ESA staffs' professional judgment is that the primary trade area for the proposed retail development is defined as the City of Stockton and nearby unincorporated areas within a five-mile radius of the site as shown in ~~see~~ **Figure 4.4-6.** This trade area is broadly defined reflecting the likely interrelationships and interdependencies of travel times that existing shopping patterns and competing retailers will have with the project's proposed retail development in south Stockton.

~~Furthermore, given the trade area for the proposed Supercenter (whose larger size and full grocery, as compared to a regular Wal-Mart store, may be expected to have some additional attractiveness to potential customers)~~As shown in Table 4.4-5, the proposed retail development is expected to obtain 75 percent of its future sales from residents within its primary trade area. Given the project's location in south Stockton, its secondary trade area is expected to consist of the remaining areas of Lathrop, Lodi, Manteca, Tracy, and unincorporated county areas near the site's five-mile radius. So defined, the secondary trade area may be expected to generate 15 percent of the proposed retail development's retail sales. For purposes of this urban decay analysis, a 10 percent tertiary market area was used to represent the sales to other non-area residents.[13]

REVISED TABLE 4.4-5
SALES ORIGINS FOR THE WESTON RANCH PROJECT

Market Composition	Estimated Market Share	Estimated Annual Sales
Primary market: Stockton and southern areas within 5 miles of project site	75%	$118.8 million
Secondary market: Lathrop, Lodi, Manteca, Tracy, and southern San Joaquin County	15%	$23.8 million
Tertiary Market: Non-area residents	10%	$15.8 million
Total	**100%**	**$158.4 million**

NOTES: Sales estimates are for fully established retailers and are expressed in 2008 dollar terms.

SOURCE: ESA.

As mentioned above, the market analysis concluded that the proposed project's primary market area would likely consist of the City of Stockton and a five-mile southerly radius of the project site (see **Figure 4.4-6**). The market analysis also estimated that 75 percent of the project's retail development's future sales would likely be obtained from residents within the primary market area.[14] Based on these sales origin projections, an estimated $118.8 ~~$200.9~~ million in future retail sales would be generated by the project from the primary market area of Stockton (see **Table 4.4-6**). The project's estimated future sales by retail category originating from Stockton residents are shown in **Table 4.4-7**.

The project's estimated future sales by retail category originating from Stockton residents are shown in **Table 4.4-6**. Since the precise future composition of the revised Weston Ranch Town Center ~~are~~is not know, the allocation of the project's future sales have been based on the previous analysis performed in Appendix C of the DEIR (Table 4-6) which allocated non-food sales by specialty retails between Apparel (10%), General Merchandise (45%), Home Furnishing and Appliances (10%) and Other Retail (35%). This distribution of retail sales is considered to provide a reasonable representation of the likely retail sales impact of specialty retailers at the revised Weston Ranch project's. These estimates have been combined with the proportionally reduced allocation of the Wal-Mart's retail sector sales to estimate the combined project's total expected annual sales by retail sector and estimate the proportion expected to be generated from the Stockton retail sector.

REVISED TABLE 4.4-6
FUTURE REVISED WESTON RANCH SALES BY RETAIL CATEGORY

Retail Sector Category	Total Weston Ranch Sales	Stockton-Originating Weston Ranch Sales[a]
Apparel	$13.5 m	$10.1 m
General	$51.7 m	$38.8 m
Food	$15.5 m	$11.6 m
Eating & Drinking	$17.6 m	$13.2 m
Home	$14.1 m	$10.6 m
Building	--	--
Auto Dealers	--	--
Service Stations	$3.5 m	$2.6 m
Other Retail	$42.5 m	$31.9 m
Total	**$158.4 m**	**$118.8 m**

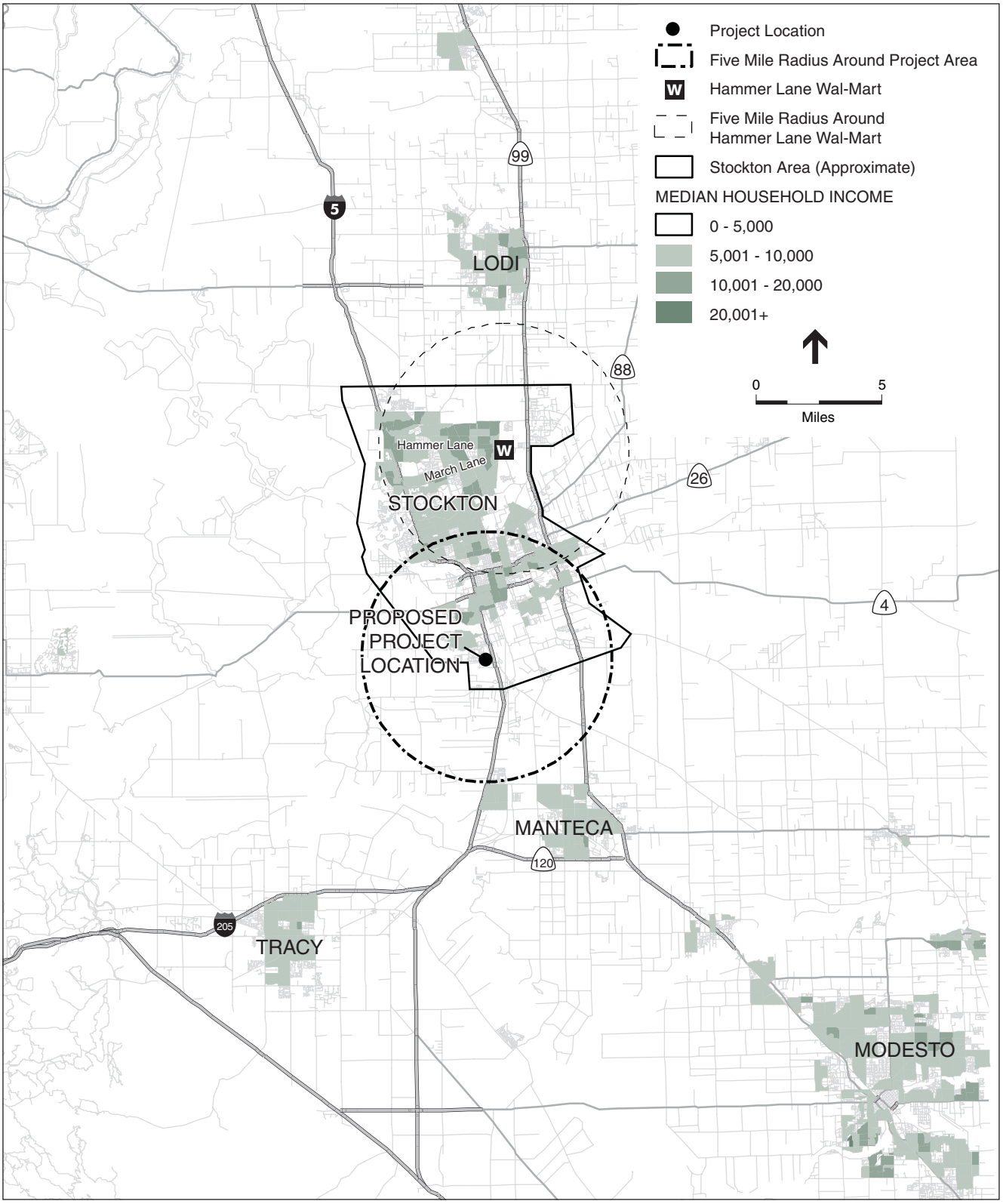
NOTES: Sales figures expressed in 2008 dollar terms; m = millions of dollars; Totals may not add up exactly, due to rounding

[a] Assumes 75% of total project sales are originating from Stockton residents (see Table 4.4-5).

SOURCES: ESA; Urban Land Institute, 2007

Total Sales of Project-Competing Goods in Primary Market Area

The revised project's impact on the Stockton economy and retailers is evaluated by comparing its projected retail sales to the ~~2005~~2006 baseline retail conditions (i.e. the existing conditions), as identified in **Table 4.4-~~3~~2**. It is estimated that Stockton retailers in ~~2005~~2006 sold approximately a total of $2,280~~313~~ million dollars of project competing retail goods.



SOURCE: U.S. Census, 2000; InfoUSA, 2005; MapQuest, 2005; and ESA, 2005

Weston Ranch Towne Center . 204152

Figure 4.4-6
Population Density

Future Retail Demand Growth

As noted in the discussion of existing conditions, considerable new retail demand ~~is~~ can be expected ~~to be associated with continuing~~from future population growth in the Stockton region. Using the same methodology as the leakage analysis and consistent with the approach used in the DEIR (see **Table 4.4-3**), the additional potential sales growth associated with the future population growth is estimated in **Table 4.4-~~8~~7**. It is assumed that the recent and future population growth rate for the City will be 2.5%~~2.65% in accordance with the current projections next several years~~ – a rate that is consistent with the long-term growth rate projected for the Stockton in its recent General Plan update.~~(This is a conservative assumption given that the actual Stockton growth rate was 3.1% between 2000 and 2004.) In addition, it~~

It is also conservatively assumed that both new immigrants and new natural population growth would have average per-capita incomes similar to the ~~county averages~~current Stockton average. In fact and as previously noted, for new domestic migrants, future per-capita incomes would be expected to be significantly higher than the current ~~San Joaquin County~~ Stockton average, which is more than 25 percent below the state average (Factfinder, ~~2005~~2007). For new domestic migrants, an average per capita income level of $33,751~~971~~ (in 2008 dollars) was assumed, which is comparable to (but slightly lower than) the per capita incomes of Alameda, Contra Costa and Santa Clara residents.

Based on these income assumptions and consistent with the leakage analysis, an estimated $88.6~~83.6~~ million of new retail sales could potentially be associated with future Stockton population growth annually, as shown in Table 4.4-~~8~~7. This estimate does not include the additional market growth from population growth and demographic changes occurring within the secondary market areas of Manteca, Stockton and elsewhere in San Joaquin County.[14] While future Stockton population growth will increase total retail demand by an estimated $88.6~~83.6~~ million per year, **Table 4.4-~~9~~ 8** adjusts the total demand growth to exclude demand for non-project competing goods. On this basis, it is estimated that $60.4~~57.5~~ million of new retail demand growth of Weston Ranch competing goods will occur annually from future Stockton population growth.[15]

Potential Retail Sales Shift Impacts to Existing Stockton Retailers

The revised Weston Ranch project's impacts on Stockton retailers will depend on both the magnitude and the origin of its future sales. Weston Ranch's future retail sales can be generated from three principal sources: (1) new customers (i.e., typically from previously underserved markets or population growth); (2) transferred sales from the retailers' other nearby locations; or (3) sales captured from competing retailers ("sales shifts"). The following section identifies the approach and findings of the sales shift analysis used to evaluate the project's impact both by itself as well as cumulatively with other possible future major retail developments in Stockton.

~~14 As discussed earlier, the allocations of sales amongst retail sector categories are estimates based on the State Board of Equalization categories. Actual sales shifts associated with future retail sales could differ, especially among the "General Merchandise," "Food," and "Other Retail Stores" retail categories.~~

~~15 Additional market growth would also be expected from similar population and demographic changes to the secondary and tertiary market areas of Manteca, Stockton, and elsewhere in San Joaquin County.~~

REVISED TABLE 4.4-7
STOCKTON RETAIL DEMAND GROWTH, BASED ON FUTURE ANNUAL POPULATION INCREASES

Retail Categories	California Gross Sales per Capita[a]	Projected Annual Growth in Stockton Retail Demand			
		Natural Growth	Immigrants	New Migrants	Total
Average Future Population Growth[b]		*2,350*	*1,225*	*3,475*	*7,050*
Est. Average Per Capita Income[c]	*$28,310*	*$20,327*	*$20,327*	*$33,751*[d]	*$26,946*
Apparel	$585	$1.0 m	$0.5 m	$2.4 m	$4.0 m
General Merchandise	$1,857	$3.2 m	$1.6 m	$7.7 m	$12.5 m
Food	$2,020	$3.4 m	$1.8 m	$8.4 m	$13.6 m
Eating and Drinking	$1,459	$2.5 m	$1.3 m	$6.1 m	$9.9 m
Home Furnishings and Appliances	$528	$0.9 m	$0.5 m	$2.2 m	$3.6 m
Building Materials	$1,221	$2.0 m	$1.0 m	$5.1 m	$8.2 m
Auto Dealers and Auto Supplies	$2,153	$3.7 m	$1.9 m	$9.0 m	$14.5 m
Service Stations	$1,310	$2.2 m	$1.2 m	$5.5 m	$8.8 m
Other Retail Stores	$1,991	$3.4 m	$1.8 m	$8.3 m	$13.5 m
Total - All Categories	**$13,123**	**$22.3 m**	**$11.6 m**	**$54.7 m**	**$88.6 m**[e]

[a] As found in Table 4.4-1. Distribution of sales amongst retail categories differs from actual Stockton sales. All figures are expressed in 2008 dollar terms; m = millions
[b] The average annual future population growth is based on assumed population growth of 2.5% per annual. Stockton projects of a 2.5% increase annually for its 2007 General Plan.
[c] Per capita income based on U.S. Census estimates, adjusted into 2008 dollar terms.
[d] Per capita income assumed to be 20% above state average based on comparative income levels of Alameda, Contra Costa and Santa Clara Counties, the counties from which most migrants have relocated.
[e] This is a conservative estimate as it does not include the 48% sales attraction by current residents' spending (see Table 4.4-4).

SOURCES: ESA, State Board of Equalization, 2007.

REVISED TABLE 4.4-8
STOCKTON RETAIL DEMAND GROWTH
FOR PROJECT-COMPETING GOODS FROM NEW RESIDENTS

Retail Sector Categories	Stockton Gross Sales			New Stockton Retail Demand	
	All Retail Goods[a]	Project-Competing Goods[b]	% (a)	All Retail Goods[b] (b)	Project-Competing Goods (c = a x b)
Apparel	$126 m	$126 m	100%	$4.0 m	$4.0 m
General Merchandise	$616 m	$616 m	100%	$12.5 m	$12.5 m
Food	$618 m	$618 m	100%	$13.6 m	$13.6 m
Eating and Drinking	$293 m	$293 m	100%	$9.9 m	$9.9 m
Home Furnishings and Appliances	$108 m	$108 m	100%	$3.6 m	$3.6 m
Building Materials	$553 m	~	0%	$8.2 m	~
Auto Dealers and Auto Supplies	$667 m	~	0%	$14.5 m	~
Service Stations	$222 m	$222 m	100%	$8.8 m	$8.8 m
Other Retail Stores	$498 m	$297 m	59.6%	$13.5 m	$8.0 m
Total - All Retail	**$3,702 m**	**$2,280 m**	**~**	**$88.6 m**	**$60.4 m**[d]

NOTES: Figures expressed in 2008 dollar terms; Totals may not add exactly due to rounding; m = millions of dollars..
[a] See Table 4.4-1.
[b] See Table 4.4-2.
[c] See Table 4.4-7.
[d] The sales distribution for Stockton's new retail demand is based on California averages and therefore differs from the past Stockton sales as shown Table 4.4-1.

SOURCES: ESA; State Board of Equalization 2007.

Approach

Sales transfers among a retailer's stores can be a significant source of a new store's future retail sales. The project's new Wal-Mart ~~Supercenter~~ may be expected to attract some current Wal-Mart customers from other stores ~~especially because the proposed new retail store would offer significantly expanded goods~~. There are currently three Wal-Marts operating in the project's primary and secondary market area with a total estimated square footage of approximately 470,000 square feet and estimated annual sales of at least $174~~194~~ million.[16] Even a minor transfer of 5 percent of sales would provide more than $8.7 million in retail sales for the new store. However, no inter-store sales redistributions have been assumed to occur.

The maximum potential sales captured from competing retailers may therefore be determined by estimating the net new sales that the project would be expected to generate (after adjusting for new customer growth). For the purposes of the impact analysis, it is assumed that the current Stockton retail market is saturated and that no sales transfers would occur from other stores of Weston Ranch's retail tenants. On this basis, all net new retail sales surpluses would be expected to be derived as sales shifts from the competing Stockton retailers.

The magnitude of the identified retail impacts has been assessed as a proportional change to the ~~2005~~2006 baseline conditions.[18] These estimated percentage impacts to the ~~2005~~2006 baseline conditions provide an indication of the maximum magnitude of the project's retail impact that would be expected in its first year of operation. As a result, they are very conservative representations of the potential project impact and very likely overstate the actual retail impacts that might reasonably be expected to occur. This impact represents the estimated maximum potential retail impact solely attributable to the Weston Ranch project on existing Stockton retailers as of its projected opening in July ~~2008~~2010. It is also important to emphasize that retail sales do not in themselves cause urban decay impacts; additional causal links are required, as discussed below, for a change in retail sales to affect the potential for urban decay to occur.

Overall Sales Shift Impact

As shown in **Table 4.4-~~10~~9**, the proposed project is expected to generate approximately ~~$200.9~~$118.8 million in annual sales from Stockton residents. Compared with the $2,280~~312.5~~ million baseline conditions in ~~2005~~2006, the project would be expected to result in up to ~~8.7~~5.2% increase in new retail sales. If the existing Stockton retail market is saturated and there has been no growth in retail demand, then the entire ~~$200.9~~$118.8 million of added retail sales from the proposed project would be expected to result in a sales shift from the other Stockton retailers.

As discussed in the "Sales by New Stockton Retailers" the Stonecreek Shopping Center (located at the site of former K-Mart / Sherwood Shopping Center) is the only major new shopping center development expected to be completed before the project's expected opening in 2010. The new Stonecreek Shopping Center is expected to add approximately $28.6 million in net new retail sales

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16 Based on our regionally adjusted national average sale projections of ~~$414~~$370 per square foot (in 2008 dollar terms).

18 As discussed earlier, the most current available *actual* sales data (i.e. adjusted 2006 California State Board of Equalization data) has been used as the basis for estimate the project's expected sales impact to the Stockton retail sector. In addition to being a more accurate approach (i.e. since it uses less projections) given the lack of sales growth between 2005 and 2006, use of the 2006 baseline data is also a more conservative approach to the analysis.

of which the majority would be apparel sales ($20.8 million). Table 4.4-10 shows the combined retail impact of the project with the completed Stonecreek Shopping Center against the 2006 baseline conditions.

REVISED TABLE 4.4-9
WESTON RANCH IMPACT ON COMPETING STOCKTON RETAILERS (2006)

Retail Sector Categories	Competing Retailers' Sales – Baseline Conditions (2006)[a] (a)	Project's Sales (Stockton Originating) (b)	Project's Sales as % of Baseline (c = b / a)
Apparel	$126 m	$10.1 m	8.0%
General Merchandise	$616 m	$38.8 m	6.3%
Food	$618 m	$11.6 m	1.9%
Eating and Drinking	$293 m	$13.2 m	4.5%
Home Furnishings and Appliances	$108 m	$10.6 m	9.8%
Building Materials	~	~	~
Auto Dealers and Auto Supplies	~	~	~
Service Stations	$222 m	$2.6 m	1.2%
Other Retail Stores	$297 m	$31.9 m	10.7%
Total – All Retail	**$2,280 m**	**$118.8 m**	**5.2%**

NOTES: Figures expressed in 2008 dollar terms, m = millions of dollars
[a] Baseline conditions consist of all project-competing retail sales by Stockton retailers. See Table 4.4-2.

SOURCE: ESA.

REVISED TABLE 4.4-10
COMBINED STONECREEK AND WESTON RANCH IMPACT ON COMPETING STOCKTON RETAILERS (2006)

Retail Sector Categories	Competing Retailers' Sales – Baseline Conditions (2006)[a] (a)	Combined Stonecreek Shopping Ctr & Project's Sales (Stockton Originating)[b] (b)	Project's Sales as % of Baseline (c = b / a)
Apparel	$126 m	$25.7 m	20.4%
General Merchandise	$616 m	$38.8 m	6.3%
Food	$618 m	$11.6 m	1.9%
Eating and Drinking	$293 m	$19.0 m	6.5%
Home Furnishings and Appliances	$108 m	$10.6 m	9.8%
Building Materials	~	~	~
Auto Dealers and Auto Supplies	~	~	~
Service Stations	$222 m	$2.6 m	1.2%
Other Retail Stores	$297 m	$31.9 m	10.7%
Total – All Retail	**$2,280 m**	**$140.2 m**	**6.2%**

NOTES: Figures expressed in 2008 dollar terms, m = millions of dollars
[a] Baseline conditions consist of all project-competing retail sales by Stockton retailers. See Table 4.4-2.
[b] Sherwood Shopping Center Sales have been decreased by 25% to represent the expected its Stockton originating sales.

SOURCE: ESA.

The actual magnitude of the project's retail impact to the existing Stockton retailers will likely be less than the $104.2 million[17] estimated above for several reasons. The impact analysis has conservatively evaluated the impacts on an annual basis, as if the Weston Ranch retail development would immediately achieve full sales stabilization levels at its opening in mid-2010. However, in actuality, it is likely that it would take at least a year for sales to fully "ramp up," in which case, there would be a lesser retail shift impact as customers gradually alter their shopping patterns.[18] Thus, existing retailers would likely see a more gradual reduction to their revenues over time resulting from any sales shift impacts.

If no other major new retail development occurs, then expected retail demand growth above ~~2005~~2006 levels from future Stockton population growth at the assumed General Plan rate would result in up to $243.2 ~~143.8~~ million in new retail demand by mid ~~2008~~2010 (i.e. $60.8 ~~57.5~~ million per year over ~~2.5~~4 years). This new growth in retail demand could absorb all ~~but $57.1 million~~ of the revised Weston Ranch project's estimated future new sales. In this case, this "surplus" of ~~project sales would represent the maximum~~ future new demand would offset potential "sales shift" impact on the existing retailers from the project and leave an estimated $103 million in new "unmet" retail demand growth.

Over the course of the project's first operating year that it might take for the estimated retail sales shift impacts to accumulate, additional retail demand would be generated by continued Stockton population growth and demographic changes. By mid-~~2009~~2011, if no other new major retail development had been completed, a year after its opening ~~any project-related~~ the net new ~~sales~~ demand "surplus" would be ~~offset~~ increased by another $60.8~~57.5~~ million in new Stockton retail demand growth. ~~Compared with the project's estimated net $57.1 million of unabsorbed sales shift, subsequent retail demand growth would more than offset the project's remaining "surplus" retail impact within a year of operation, therefore resulting in no future sales shift impacts on Stockton's other retailers. The~~This ~~offsetting~~ subsequent growth in retail demand also suggests that even if there were some retail impacts to existing retailers (perhaps as a result of other new competing retail developments), the project's retail impact would be short-term.

~~The~~It should also be recognized that above estimates also assume that Stockton sales are already fully saturated which as discussed earlier is another conservative assumption – especially given the relative under-retailing of South and Central Stockton.

A further key issue for determining the project's potential for contributing to a substantial increase in urban decay conditions in Stockton is the likely consequences of ~~the expected~~ any subsequent retail impacts if they occur. As discussed above, the projected ~~8.7~~6.2% maximum sales shift effect is a high estimate of Weston Ranch's overall impact on existing Stockton retailers and thus provides a conservative basis for evaluating potential impacts. While this magnitude of retail sales shifts could be expected to result in some possible store closures, the impact is expected to be short term in duration and is of a type and magnitude that is within the range for typical retail sector business cycles.

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17 Includes the additional retail impact of the Sherwood Shopping Center Development.

18 Retailers typically will not achieve full sales stabilization until one to two years or more after the store's opening.

Furthermore, as discussed in the market analysis, several other factors specific to existing Stockton retailers will determine their vulnerability to new competition from the proposed project or other future new retailers moving into the Stockton retail market. Existing retailers may have some control and flexibility over certain factors (e.g., their store management, types of goods and customer service). However, other factors may be largely independent of their control or resources (e.g. convenience of their location, proximity to attractive complementary businesses). As a result, it is difficult to identify the stores most vulnerable to new competition and determine other stores likely response.

Given both the conservative assumptions used for the retail impact analysis and the comparatively short term and limited magnitude of its potential sales shift impact findings, most of the proposed project's retail impact to the overall Stockton retail sector is expected to be absorbed. As a result, relatively few businesses would be expected to be affected, especially over the longer term as future demand growth and demographic change would significantly increase Stockton's retail demand.

Even if businesses were to leave the area as a result of the increased competition, based on the findings of the real estate analysis, it is anticipated that their vacated properties would be re-tenanted within a reasonable period of time – if not by other retailers then by other users. Even if some properties were to remain vacant for more extended periods of time, the underlying strength of the real estate market would ensure that owners would maintain their properties adequately and in compliance with the City's code-compliance requirements. Accordingly, even under the relatively rare circumstances that properties were to be unused for a more extended period of time, the vacated properties would not contribute Stockton's urban decay conditions.

Distribution of Retail Sales Shifts

The expected distribution of the Weston Ranch project's retail impact across Stockton's retail sales categories has also been projected to evaluate the potential effects within Stockton on the various retail sales categories. The projected allocation of sales impacts from the proposed project are based on past spending patterns and retail conditions, which are subject to change. These estimates also represent expected maximum potential retail impacts because they assume that the Stockton retail market is fully saturated at present (i.e., no sales leakage from existing Stockton's residents is occurring that could be captured by a new retailer). On this assumption, all of the project's sales would represent sales captured from the existing retailers. However, if the Stockton market were not saturated and sales leakage has been occurring then the potential impact on existing retailers would likely be further reduced.

Retail Category-Specific Sales Shift Impacts

Table 4.4-~~10~~ 9 shows the estimated retail impacts of the ~~Western~~ Weston Ranch project distributed among the retail sector categories. Despite the data and methodological limitations previously discussed, the analysis findings provide indicators of the possible magnitude of the expected sales impacts.

Generally, across most of the retail sector categories the proportional impacts are fairly comparable in size to the overall ~~8.7~~6.2% impact on Stockton's retail sector of competing goods. This suggests that the findings for the retail sector overall are likely to be applicable to individual categories.

The highest proportional impact on a retail sector category would be to the apparel~~home furnishing retail~~ sector (~~16.0~~20.4 percent)~~, likely corresponds to that sector's weak sales attraction, which could also indicate that the home furnishing sector currently experiences sales leakage (see **Table 4.4-3**). In that event, the actual retail impact on Stockton's economy would be reduced because the project would then capture current and/or future sales from current Stockton residents and workers that would otherwise leak out of Stockton. Also, it should be recognized that this sector's relatively smaller size means that the project's net new sales impact will represent a greater proportional change to baseline conditions than would occur to a larger retail sector.~~ due mostly to the predominance of specialist apparel stores within the future Stonecreek Shopping Center. The project's greatest absolute retail sales impact is expected to be on the general merchandise retail category, within which the Weston Ranch retail development is projected to add ~~over $57~~nearly $39 million in annual sales, an increase of approximately ~~9.~~6.3 percent over total ~~2005~~estimated 2006 sales. The second largest impact (by proportion) is projected to the "other retail" sector, where the $31.9 ~~37.0~~ million in net new sales from the proposed project would represent a 10.7~~10.8~~ percent increase over ~~2005~~estimated 2006 total sales.

The expected $11.6~~52.1~~ million in net new food sales resulting from the proposed project represents an approximately ~~8.5~~1.9 percent increase to the food retail sector. This suggests that even if the food sector is fully saturated, the proposed project would be expected to at most require a ~~8.5~~less than 2 percent sales shift from among the ~~all~~other food retailers in Stockton. ~~Some food retailers may find it difficult to absorb such a decrease in their future sales because of the traditionally narrow profit margins for grocery stores.~~

Future Growth in Retail Demand

If Stockton's retail sector for project competing goods was fully saturated in ~~2005~~2006, as assumed in this analysis, retail demand will nonetheless continue to grow by $60.8~~57.5~~ million in project competing goods in Stockton each year over the ~~foreseeable future~~ next several years (as shown in **Table 4.4-~~9~~7)**. By mid-~~2008~~2010, when the proposed project is expected to be completed, up to $243.2~~143.8~~ million in new retail demand will have been generated (i.e. ~~2.5~~4 years of accumulated annual demand growth). If no other new major retail development were constructed by this year, then ~~there would be approximately $143.8 million in "excess" retail demand. Such~~this "excess retail demand" could ~~be~~ readily absorb~~ed by~~ the proposed project's ~~, thus reducing its net~~ expected retail impact of~~n other Stockton retailers to~~ approximately $140.2 ~~57.1~~ million (including Stonecreek Shopping Center). ~~This smaller "net" retail impact~~In which case there would also still remain $103 million of surplus demand that corresponds to ~~a sales shift of less~~more than 4.5~~2.5~~ percent sales ~~shift impact~~growth to Stockton's competing retail sector baseline conditions.

Real Estate Analysis

Real Estate Demand

As discussed above in the environmental setting, Stockton's real estate market during the early 2000s has been growing strongly for many years and vacancy rates for Stockton and the region are low and expected to remain low for commercial property, including retail facilities. However since mid 2006, the residential house values have declined substantially. Although commercial real estate values have not shifted as rapidly or as greatly (lagging as they generally do compared to the larger and more volatile residential real estate market), there has been considerable softening of the existing commercial real estate market. Consequently, vacant commercial properties generally may take longer to be re-leased, sold and/or redeveloped.

Nonethelesss, as discussed in the existing condition section, local real estate brokers interviewed stated that the Stockton real estate market's positive underlying fundamentals will likely to support continued economic development and growth in Stockton over the longer term period. Stockton's locational advantages will be further improved on completion of the Altamont Pass roadway improvements to the Bay Area. Furthermore, in most of the local real estate brokers' opinions, the recent and continuing Downtown Stockton revitalization with its enhanced cultural amenities and other redevelopment are adding to Stockton's attractiveness both to potential residents and business owners. Combined with Stockton's local educational institutions and comparative affordability will ensure that the longer term prospective for local growth will remain strong (Hodgson, 2008) (Thompson, 2008).

Local real estate specialists also continue to believe that Stockton is still relatively under-served by more upscale retails and more contemporary retail configurations. Consequently they believe that continuing new retail development interest from larger regional and national chain stores will remain for the foreseeable future (Hodgson, 2008) (Heffernan, 2008). The retail specialists also suggested that while the pace of retail growth and redevelopment may slow down in the near term as investors and developers wait out the recent residential real estate correction, Stockton's fundamental and underlying real estate conditions and infrastructure will ensure that considerable growth in both the residential and retail real estate markets may be expected (Thompson, 2008) (Hodgson, 2008). Real estate specialists also suggested that future major new industrial redevelopment projects expected for the South Stockton area over the next three to five years will also add considerable additional local employment that will also encourage greater Stockton residential and retail demand (Tochterman, 2008).

Together these factors suggest that while commercial real estate demand may be reduced from the levels identified in the previous DEIR analysis, the current and foreseeable commercial real estate demand remains fundamentally positive and may be expected to be adequate to ensure that any properties that might be vacated by project-related sales shift impacts would be retenanted or redeveloped within a reasonable period of time.

Vacant Properties Analysis

As noted in the environmental setting discussion, real estate demand indicators suggest that the~~re is strong~~ demand for commercial retail properties in Stockton has lessened from its levels when the DEIR analysis was performed~~ that is~~ and these conditions may be expected to continue ~~in~~ over the short term future. However, the underlying fundamentals of the commercial real estate market remain positive.~~the foreseeable future. This is a primary reason for expecting that sales shift impacts~~ The extent of the ~~project existing Stockton retailers would not result in business closures. Moreover, few, if any, long-term vacancies are~~ on-going "correction" in California residential real estate market remains to be seen after a remarkable period of past real estate appreciation. In any case over the longer term (i.e. five or more years) residential home values may be expected to ~~be associated with business closures that may occur for any reason.~~ Stabilize. This market correction is expected to occur as the home construction industry adjusts and reduces its production of new homes and the inventory of recently constructed new homes are absorbed into the real estate market. Most of the interviewed real estate brokers noted however, that the commercial real estate market was expected to experience far lesser reductions to its real estate demand. As discussed in the environmental setting discussion, this situation is relatively common within real estate markets. Compared with the residential real estate market, real estate analysts expect any declines to the commercial property market will much less than those experienced in residential real estate. Declines in commercial real estate demand and values will be tempered by the lack of overbuilding in recent years. Generally growth in commercial real estate market has been more restricted that the residential real estate market due to high construction costs and a lag in property appreciation from the early 1990s recession. In addition, commercial businesses and building owners have been less subject to sub-prime funding that relied on real estate appreciation and future refinancing. Furthermore, since commercial properties typically produce income most commercial buildings are generating sufficient to income to maintain their loans (Wall Street Journal, 2008).

As noted in the environmental setting discussion, in recent years past vacant properties ~~are~~were relatively uncommon within the major commercial areas as either redevelopment or re-tenanting by retail or other users ~~is likely to occur under current and projected future market conditions in Stockton~~generally occurred over time.

Typical urban decay indicators such as abandoned and deteriorating properties, litter and graffiti, and unauthorized property uses can be avoided if property owners adequately maintain their property (which is generally advisable for owners wanting to maintain its real estate value). Such urban decay impacts may be expected to result when property values are not appreciating and, as a result, owners see these property management costs as unrecoverable and/or unnecessary expenses. However, given Stockton's recent strong and foreseeable ~~strong~~ stable commercial real estate market, it seems unlikely that property owners would generally permit their properties to deteriorate in a manner that would result in urban decay impacts.

Impact 4.4-1. The project would introduce retail uses that would add $~~200.9~~118.8 million in new sales to the Stockton retail market - equivalent to up to ~~8.7~~5.2 percent of existing (~~2005~~2006) retail sector sales. Combined with the other recent new retail development at Stonecreek Shopping Center, the project would add $140.2 million in new sales to the Stockton retail market – equivalent to up to 6.2 percent of existing (2006) retail sales. The net projected

"sales shift" impact from the project on existing retailers would be ~~less than 2.5 percent~~more than offset by future retail demand growth. This shift is not expected to result in a substantial number of existing business closures. If some business closures were to occur and to result in vacancies, the EIR analysis indicates that vacated properties would be re-tenanted or redeveloped and thus unlikely to deteriorate physically. The project in itself would not result in significant urban decay impacts.

In summary, the findings of the urban decay analysis conclude that a direct short-term retail impact to existing retailers of up to $~~200.9~~118.8 million could result from the project. This impact would, at most, represent up to an ~~8.7~~5.2 percent shift in Stockton's competing retail sales compared to ~~2005~~2006 existing conditions. This is a conservative impact assessment since it assumes that there is currently no retail sales leakage among current Stockton residents or workers which would absorb any of the estimated net new sales.

Taking growth in demand into account, ~~the proposed project is expected to result in at most a 2.5%~~ no sales shift affecting Stockton retailers is expected from the proposed project and thus ~~to have~~there would be no or only negligible project-related effects in terms of business closures. The real estate analysis suggests that even the ~~strong~~recently softened residential and commercial retail markets will likely ensure that any vacated retail properties would be re-tenanted or redeveloped. In addition to the probability that the project would not result in long-term vacancies, vacancies in themselves do not cause urban decay impacts. Additional conditions are necessary for urban decay to occur, including owner neglect that leads to physical deterioration, the absence of government code enforcement and regulatory programs, lack of investment in economic redevelopment, stagnant or declining property values and a general decline in consumer demand. ~~These factors are absent in the Stockton region at present and for the foreseeable future.~~ As previously discussed in the real estate analysis, while residential property values have retreated from the mid 2006 peak values, stabilization of the economic correction to home prices is considered to be approaching. Furthermore, the revised project's reduced size of development will decrease its potential for retail impacts on existing businesses and therefore will correspondingly diminish the likelihood and magnitude of urban decay impacts. Consequently (and given that the other necessary factors for urban decay to occur discussed above are absent in the Stockton region at present and for the foreseeable future) the proposed project would not contribute to urban decay effects.

> **Mitigation Measure:** The project would not introduce additional retail competition that would result in business closures by current retailers that would be expected to generate long-term vacancies of existing retail properties, causing significant urban decay impacts. Therefore, no mitigation is required.

The year ~~2011~~2013 has been used for the cumulative impact analysis because ~~all~~ most of the reasonably foreseeable retail development projects are expected to be fully constructed and operational by that date. Future development beyond ~~2011~~2013 is currently unknown. Moreover, the uncertainty inherent in economic forecasting increases with the forecast period horizon. The geographic area for the cumulative impact analysis is the City of Stockton, since it is the primary area of concern for any incidence of potential future urban decay impacts.

Sales by Potential Future Stockton Retail Developments

The adoption of the Stockton City Council ban on big box development in August 2007 precludes the future development of new retail stores of more than 100,000 square feet that include full-size grocery stores. As a result, several previously planned future retail developments for Stockton have been modified – most notably the Weston Ranch project and the Morada Ranch / Cannery Park projects. These and other project modifications to other local planned retail projects are discussed below.

According to the City of Stockton Planning Department, several major new retail developments that would compete with the Weston Ranch retail development are considered probable:

- ~~**The Lodi Wal-Mart Supercenter Relocation.** This planned shopping center development would construct 340,000 square of commercial retail with a variety of retail sales and services.[19] The major retailer for the proposed project would be a Wal-Mart Supercenter, which would occupy a 226,868-square-foot new Supercenter to replace its existing Lodi Wal-Mart store (120,352 square feet).~~

- ~~**Spanos Park West (Phase 2)**. A new Wal-Mart Supercenter and club discount store are planned for construction next to the recently completed Spanos Park West (Phase 1) shopping center (located at Eight Mile Road and Interstate 5 in northwest Stockton). If approved, up to 615,486 sq. ft. of new development is proposed under the project of which 103,000 sq. ft. would consist of Auto Dealers that would not compete with the project. Therefore, 512,486 sq. ft. of the new development proposed for Spanos Park West (Phase 2) would potentially compete with Weston Ranch.~~

- ~~**Cannery Park.** A 450-acre mixed-use development project is proposed for the Cannery Park property, which lies directly southwest of the Eight Mile Road and Route 99 interchange in northeast Stockton. The projected potential maximum of approximately 500,000 square feet of new retail (Stockton, 2006) is assumed that the retail development would consist of one similar large-scale discount store (assumed to be approximately 150,000 square feet) with the remaining retail composed of specialty retailers.~~

- ~~**Origone Ranch.** The site is situated directly southwest of the Hammer Lane and Route 99 interchange in northeast Stockton. Due to the lack of information on the Origone Ranch development, for the purposes of the impact analysis it is assumed that its future commercial development would be of a comparable type and size as that planned for the Cannery Park. According to the City of Stockton Planning Department, the Origone Ranch project is proceeding rapidly and may be completed as soon as July 2009.~~

~~Projected sales for these four future retail developments are shown in **Table 4.4-11**. The Lodi Wal-Mart Supercenter project's future sales are estimated to be $125.8 million in competing sales (ADE, 2004). The future sales projections for the other potential major new retail developments are based on national sales per square foot averages consistent with the projections for Weston Ranch. It is estimated that the new Spanos Park West Phase 2 project will generate approximately $199.1 million in retail sales annually. Projected sales for the proposed Cannery Park and Origone Ranch retail development are approximately $154.2 million.~~

~~[19] Up to 13,160 sq.ft. of this new Lodi development could include non-retail uses (e.g. hairdressers or financial institutions that would not be competitive with the project.~~

~~If all four of these potential retail development projects were constructed, together they would be expected to generate approximately $633.5 million in new retail sales annually. The expected distribution of new sales among the major retail categories is also shown in **Table 4-11**. The majority of competing retail sales are projected to be food sales ($171.0 million), general merchandise sales ($178.2 million), and other retail ($165.2 million).~~

~~A considerable portion of these retailers' future sales may be expected to be generated from their secondary and tertiary market customers (i.e., non-Stockton residents) (see the market analysis section in **Appendix C**). As a result, only a portion of these new future retailers' sales will compete with the project in serving Stockton residents' retail demand. Using a reduced market area assumption of 15 percent for these customers, as shown in **Table 4-12**, approximately $538.5 million of these major new future retailers' total $633.5 million of new sales would be expected to be directly competitive with the proposed Weston Ranch retail development and existing Stockton retailers.~~

~~The 2011 retail sector conditions for Weston Ranch competing sales in 2005 are shown in **Table 4-13** in the Baseline Stockton Retail Sector column. The estimated total competing sales are approximately $2,312.5 million per year (in 2008 dollar terms).[20] If all the future new retail developments identified in **Table 4-11** were developed as assumed, the combined impact of these retailers plus the proposed project would add $739.4 million annually to total 2005 retail sales by existing Stockton retailers. This cumulative retail impact would represent approximately a 32.0% increase to Stockton's existing retail sector.~~

- **Spanos Park West (Phase 2)**. A new Wal-Mart Supercenter and club discount store are planned for construction next to the recently completed Spanos Park West (Phase 1) shopping center (located at Eight Mile Road and Interstate 5 in northwest Stockton). If approved, up to 615,486 sq. ft. of new development is proposed under the project of which 103,000 sq. ft. would consist of Auto Dealers that would not compete with the project. Therefore, 512,486 sq. ft. of the new development proposed for Spanos Park West (Phase 2) would potentially compete with Weston Ranch. While an FEIR for the proposed project was previously approved by the Stockton City Council in 2004, subsequent successful legal challenges from local residents has suspended the project. In November 2007 the California Court of Appeals upheld the previous San Joaquin County Superior court ruling that the project's environmental compliance was inadequate. The rulings is being appealed to the California Supreme Court and if upheld the project's past planning approval would be rescinded and the proposed retail development would be subject to the City's subsequent big box ban. Irrespectively, for the purposes of the revised Weston Ranch analysis it is conservatively assumed that Spanos Park West will be fully developed at some point between mid-2010 to 2013.

- **Morada Ranch / Cannery Park.** A 450-acre mixed-use development project is proposed for the Cannery Park property, which lies directly southwest of the Eight Mile Road and Route 99 interchange in northeast Stockton. Following the recent Stockton big box ban, the proposed retail development for the project has been revised considerably. As currently conceived, the future project will primarily consists of a Raley's grocery store and neighborhood serving retail, services and food (e.g. Supercuts, Starbucks, Panda Express, Go Wireless). It is assumed that the retail development would consist of one grocery store (assumed to be approximately 50,000 square feet) with the remaining retail composed of

~~[20] This does not include the additional retail demand for project competing goods expected to be brought to Stockton retailers by new Stockton residents (see Table 4-17). If a major proportion of this new retail demand is captured by Stockton retail business, then the actual 2008 baseline conditions would correspondingly be higher.~~

small neighbor serving retailers that would not directly compete with the revised Weston Ranch project. The earliest likely completion of the proposed project is assumed to occur by mid 2010.

- **Evergreen Origone.** The site is situated directly southwest of the Hammer Lane and Route 99 interchange in northeast Stockton. As currently planned, the Evergreen Origone development is a revision to the former Origone Ranch development. According to Stockton Planning staff and for the purposes of the impact analysis it is assumed that its future commercial development would likely be a "lifestyle" shopping center that could be up to 700,000 square feet in size. A Notice of Preparation was published in September 2007 and planning for the mixed use development project is on-going. Expected completion of the proposed project is expected to occur by 2013.

- **Mariposa Lakes.** Mariposa Lakes is a master-planned community proposed for phased development in southeast Stockton. At full buildout in 2035, the project plans to construct 10,566 new homes and more than 11.4 million square feet of business and industrial development generating 11,560 jobs. Three retail villages are also planned for future development and most of the retail will be neighborhood serving. However, the largest retail village (Austin Road Town Center) is planned for as the only retail to be constructed during first phase of development (2008-16). Austin Road Town Center is proposed to consist of 642,510 square feet of retail that would likely include more expanded retail opportunities with potential more regional sales attraction. The project is in its early stages of planning and approval. Consequently it is unclear the type and extent of the proposed Phase I development will be completed by 2013. Although no specific information on the nature of the proposed retail configuration is known at this time, for the purposes of analysis it is assumed that the retail development will be similar to that expected at Evergreen Origone.

- **The Lodi Wal-Mart Supercenter Relocation.** This planned shopping center development would construct 340,000 square of commercial retail with a variety of retail sales and services.[21] The major retailer for the proposed project would be a Wal-Mart Supercenter, which would occupy a 226,868-square-foot new Supercenter to replace its existing Lodi Wal-Mart store (120,352 square feet). The project has been under extensive litigation but a revised Draft EIR was issued in October 2007 suggesting that the earliest that completion of the proposed project may be expected to occur would be mid 2010.

- **Stonebrier.** This proposed commercial shopping center is located on the southeast corner of West Lane and Bianchi Road. It will contain a 17,340 square-foot Rite Aid and a 5,200 square-foot multi-space retail building. This retail is expected to provide neighborhood shopping services and would not directly compete with the project, which is located seven miles away.

Due to important role of that market forces play in real estate development, predicting the nature and completion date for specific projects is inherently difficult. This is especially true during periods of comparative economic and real estate market change and/or uncertainty when the access to investment capital or real estate sales may become more difficult. Additionally, inter-relationships between potential projects may also affect future development outcomes. In some cases, if the projects are complimentary in nature new development may encourage or facilitate other related projects if the projects are complimentary in nature. In other cases, perhaps facing

[21] Up to 13,160 sq.ft. of this new Lodi development could include non-retail uses (e.g. hairdressers or financial institutions that would not be competitive with the project.

limited real estate demand (whether commercial or residential), development of one project may delay another project until market conditions change. Increasingly, many developers favor mixed-use developments that provide a greater diversity of new development occurs more or less simultaneously. Such developed planned communities aim to combine new residential, office and retail development in one location so as provide a mix of facilities and amenities to ensure the development's future success. The diversification of development however generally increases the both the size and complexity of such mixed use projects. This in turn can make the development process more difficult, time-consuming and dependant on favorable economic and real estate market conditions. Furthermore, as discussed above, due to numerous specific planning issues with most of the currently planned projects, it is difficult to forecast the future retail development that may be expected to occur by 2013.

Consequently, to realistically project the likely and foreseeable future retail development conditions by 2013, the cumulative impact analysis assumes that four of the identified potential future retail projects discussed above will be completed by 2013. The analysis's results may be expected to be comparable if similar retail developments replace those assumed for the analysis. For example, development of Phase 2 of the Spanos Park West project as it is currently configured is critically dependant on the future California Supreme Court ruling. If the applicant's appeal is unsuccessful then the project's current EIR would be disallowed and the applicant would be required to redraft and resubmit a new EIR that would also be subject to the recent "big box ban." In which case, the previous proposed "Eight Mile" Wal-Mart Supercenter would no longer be permitted. Furthermore, an unsuccessful California Supreme Court ruling would not delay the Spanos Park West redevelopment but would likely increase the likelihood of other major retail developments occurring sooner to meet the unmet market demand.

Given the specific uncertainties of the planned projects and their future completion dates, too more realistically represent the likely future conditions it is assumed that the Mariposa Lakes (Austin Road Town Center) development will not be completed by 2013. The analysis findings would still be applicable even if the Mariposa Lakes development was successfully fast-tracked ahead of the Spanos Park West and Origone Ranch developments presuming that consequently construction of one of these projects would likely be delayed until after 2013.

Projected sales for the four future retail developments considered most likely to occur by 2013 are shown in **Table 4.4-11**. The Lodi Wal-Mart Supercenter project's future sales are estimated to be $163.6 million in competing sales (BAE, 2007). The future sales projections for the other potential major new retail developments are based on national sales per square foot averages consistent with the projections for the revised Weston Ranch project. The Origone Ranch retail development is the primary other major future retail developments currently forseen to be likely after the Stockton City Council Big Box Amendment (Folsom, 2007) and would result in $215.8 million in retail sales annually. Although currently on-hold due to litigation, for the impact analysis the Spanos Park West project is assumed to be result in $198.4 million in project competing future sales. The expected project competing grocery sales for the revised Cannery Park / Morada Ranch is $18.5 million.[22]

[22] Based on its size and assuming its future retail would be comparable to that proposed at Origone Ranch, the Austin Road Town Center development would be expected to have annual sales of approximately $198 million.

If all four of these potential retail development projects are constructed, together they will be expected to generate approximately $596 million in new retail sales annually. The expected distribution of new sales among the major retail categories is also shown in **Table 4.4-12**.

TABLE 4.4-11
SALES BY POTENTIAL FUTURE MAJOR RETAIL DEVELOPMENTS

	Retail Sales by Future Major Retail Developments in Area				
State Board of Equalization Category	**Spanos Park West (Phase 2)**	**Cannery Park/ Morada Ranch**	**Origone Ranch**	**Lodi Walmart Expansion[a]**	**Total**
Planned Area (Square Feet)	*512,486*	*Approx. 50,000*	*Approx. 700,000*	*326,806*	*Up to 1,589,300*
Estimated Completion	*Mid 2010 - 2013*	*Mid 2010 - 2013*	*2013*	*Mid 2010 -2013*	
Apparel	$14.1 m	--	$19.0 m	$2.4 m	$35.5 m
General	$54.2 m	--	$75.7 m	$106.6 m	$236.5 m
Food	$74.1 m	$18.5 m	$36.4 m	$28.5 m	$157.5 m
Eating and Drinking	$20.6 m	--	--	$8.2 m	$28.8 m
Home	--	--	$20.9 m	--	$20.9 m
Building	--	--	--	--	--
Auto Dealers	--	--	--	--	--
Service Stations	$2.4 m	--	--	--	$2.4 m
Other Retail	$33.0 m	--	$63.8 m	$17.9 m	$114.4 m
Total	**$198.4 m**	**$18.5 m**	**$215.8 m**	**$163.6 m**	**$596.0 m**

NOTES: Figures expressed in 2008 dollar terms; m = millions of dollars; Totals may not add up exactly, due to rounding.
[a] Assumes full increase in retail square footage and sales except for the 13,160 sq. ft. for non-retail services.

SOURCES: ESA; City of Stockton, 2005; Urban Land Institute, 2007; BAE, 2007;

Sales by Potential Future Major Retail Developments

The majority of competing retail sales are projected to be general merchandise sales (~~$182~~$236.5 million), food sales (~~$83.4~~$157.5 million) and "other retail" goods (~~$81.3~~$114.4 million).

A considerable portion of these retailers' future sales may be expected to be generated from their secondary and tertiary market customers (i.e., non-Stockton residents) (see the market analysis section in **Appendix C**). As a result, only a portion of these new future retailers' sales will compete with the project to serve Stockton residents' retail demand. For the Lodi Wal-Mart it is assumed that at most 15% of its sales will be generated from Stockton residents. For the new Stockton retailers, a reduced (and hence conservative) market area assumption of 15 percent for their non-Stockton customer sales has been used. Consequently, as shown in **Table 4-11**, of these major new future retailers' total $596 million of new sales approximately $349.1 million would be expected to be directly competitive with the proposed project and current Stockton retailers.

The 2013 retail sector conditions for revised Weston Ranch competing sales in 2006 are shown in **Table 4-12** in the Baseline Stockton Retail Sector column. The estimated total competing sales

are approximately $2,312.5 million per year (in 2008 dollar terms).[23] If all the future new retail developments identified in **Table 4-10** were developed as assumed, the combined impact of these retailers plus the proposed project would add $489.3 million in annual retail sales. This cumulative retail impact would represent approximately a 21.5% increase to Stockton's existing retail sector (i.e. 2006 baseline conditions).

REVISED TABLE 4.4-12
STOCKTON ORIGINATING SALES BY POTENTIAL FUTURE MAJOR RETAIL DEVELOPMENTS

	Potential Sales by Future Major Retail Developments	
State Board of Equalization Category	**Total Project-Competing[a]**	**Stockton-Originating[b]**
Apparel	$35.5 m	$25.2 m
General	$236.5 m	$113.4 m
Food	$157.5 m	$101.0 m
Eating & Drinking	$28.8 m	$16.7 m
Home Furnishings	$20.9 m	$15.7 m
Building	--	--
Auto Dealers	--	--
Service Stations	$2.4 m	$1.8 m
Other Retail	$1114.4 m	$75.3 m
Total	**$596.0 m**	**$349.1 m**

NOTES: Figures expressed in 2008 dollar terms; m = millions of dollars; Totals may not add up exactly due to rounding.

[a] See Table 4.4-11.
[b] Estimated Stockton sales, conservatively assuming 85 percent of sales generated in Stockton by Stockton retailers and 15 percent of Lodi sales are sourced from Stockton (i.e. outside its primary trade area) (BAE, 2007).

SOURCES: ESA, 2008

Due to the limited availability of information on future retail development, ~~I~~it should be recognized that distribution of the future cumulative retail impact among the retail sector categories is uncertain ~~due to the limited availability of information on future retail development~~. However, given the assumed allocation of the sales projections, the analysis indicates that the largest retail impact would occur in the general merchandise sector where over ~~$209~~$152.2 million in additional sales would be expected. The retail impacts to the food and "other retail" sectors would be ~~only slightly less at $197.5~~$112.6 million and ~~$177.4~~$107.2 million, respectively. The greatest proportional change would occur to the "~~other retail~~other" sector, where the projected total new sales would be ~~nearly 52~~over 36.1% of the ~~2005~~2006 sales levels. The central issue for the urban decay analysis is whether substantial changes in the level of physical urban decay in Stockton would be expected to result from these cumulative sales increases.

[23] This does not include the additional retail demand for project competing goods expected to be brought to Stockton retailers by new Stockton residents (see Table 4.4-7). If a major proportion of this new retail demand is captured by Stockton retail business, then the actual 2008 baseline conditions would correspondingly be higher.

REVISED TABLE 4.4-13
CUMULATIVE RETAIL IMPACT ON STOCKTON RETAILERS – 2006 BASELINE

Retail Sector Categories	Competing Stockton Retailers – Baseline Conditions (2006)[a] (a)	Gross Sales of Project-Competing Goods: Future Stockton-Originating Sales: Potential New Retailers (2008-13)[b] (b)	Project Sales[c] (c)	Total Potential Cumulative Sales (d = b + c)[d]	% of Baseline Conditions (e = d / a)
Apparel	$126 m	$25.2 m	$10.1 m	$50.9 m [d]	40.3%
General Merchandise	$616 m	$113.4 m	$38.8 m	$152.2 m	24.7%
Food	$618 m	$101.0 m	$11.6 m	$112.6 m	18.2%
Eating and Drinking	$293 m	$16.7 m	$13.2 m	$35.7 m [d]	12.2%
Home Furnishings	$108 m	$15.7 m	$10.6 m	$26.3 m	24.4%
Building Materials	~	--	~	~	~
Auto Dealers	~	~	~	~	~
Service Stations	$222 m	$1.8 m	$2.6 m	$4.4 m	2.0%
Other Retail Stores	$297 m	$75.3 m	$31.9 m	$107.2 m	36.1%
Total - All Retail	**$2,280 m**	**$349.1 m**	**$118.8 m**	**$489.3 m [d]**	**21.5%**

NOTES: Figures expressed in 2008 dollar terms; m = millions of dollars; Totals may not add up exactly due to rounding.

[a] See Table 4.4-2.
[b] See Table 4.4-12.
[c] See Table 4.4-6.
[d] Projected Stonecreek Shopping Center apparel sales ($15.6 m) and Eating ($5.8 m) have also be added to the cumulative sales.

SOURCES: ESA.

Major increases in retail sales in a local economy will not in and of themselves result in adverse impacts on existing retailers. If the existing retail market is leaking sales out of the economy or major new retail demand growth is expected that would offset the new competition, then no retail impacts would occur. The key factor in determining the severity of adverse retail impacts (and hence the likelihood of vacancies by existing businesses closing down) is whether there are "sales-shift" impacts that could redirect sales to such an extent that some businesses are forced out of the market.

In the case of the cumulative impact analysis, the most meaningful indication of the likely effect on Stockton's existing businesses is the degree of imbalance between future retail sales and demand. **Table 4.4-14** provides an assessment of the potential sales shift in ~~2011~~2013 (i.e. when all the currently foreseen major future retail developments are assumed to have been completed and would be fully operational).

REVISED TABLE 4.4-14
CUMULATIVE SALES SHIFT IMPACT TO STOCKTON RETAILERS – BASELINE (2011)

	Estimated Gross Sales of Project-Competing Goods				
Retail Sector Categories	**Estimated Baseline Stockton Sales[a] (2013)** (a)	**Potential Cumulative New Sales (2006-13)** (b)	**Stockton Retail Demand Growth[b] (2006-13)** (c)	**Estimated Future Sales Shift Impact (2013)** (d = b – c)	**% of Baseline Conditions** (e = d / a)
Apparel	$154 m	$50.9 m[d]	$28 m	$22.9 m	14.9%
General	$704 m	$152.2 m	$88 m	$64.2 m	9.1%
Food	$713 m	$112.6 m	$95 m	$17.6 m	2.5%
Eating and Drinking	$362 m	$35.7 m[d]	$69 m	-$33.3 m	-9.2%
Home Furnishings	$133 m	$26.3 m	$25 m	$1.3 m	1.2%
Building Materials	~	~	~	~	~
Auto Dealers	~	~	~	~	~
Service Stations	$284 m	$4.4 m	$62 m	-$57.6 m	-20.2%
Other Retail Stores	$353 m	$107.2 m	$56 m	$51.2 m	14.5%
TOTAL	**$2,703 m**	**$489.3 m[d]**	**$423 m**	**$66.3 m**	**2.5%**

NOTES: Figures expressed in 2008 dollar terms; m = millions of dollars; Totals may not add up exactly due to rounding.
[a] 2013 baseline conditions based on 2006 baseline (Table 4.4-2) adjusted to include future retail demand growth (column c).
[b] Future retail demand growth based on Table 4.4-7 and seven years of growth from 2006 to 2013 at 2.5% annual rate (as per Stockton General Plan's current projections).

SOURCES: ESA.

Due to the limited availability of information on future retail development and some "fluidity" amongst retail classifications of stores between retail sectors, it should be recognized that precise distribution of the future cumulative retail impact among the retail sector categories is uncertain. However, given the assumed allocation of the sales projections, the analysis indicates that the largest potential net impact would occur in the general merchandise sector where a net over $64.2 million in "sales shift" impact would be expected. The next largest sales shift retail impact would be a $51.2 million shift within the "other retail" sector. The greatest proportional change would occur to the "apparel" sector, where the projected total new sales would be nearly 15% of the future baseline sales conditions. The projected 2.5% proportional sales-shift effect within the Food sector may be expected to have little effect on that sector as retailers could likely absorb that level of lost sales. Furthermore such sales reductions are within the likely fluctuations typical within the retail industry and would likely be relatively short term in duration as future growth in retail demand would soon offset the sales shift.

Central for the urban decay analysis is whether substantial changes in the level of physical urban decay in Stockton would result from such cumulative sales increases. The discussion in the preceding section concludes that implementation of the proposed Weston Ranch project would not in itself cause significant urban decay impacts, in part because the retail sales shift effects directly from~~of~~ the project would be minor. Few (if any) existing retail businesses would be expected to close as a result of competition from the project and in the event of any closures, the ~~strong~~ current commercial real estate market conditions in Stockton would prevent extended retail facility vacancies. After project build-out any retail facilities that became vacant due to business closures would likely be re-tenanted, either by another retailer or a different type of tenant, or redeveloped in a ~~relatively short~~reasonable period of time.

However, the cumulative impact on existing retailers of the proposed project together with other retail projects considered reasonably foreseeable would be greater than the effects of the project alone, especially if the new retailers entered the Stockton market concurrently or in rapid succession in the near term future. In that case, the cumulative effects of new retail sales competition, including the proposed project, could be expected to result in some existing retail businesses leaving the market.

The retail sales shift analysis of ~~2011~~2013 conditions suggests that over the longer term, any cumulative impacts may be expected to decrease in magnitude and would be offset ~~as a result of~~by future retail demand growth~~ sales~~. Even under the very conservative terms of the analysis, the net retail sales shift impact would be $66.3 million. This suggests that while there might be a potential oversupply in planned general retail or apparel stores, there may also be unmet retail development demand in other sectors (such a food and drinking or service stations). In which case, possible business closures resulting in one retail sector might reasonably expect to be offset by potential future business growth in those retail sectors with unmet retail demand growth.

The magnitude of the net sales shift impact is $66.3 million – approximately equivalent to the estimated annual retail demand growth. This also suggests that the impact could be relatively short-term as within a year, future retail demand growth could absorb the projected net sales shift impact to Stockton's retail sector.

~~However~~Nonetheless, given the magnitude of the projected imbalance in ~~2011~~2013 between retail supply and demand in some of the retail sectors, the cumulative sales impacts of the proposed project together with other probable retail development could result in closures of existing businesses. Although the real estate market in Stockton is currently relatively ~~strong~~ healthy (as evidenced by the on-going re-tenanting discussed previously in the existing conditions)~~and will likely remain so~~ the future real estate conditions for Stockton are uncertain. Consequently~~,~~ it is unclear~~ertain~~ whether demand for retail space would be sufficient to ensure re-tenanting (by retail or other uses) or redevelopment of all or most properties vacated by business closures due to the cumulative effects of the proposed project and other future retail centers.

As noted previously in the discussion of the urban decay impact significance criteria, adverse effects of increased competition on existing Stockton retailers are not in themselves sufficient to cause an increase in blight, or more specifically, a substantial adverse change in the physical condition of existing Stockton shopping areas. For a significant urban decay effect to result, the general causal chain described in the discussion of significance criteria must occur. Schematically, the causal chain begins with retail market effects that lead to business closures. But business closures alone do not produce urban decay. Business closures must first result in vacancies and then these vacancies must lead to physical deterioration of property. There is abundant evidence that at present and in the future, the ~~strong~~ commercial real estate market in Stockton makes ~~rapid~~ eventual re-tenanting or conversion to a new use of vacant facilities highly likely.

If longer term property vacancies were to occur as a result of cumulative retail development including the proposed project, additional causal effects would be necessary for urban decay impacts to result. Vacant properties, even long-term vacant properties, do not, in and of themselves, necessarily result in the impacts associated with urban decay. If adequately managed and maintained, underused

or underdeveloped properties may remain in urban areas without contributing to the cycle of adverse physical conditions that result in, and are indicative of, urban decay. As discussed in the FEIR's **Appendix C**, typical urban decay indicators such as abandoned and deteriorating properties, litter and graffiti, and unauthorized property uses can be avoided if property owners adequately maintain their properties (which is generally advisable for owners wanting to maintain the value of their properties). Such urban decay impacts may also be expected to occur when property values are not appreciating and, as a result, owners see these property management costs as unrecoverable and/or unnecessary expenses. In addition, the City's substantial urban redevelopment programs and its recently expanded code compliance and enforcement efforts are all additional factors that are likely to prevent or at least minimize urban decay even if there were to be an increase in vacant retail space due to competitive pressures.

In addition to these considerations, it is important to emphasize that the cumulative scenario is in effect a worst case analysis of future conditions for the Stockton retail sector because it assumes that all of the future projects considered reasonably foreseeable for CEQA purposes will be constructed as and when proposed; in fact, the facility sizes and buildout years assumed in this analysis are extremely optimistic. As a result, the analysis findings likely represent the upper limit of the potential magnitude of cumulative competitive impacts to the existing Stockton retail sector.

The assumptions used in this analysis include:

- *The Stockton retail market was fully saturated under the ~~2005~~2006 baseline conditions*. The retail impact analysis determined a maximum estimate of the potential sales shift impact since it conservatively assumes that ~~the~~ under ~~2005~~the 2006 existing conditions Stockton's retail market was fully saturated. Therefore, none of the new retail sales would be absorbed by current residents or workers. However, if the current Stockton retail market is not already fully saturated, then some of the projected new retail sales ~~surplus~~ would be absorbed by Stockton residents who are otherwise "leaking" their sales to other non-Stockton retailers. As discussed in greater detail previously in the FEIR's **Appendix C**, many of the local real estate experts interviewed stated their view that the Stockton retail market was not fully saturated and was still in a process of "catching up" after many years of stagnation in retail development during the 1990s. The respondents also suggested that the "under-retailing" of south Stockton and, to a lesser extent, central Stockton currently results in significant retail leakage by its residents.

- *No future growth in Stockton residents' real income levels occurs.* Current average Stockton per capita income is approximately 71% of California average. Successful economic development programs and improvements in Stockton's local economy could improve local residents' income levels and thereby increase local retail demand. In that event, the projected sales shifts to new retailers would be reduced as a greater proportion of the potential new retail sales could be absorbed.

- *Current residents' net worth and purchasing power will not increase.* ~~Home value appreciation and increased refinancing opportunities have significantly raised most California home owner's effective income (i.e., disposable income available for retail purchases). This factor may help explain the apparent considerable sales attraction by existing Stockton retail identified in the leakage analysis. Continued increases in effective income (i.e., from continued home appreciation) could also increase future retail demand.~~

- *Build-out and operation of all the new retail development projects considered probable will occur by ~~2011~~2013 and as assumed by the analysis.*
- *~~Most (85 percent)~~ 15% of the proposed Lodi Wal-Mart Supercenter and most (85 percent) other potential new Stockton retailers' future sales total sales would be obtained from the proposed project's primary market (i.e. Stockton residents).*
- *The retail analysis is limited solely to those other retailers selling project-competing goods.*
- *Recently vacated stores would generally be re-tenanted by competitive retailers.*

In addition to these assumptions, which result in a worst-case analysis of the competitive effects on existing retailers of cumulative retail development, a number of uncertainties make it difficult to determine whether an increase in business closures in Stockton by ~~2011~~ 2013 would result in an increase in urban blight. These uncertainties include the following:

- *Existing retailers' profitability/vulnerability to increased competition*. The complex inter-relationships of store locations, customer preferences, business management responses and extent of current retail market saturation add to the difficulty of identifying the nature and extent of vacancies that could result from cumulative retail sales impacts.
- *Existing retailers' likely business response to new competition.* The extent that specific retailers can withstand and respond to any cumulative future sales shift losses will depend on several factors. Each store's profitability will be an important factor determining the extent to which it can absorb sales reductions and yet continue to generate sufficient earnings. Specific businesses (and even individual stores) will have differing abilities to adapt their management, operations, and fixed costs to respond to sales reductions from sales shifts resulting from increased competition. The competing businesses' corporate management assistance, investment and other resource may help some business to reposition themselves or otherwise respond so as to limit the competitive effect of the project to their business. Similarly, while sales shift impacts could be a major and/or deciding factor in a given retailer's continued operation, other independent factors (e.g., poor management, long-term deferred maintenance, building obsolescence, corporate performance) may also affect and determine their future financial performance.
- *Allocation of retailer and future customer sales across retail sector categories*. As discussed earlier in the analysis, due to the differences California State Board of Equalization retail categories used for tax reporting purposes and the actual categories of retail goods sold, allocation of sales by different retailers is necessarily approximate. Furthermore, the actual distribution of future retail sales could differ considerably from the existing distribution.

Finally and as previously noted, a number of factors affect whether increased retail competition from the proposed Weston Ranch project together with other probable future projects would result in an increase in urban decay in Stockton, and specifically in adverse physical effects to any existing shopping area. These factors include the following.

- *~~Strong demand~~Demand for commercial and residential real estate.* ~~Based on interviews with local real estate brokers, the~~ The real estate analysis ~~concludes that there is currently relatively strong~~acknowledges recently softening demand for both residential ~~commercial retail~~ and ~~residential~~ commercial retail properties within Stockton.~~, as reflected in low~~ The extent and duration of the softened real estate market will determine future vacancy rates~~,~~ and ~~that~~the future real estate demand ~~will continue to be strong throughout~~ over the cumulative analysis period.~~ Because demand for commercial retail is strong and will continue to be so, any buildings vacated by businesses leaving Stockton as a result of the cumulative competitive effects would most likely be re-tenanted over time.~~ Re-tenanting could involve both new

retailers and adaptive re-use by other businesses such as service businesses or offices. ~~The strong real estate market also suggests that site~~Site redevelopment ~~may~~ is most likely to occur~~, particularly~~ for well-situated, in-fill properties in north Stockton. ~~The strong residential market, which is expected to generate increased future retails demand, could also create demand for in-fill redevelopment of former retail areas in Stockton.~~

- *Cumulative retail sales impacts could result in increased retail space vacancies that would add to the supply of available properties.* If the demand for the properties were less than the new supply, vacant properties could be on the market longer and prices might adjust downward. However, in that event, reduced rents coupled with continuing strong demand would encourage re-tenanting or re-use.

- *Location and extent of any resulting vacancies.* The influence that any increase in long term vacancies may be expected to have on urban decay in Stockton may be affected by both the magnitude and location of any vacancies. Generally, clustering of vacancies would be expected to increase the potential for urban decay conditions to develop. If any future vacancies are instead distributed throughout the entire community, new urban decay would be less likely to develop.

- *Property Neglect*. Property vacancies, even long-term vacancies, do not, in and of themselves, necessarily result in urban decay impacts. If adequately managed and maintained, underused or underdeveloped properties may persist in urban areas without suffering physical deterioration. Typical urban decay indicators (such as abandoned properties, litter and graffiti, breakage and disrepair, and unauthorized property use) can be avoided if property owners adequately maintain their properties, which they are likely to do if, as in Stockton, their properties are holding their value or appreciating in value.

- *Role of Government Agencies in Urban Decay Abatement and Economic Development.* As discussed in more detail in the FEIS's **Appendix C**, local government planning, oversight and economic development programs can have a major effect both on property re-tenanting and the prevention of blight. Stockton's extensive economic development efforts and recently completed projects (particularly in the downtown area) are significantly improving past blighted conditions in the City, fostering new businesses and adding major infrastructure improvements and attractions to improve the quality of life within Stockton. City agencies' efforts to foster building preservation and infrastructure can have an important effect on attracting and retaining businesses and residents. City and County government efforts at better planning, marketing and developing effective business incentives may be expected to have a positive contribution in addressing existing and potential future urban blight within the city. In particularly, the expanded City of Stockton Neighbor Services Section has improved code compliance and enforcement capabilities that are focused on reducing existing urban blight conditions in the City. These programs and initiatives will continue in the future and are expected to prevent or retard any ultimate urban decay effects of increased retail competition from the project and other probable retail developments.

Impact 4.4-2. Combined with other major new retail developments proposed in Stockton and considered reasonably foreseeable, the project would result in up to a net ~~14.8~~2.5 percent net shift in retail sales away from existing Stockton retailers. A sales shift of this magnitude ~~could~~ would not be expected to result in a substantial number of business closures among existing competing retailers. ~~However, t~~The EIR analysis also suggests~~indicates~~ that most of any vacated ~~the~~ properties would be re-tenanted due to the current ~~continuing~~ relatively

stable ~~strong~~ commercial ~~and residential~~ real estate demand in Stockton. In the event that vacant properties were not reoccupied in the near term, City of Stockton economic development, oversight and code-enforcement would ensure that vacant properties would not be permitted to deteriorate. The proposed project would not result in a cumulatively considerable adverse change in the physical condition of any shopping area in Stockton. This impact is less than significant.

In summary, the findings of the urban decay analysis conclude that up to a ~~$739~~$489.3 million cumulative retail impact of additional retail sales competition to existing retailers could result from the project and other potential future new Stockton retailers. ~~This~~ Combined with ~~conserviative~~the estimated future retail demand growth, this impact could represent up to a ~~14.8~~net 2.5 percent short term sales shift in Stockton's competing retail sales to the Stockton's future ~~2011~~2013 retail sector. This is a ~~highly~~ conservative assessment of the future cumulative impact due to the many conservative assumptions and methodology used in the urban decay impact analysis which have been identified and discussed previously. As a result, this figure represents a "worst case" impact estimated on the assumption that the four planned large retail projects would be completed and fully operational. The analysis assumes that no retail sales leakage among Stockton residents or workers currently exists that also indicates the like would absorb any of the projected sales shift.

While an overall future sales shift impacts of the magnitude of ~~14.8~~2.5 percent is of relatively minor magnitude, there may be some greater sales shift within some of the retail categories which could result in business closures among competing retailers~~,~~. However, the sales shift analysis lihood of increased and offsetting retail opportunities. Also the real estate analysis suggests that even ~~given~~under Stockton's ~~relatively strong~~less robust residential and commercial retail markets, ~~will likely ensure that~~ most of any vacated retail properties would still likely be re-tenanted or redeveloped. In addition, even under the unlikely possibly that the project has the cumulative effect of resulting in longer-term vacancies, such vacancies in themselves do not cause urban decay impacts. Additional conditions are necessary for urban decay to occur, including owner neglect that leads to physical deterioration, the absence of government code enforcement and regulatory programs, lack of investment in economic redevelopment, stagnant or declining property values and a general decline in consumer demand. ~~These~~Most of these factors are absent in the Stockton region at present and for the foreseeable future. While real estate values have recently "corrected" after many years of very robust growth, over the longer term real estate values for Stockton are expected to show slow growth.

Given the major contributory role that other non-project factors may potentially have both determining any future retail impacts to existing retailers and on Stockton's urban decay conditions, the causal linkage between any future cumulative retail impacts of the project on existing retailers is not clear, especially since other factors can have a greater role in influencing the urban decay conditions within Stockton. As a result, it is concluded that the project's cumulative impacts on existing retailers will not be expected to result in business closures and related long term property vacancies that would lead to urban decay impacts of a sufficient magnitude and/or prevalence to result in a substantial increase in Stockton's physical urban decay conditions.

> **Mitigation Measure:** The project would not result business closures by current retailers that would be expected to generate long-term vacancies of existing retail properties of a

magnitude or prevalence sufficient to cause significant urban decay impacts. Therefore, no mitigation is required.

Hodgson, Lisa. Colliers International. Personal communication, March 2008.

Dan Thompson, Coldwell Banker. Personal communication, March 2008.

Lee & Associates. Personal communication, March 2008.

Tocherterman, Tri-Commercial. Personal communication, March 2008.

4.5 Population, Housing, and Employment

On page 4.5-2 the first paragraph is revised:

The U.S. Census Bureau reports that housing units in the City of Stockton have increased from 72,525 in 1990 to 85,988 in 2003. The City's housing growth rate from 1990–2003 was 18.6 percent. Based on the 1990 City General Plan, the number of housing units is anticipated to increase to approximately 135,300 by 2010. The recently adopted *2035 General Plan Update* build-out is proposed to include about 210,000 residential units and 200 million square feet of non-residential uses.

On page 4.5-4 the second paragraph is revised:

The project would require a rezoning of approximately ~~60~~44.14 acres from RL to ~~CG~~CL. This land was previously designated as low-medium residential use in the 1990 General Plan. However, the recently adopted *2035 General Plan Update* designates the entire site as commercial use. Rezoning the land would not reduce the number of potential housing units that could be built in Stockton because this land is already designated for a different type of use (commercial) and is not designated for residential development. The rezone associated with the project would simply make the site's zoning consistent with the existing land use designation. ~~If this land were instead developed residentially, in accordance with current zoning, approximately 295 units would be built. The Housing Element of the General Plan for the city of Stockton plans for 7,497 new units zoned R-1 zoned through the year 2035. The project would reduce the number of units that could be built on R1 land by only 3.9 percent.~~ Thus, the potential residential development the project would displace is not significant.

On page 4.5-4 the fifth paragraph (Impact 4.5.1) is revised:

The commercial development would provide new job opportunities, prompting employees to either move or commute to the area or transfer from other businesses in and around Stockton. However, due to the nature of the types of businesses proposed to occupy the commercial center, the majority of employees are likely to be hourly wage earners in the estimated pay range of $6.75 to $9.00 per hour (using wage estimates provided by San Joaquin County Occupational Outlook, 2002–2003

for Cashiers), this is well below the 2004 average hourly wage estimates for non-farm employees in the Stockton-Lodi area of $17.00 to $18.99 per hour according to 2004 estimates provided by the Occupational Employment Statistics Survey by the State Employment Development Department. It is more likely that the jobs created by this project will provide new employment opportunities for the City's unemployed, student, and retired sectors. The ~~59.7-acre~~ commercial development is not likely to create a substantial draw of in-migration for these newly created jobs. The increase in employment generated by this project would not result in substantial population growth in the City of Stockton. Therefore, this impact is considered less than significant.

4.6 Public Services and Utilities

On page 4.6-2 the sixth paragraph is revised:

Construction and operation of the project would generate increased demand for water. As a condition of approval for the project, the City would need to certify that they have adequate water to supply the project's needs. The project would be required to comply with all applicable plans, including the South Stockton Water Master Plan and Update. ~~A water supply assessment, consistent with SB 610, would be required for the project.~~

On page 4.6-3 the second and third paragraphs are revised:

Because the project proposed in the DEIR meets the definition of a "project" under Water Code Section 10912 and is subject to CEQA, the City of Stockton Community Development Department, Planning Division requested the City of Stockton Municipal Utilities Department, Water Division to prepare a water supply assessment pursuant to Senate Bill 610. The letter of request was sent to the Municipal Utilities Department, Water Division on January 27, 2005. The revised project has a maximum buildout of 481,000 square feet; less than the 500,000 square feet that would trigger the need for a water supply assessment. Due to the scale of the original project, a water supply assessment (known as an SB610 analysis, after the senate bill which amended state law) was prepared for the project. This analysis is included as Appendix D of the DEIR, and is described in Impact 4.10.4. Due to the reduction of the size of the project to a maximum of 481,000 square feet, a water supply assessment is no longer required by law. The reduced project size would correspond to a reduced demand for water as compared to what was analyzed in the previously prepared WSA. Therefore, impacts to water supply are reduced for the revised project as compared to the project evaluated in the 2006 Draft EIR. Specifically, in the water supply analysis for the project size analyzed in the Draft EIR for this project (published in November 2006), water demand for the project was calculated using the weighted average of the urban water demand factor as provided in the Water Supply Assessment for the Weston Ranch Town Center 2005 (MWH Americas, 2005). The urban water demand factor is equivalent to 1.6 AF/ac/yr [85,330 AF/yr / (82,064 acres (urban) – 27,585 acres (agriculture)] = 1.6 AF/ac/yr. This factor is then applied to the gross acreage of the project (e.g., 1.6 * 44.14 acres = 70.6 AF/yr). This reduced project (though not required) is consistent with the findings of the WSA provided in the Draft EIR and will likely have reduced water supply needs as compared to the original project due to reduced project site acreage (70.6 AF/yr for the revised project as opposed to 96 AF/yr for

the original 60-acre project). Additionally, the project is consistent with the *2035 General Plan Update EIR*.

As addressed in Section 4.10 Hydrology, the City has determined that it has sufficient water supplied to meet the original, larger project's water demands based on information provided in the Water Supply Assessment (WSA) and the following specific facts (see Appendix D for complete Water Supply Assessment)

4.7 Transportation and Circulation

This section of the EIR describes the transportation and circulation conditions in the area surrounding the project site and identifies transportation impacts associated with development of the project. The analysis focuses on potential impacts to off-site intersections and freeway segments, as well as internal site circulation. This section also evaluates the site's proposed parking supply. Significant impacts are identified and, as necessary, mitigation measures are recommended to address impacts. All technical analyses related to this section are included in Appendix ~~E~~A, "Revised Traffic Study." This section was prepared by Fehr & Peers in consultation with the City of Stockton Public Works Department, San Joaquin County, Caltrans, and other potentially impacted agencies.

4.7.1 Setting

As described in Chapter 3.0, Project Description, the project site is located in Stockton, California, west of Interstate 5 (I-5), adjacent to the I-5/French Camp Road interchange. Local project access is provided at nine access points: four on French Camp Road, three on Manthey (west), and two on Henry Long Blvd.~~Roadway access to the project site is proposed via French Camp Road and Manthey Road.~~ A portion of Manthey Road between Henry Long Boulevard and French Camp Road would be realigned as part of the proposed project, and this existing segment of Manthey Road would be vacated. The realigned portion of Manthey Road will be referred to as Manthey (west) and will create the western boundary of the project site. Manthey Road to the south of French Camp Road would be realigned west of its current location with the proposed French Camp Road interchange improvement project. ~~Upon project completion, Manthey Road would function as a private roadway through the project site. Henry Long Boulevard would be vacated through the project site and a cul-de-sac, designed to City standards, would be created at the eastern terminus of Henry Long Boulevard.~~ Henry Long Boulevard has recently been closed as a through street west of Manthey Road. As part of project construction, Henry Long Boulevard will be realigned to follow the western edge of the project site and connect to French Camp Road at the southwestern corner of the project site. This analysis accounts for the traffic shifts associated with the recent vacation of Henry Long Boulevard and the realignment of Manthey Road ~~through~~ west of the site. The site location and major roadways near the project site are illustrated on Figure 4.7-1, while the conceptual project site plan is shown on Figure 4.7-2.

Site Access

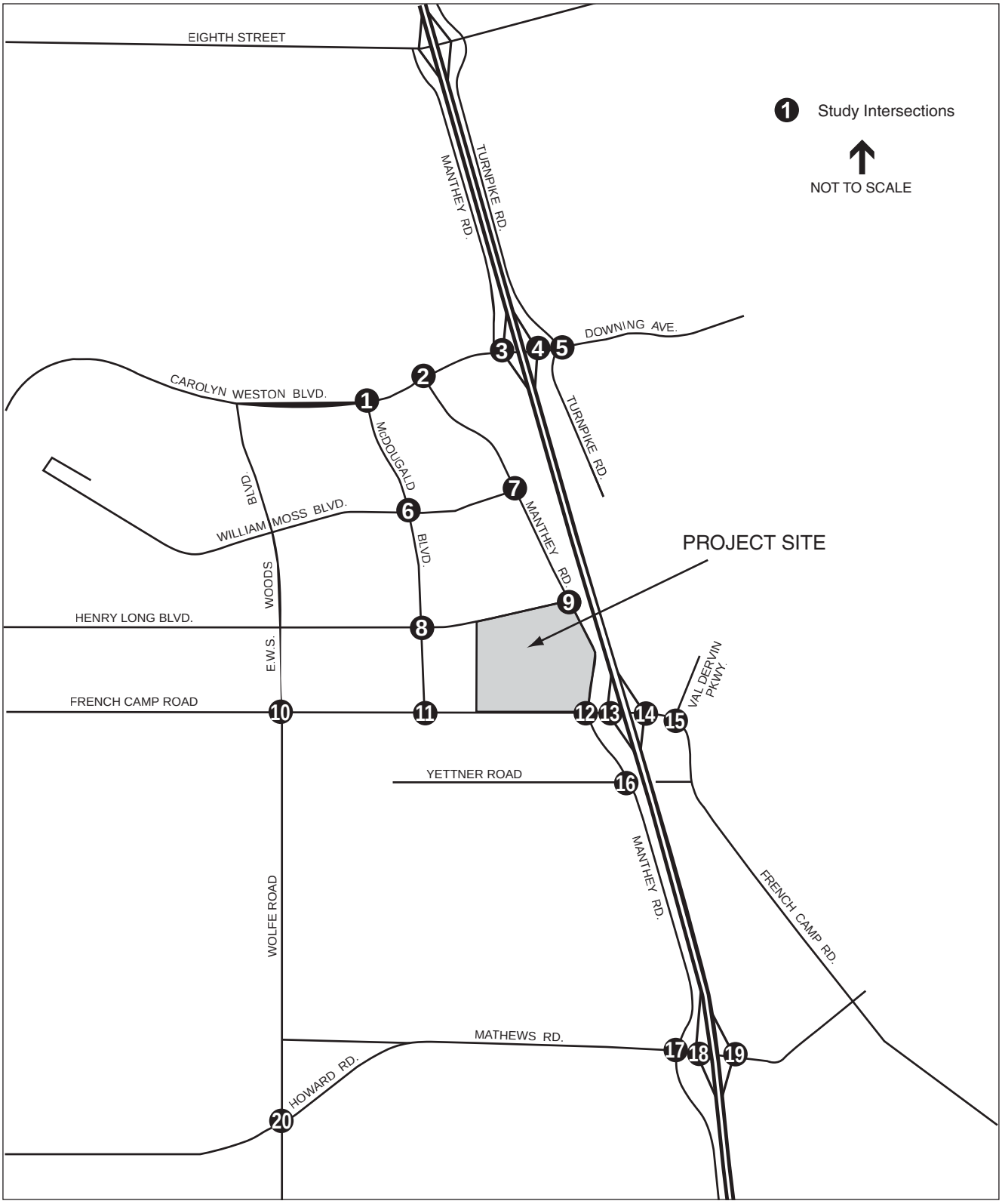
The project site is located at the northwest quadrant of the I-5/French Camp Road interchange, with primary project access provided from French Camp Road. ~~Manthey Road would be realigned with the proposed project and would bisect the project site, intersecting French Camp Road approximately 800 feet west of the I-5 southbound off-ramp. A new private driveway~~ Local project access is provided at nine access points: four on French Camp Road, three on Manthey (west), and two on Henry Long Blvd. Manthey (west) extending north from French Camp Road would form the western boundary of the project site and ~~and provide additional site access. Two~~ be signalized to serve as the primary entrance to the project site. In addition to the full access signalized intersection~~s, and one~~three right-in/right-out intersections from French Camp Road are also proposed to serve the project site. An additional signalized intersection will be created at the intersection of French Camp Road and the realigned Henry Long Boulevard. The realigned ~~Henry Long Boulevard~~ Manthey (west) will form the western boundary of the project site and provide access in the form of three driveways into the site. The northernmost of these driveways will primarily serve delivery vehicles. Two driveways will provide access to the project site from Henry Long Boulevard from the north. The westernmost of these driveways will primarily serve delivery vehicles. ~~From Manthey Road and the Vacated Henry Long Boulevard, nine driveways are proposed to serve the project site.~~Manthey Road will serve as a frontage road to I-5 and is not proposed to provide any direct site access for vehicles. A detailed operations analysis of these access locations is proved in section 4.7.3 of this chapter.

Roadway System

Regional access to the project site is provided by I-5 via the French Camp Road, Downing Avenue, and Mathews Road interchanges. I-5 provides regional north-south access throughout the Central Valley and runs through the west side of the City of Stockton. It provides six travel lanes in the study area. The following discusses the study area roadways.

French Camp Road is a two-lane east-west arterial roadway to the west of I-5 that forms the southern boundary of the project site. East of I-5, French Camp Road is designated County Road J9, connecting I-5 to State Route (SR) 99. Portions of the north side of French Camp Road west of Manthey Road have been improved to provide sidewalks and bicycle lanes. Recent improvements along French Camp Road include signalization of the French Camp Road/I-5 Northbound and Southbound Ramp intersections. The speed limit is not posted in the study area.

Manthey Road is a two-lane, north-south arterial that parallels I-5 to the west. Portions of Manthey Road in the study area are unimproved with no sidewalks or bicycle facilities. Manthey Road extends south from Eighth Street in Stockton to the I-5/I-205 interchange near the City of Lathrop. In the study area, the speed limit on Manthey Road is 55 miles per hour (mph). As part of the



SOURCE: Fehr & Peers, 2006; and ESA, 2006

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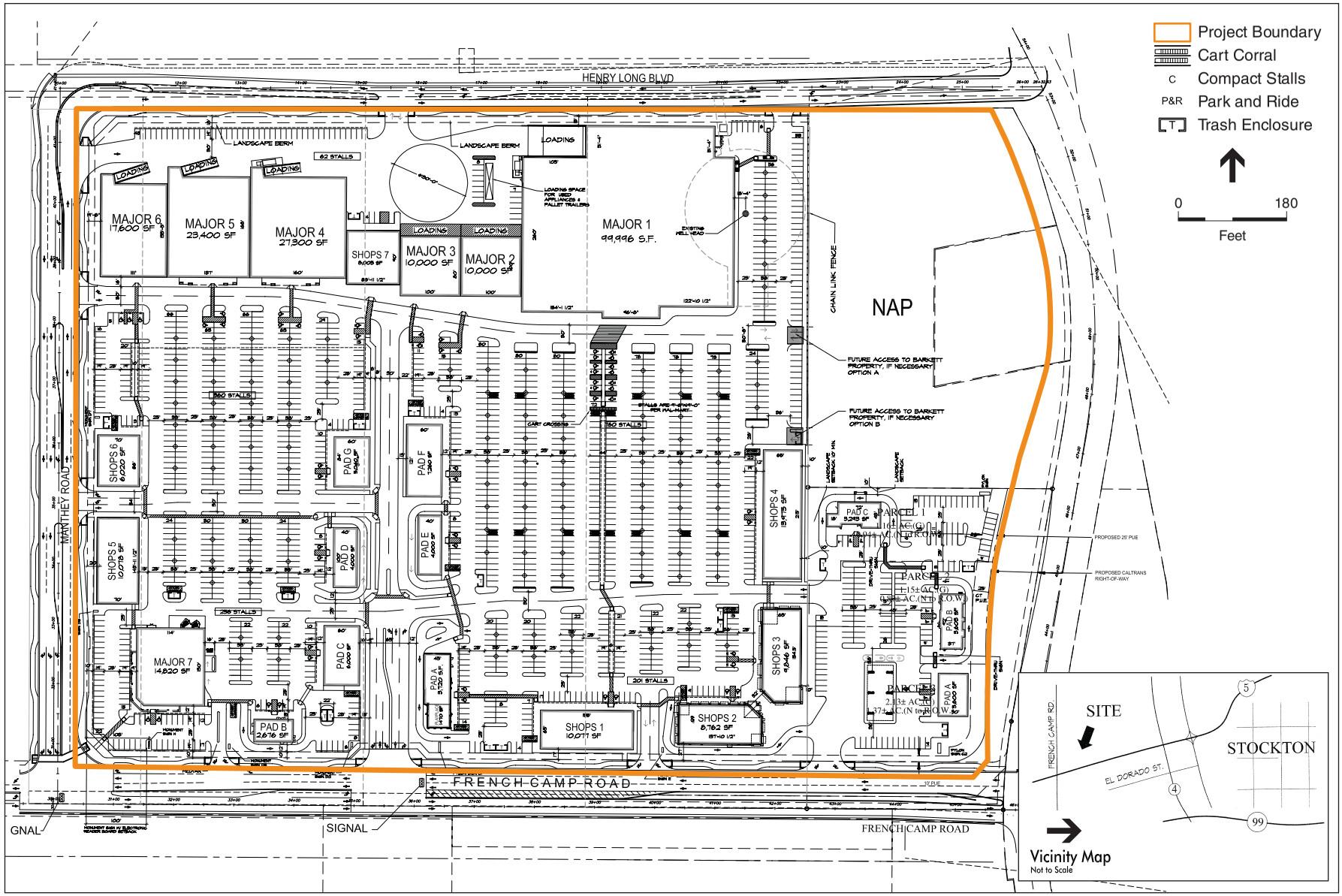
Revised Figure 4.7-1

Proposed Project Site



SOURCE: Nadel Architects, Inc., (PS-71), 2008; and ESA, 2008

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Revised Figure 4.7-2

Site Plan

project, the portion of Manthey Road between Henry Long Boulevard and French Camp Road would be realigned~~ through the site approximately 600 to 800 feet~~to the west of its existing location and become the western boundary of the project site. ~~and this~~ Theexisting portion of Manthey Road would be vacated. The portion of Manthey Road, south of French Camp Road would be realigned to connect with the portion of the roadway though the project site as part of the French Camp Road interchange improvement project.

William Moss Boulevard is a two-lane east-west collector roadway located north of the project site that connects the Carolyn Weston neighborhood with Manthey Road. At its intersection with McDougald Boulevard, four travel lanes are provided, narrowing to two travel lanes plus a two-way left-turn lane past the intersection in both directions. The posted speed limit is 30 mph.

Henry Long Boulevard is a two-lane east-west collector roadway that currently ~~bisects~~ is the northern boundary of the project site.~~ As part of the project, Henry Long Boulevard would be vacated between the western property line and Manthey Road.~~ Adjacent to the project site, Henry Long Boulevard ends in a cul-de-sac west of Manthey Road. ~~A cul-de-sac, designed to City standards, is required at its eastern terminus.~~

McDougald Boulevard is a north-south street located west of the project site that starts just north of Carolyn Weston Boulevard and ends at French Camp Road. At its intersection with William Moss Boulevard, four travel lanes are provided, narrowing to two travel lanes plus a two-way left-turn lane in each direction past the intersection. Sidewalks are generally provided along McDougald Boulevard in the study area. A westbound right-turn only lane at the French Camp Road/McDougald Boulevard intersection was recently added. The posted speed limit is 30 mph, except for the portion fronting Great Valley Elementary school, where the speed limit is 25 mph.

Carolyn Weston Boulevard is an east-west collector roadway located north of the project site that provides main access to the Weston Ranch neighborhood. West of McDougald Boulevard, Carolyn Weston Boulevard is a designated collector roadway. East of McDougald Boulevard the designation changes to arterial. Four travel lanes plus bicycle lanes and sidewalks are provided on this facility. The posted speed limit is 40 mph. At its east intersection with Manthey Road, Carolyn Weston Boulevard continues as Downing Avenue.

Downing Avenue is an east-west collector roadway located north of the project site that extends east from Manthey Road to Odell Avenue. A full access interchange to I-5 is provided at Downing Avenue. East of I-5, the posted speed limit is 25 mph.

French Camp Turnpike is a two-lane north-south collector roadway that parallels the east side of I-5. This roadway extends south from Center Street to its terminus approximately one-half mile south of Downing Avenue. The posted speed limit is 25 mph in the study area.

Mathews Road is a two-lane east-west arterial located south of the project site in San Joaquin County. This roadway extends west from El Dorado Street to the San Joaquin River. Access to the San Joaquin Health and Safety Complex is provided from Mathews Road. An interchange with I-5 is also provided from Mathews Road. Recently, improvements were made to the Mathews Road

intersections with Manthey Road, I-5 Southbound Ramps and I-5 Northbound Ramps. The posted speed limit is 45 mph in the study area.

Howard Road is an east-west, two-lane unimproved arterial located south of the project site. Howard Road connects the study area to the City of Tracy. The posted speed limit is 45 mph in the study area.

Wolfe Road is a north-south arterial roadway located west of the project site. This roadway connects French Camp Road with Howard Road and is currently unimproved. The posted speed limit is 45 mph in the study area.

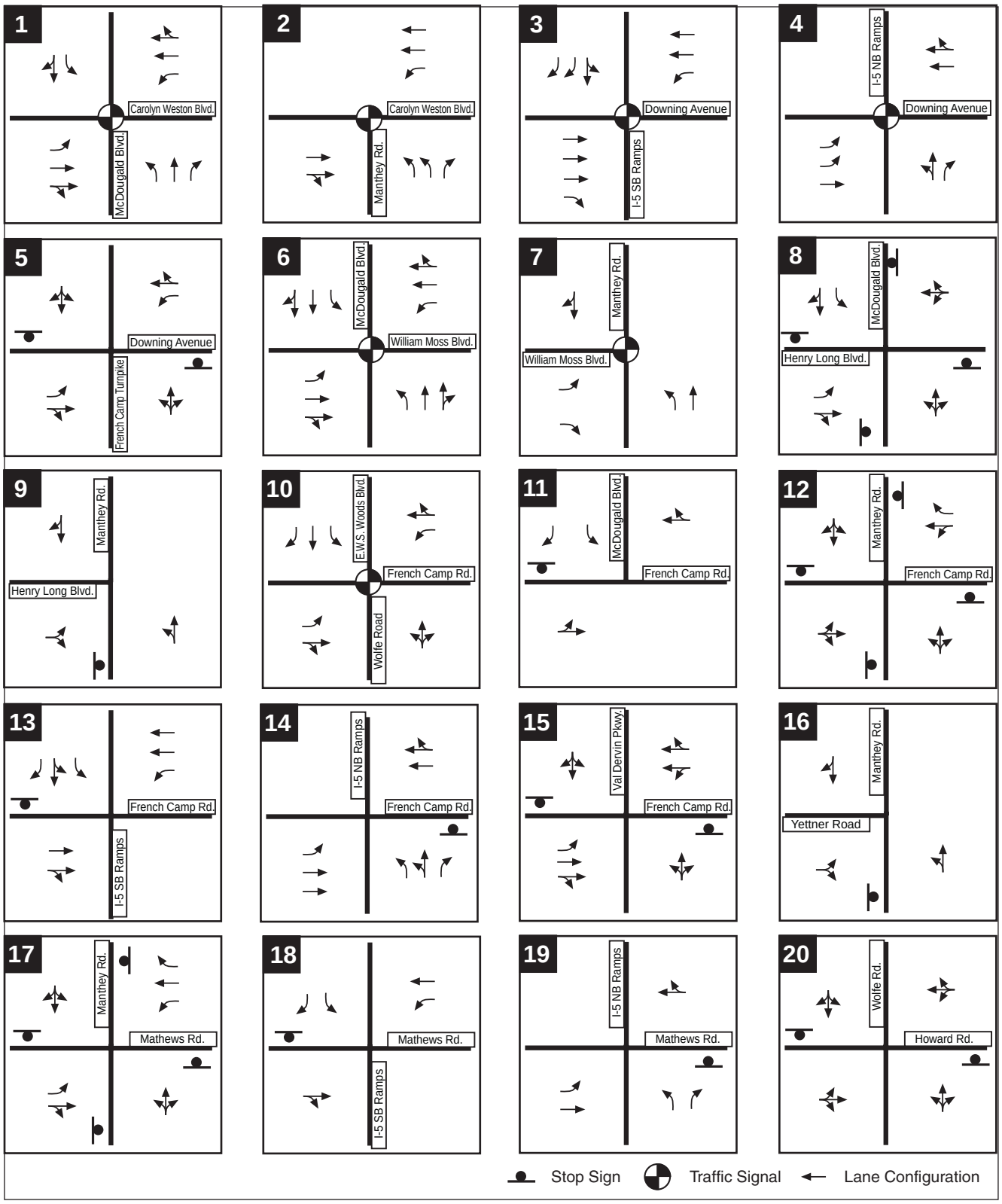
Val Dervin Parkway is a two-lane roadway on the east side of I-5 that provides access to a business park from French Camp Road.

Yettner Road is a two-lane roadway located south of the project site that extends from west of Manthey Road to French Camp Road.

For this study, impacts on study roadways were determined by measuring the effect project traffic would have on traffic operations at key intersections during the AM (7:00 to 9:00 a.m.) and PM (4:00 to 6:00 p.m.) peak periods. Key intersections were selected for analysis in consultation with City of Stockton Public Works staff, San Joaquin County Public Works staff, and comments received on the Notice of Preparation (NOP) for the project. All locations requested for analysis by other agencies, including Caltrans, are included in this analysis. The study intersection locations are illustrated on Figure 4.7-1 and include:

1. McDougald Boulevard/Carolyn Weston Boulevard
2. Manthey Road/Carolyn Weston Boulevard
3. I-5 Southbound Ramps/Downing Avenue
4. I-5 Northbound Ramps/Downing Avenue
5. French Camp Turnpike/Downing Avenue
6. McDougald Boulevard/William Moss Boulevard
7. Manthey Road/William Moss Boulevard
8. McDougald Boulevard/Henry Long Boulevard
9. Manthey Road/Henry Long Boulevard (removed with project implementation)
10. Wolfe Road/EWS Woods Boulevard/French Camp Road
11. McDougald Boulevard/French Camp Road
12. Manthey Road/French Camp Road
13. I-5 Southbound Ramps/French Camp Road
14. I-5 Northbound Ramps/French Camp Road
15. Val Dervin Parkway/French Camp Road (future intersection with Sperry Road)
16. Manthey Road/Yettner Road
17. Manthey Road/Mathews Road
18. I-5 Southbound Ramps/Mathews Road
19. I-5 Northbound Ramps/Mathews Road
20. Wolfe Road/Howard Road

The existing intersection lane configurations are shown on Figure 4.7-3.



SOURCE: Fehr & Peers, 2006; and ESA, 2006

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Revised Figure 4.7-3

Existing Lane Configuration

Operations were also evaluated on the freeway mainline segments in the study area including:

1. I-5 north of Downing Avenue
2. I-5 between Downing Avenue and French Camp Road
3. I-5 between French Camp Road and Mathews Road
4. I-5 south of Mathews Road

Level of Service Criteria

To measure and describe the operational status of the local roadway network, transportation engineers and planners commonly use a grading system called level of service (LOS). Level of service is a description of an intersection's operation ranging from LOS A (indicating free-flow traffic conditions with little or no delay), to LOS F (representing oversaturated conditions where traffic flows exceed design capacity, resulting in long queues and delays).

The analysis methods presented in the Transportation Research Board's *2000 Highway Capacity Manual* (*HCM*) were used to calculate LOS for signalized and unsignalized intersections and freeway mainline segments. In Stockton, acceptable operations are defined as LOS D or better[24].

Signalized Intersection Analysis

Signalized intersection traffic operations and resulting levels of service are determined using the 2000 *HCM* method. This operations analysis method uses various intersection characteristics (such as traffic volumes, lane geometry, and signal phasing) to estimate the average control delay per vehicle. Control delay is the portion of the total delay attributed to signal operations and includes deceleration and acceleration, stopping, and moving up in the queue. The level of service for a signalized intersection is based on the average control delay per vehicle, measured in seconds. The relationship between delay and LOS for signalized intersections is shown in Table 4.7-1. Operations of the closely-spaced signalized interchanges were evaluated using the Synchro 6.0 or CORSIM[25] software program; all other intersection operations were analyzed using the TRAFFIX 7.7 traffic analysis software program, as required by the *City of Stockton Transportation Analysis Guidelines* (July 2003). The TRAFFIX software evaluates isolated intersections and does not account for the interaction between closely spaced intersections. Therefore, the signalized freeway interchanges were evaluated using Synchro 6.0 and CORSIM to better account for the interrelationship of closely spaced signal operations.

Unsignalized Intersection Analysis

For unsignalized intersections, the 2000 *HCM* method was used with operations defined by the average control delay per vehicle, measured in seconds. This delay incorporates delay associated with deceleration and acceleration, stopping, and moving up in the queue. For side-street stop-controlled intersections, the delay is typically calculated for the minor approaches and left-turn movement from the major street, as well as average intersection delay. For all-way stop-controlled intersections, delay is represented as an average for the total intersection. Table 4.7-2 presents the LOS definitions for unsignalized intersections. For this study, the TRAFFIX 7.7 traffic analysis tool was used.

[24] City of Stockton General Plan – Transportation and Circulation Element - Policy TC-2.1."
[25] French Camp Road interchange only, to be consistent with the traffic analyses prepared for the French Camp Road interchange project.

TABLE 4.7-1
LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service	Average Control Delay per Vehicle (Seconds)	Description
A	< 10.0	Operations with very low delay occurring with favorable progression and/or short cycle length.
B	> 10.0 to 20.0	Operations with low delay occurring with good progression and/or short cycle lengths.
C	> 20.0 to 35.0	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.
D	> 35.0 to 55.0	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable. This is considered to be the limit of acceptable delay in the City of Stockton.
E	> 55.0 to 80.0	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.
F	> 80.0	Operations with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.

SOURCE: Transportation Research Board, 2000

Freeway Mainline Analysis

For the freeway mainline segments, LOS was calculated using the 2000 *HCM* method. This method takes into consideration peak hour traffic volumes, free-flow speeds, percentage of heavy vehicles, and number of travel lanes. These factors are used to determine the vehicle density, measured in passenger cars per mile per lane. Table 4.7-3 summarizes the relationship between vehicle density and LOS for mainline freeway segments. In Stockton, acceptable freeway operations are defined as LOS D or better.

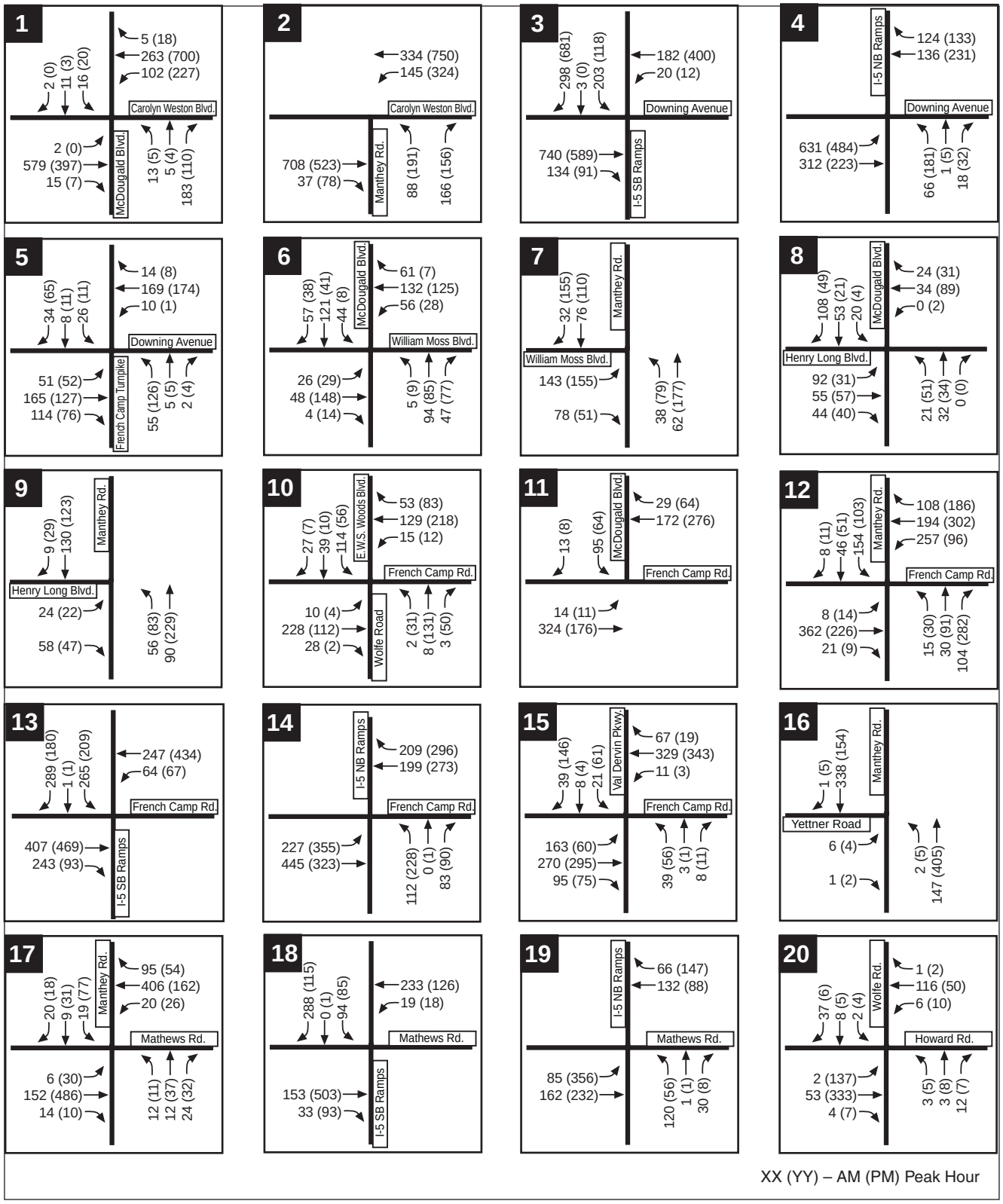
Existing Traffic Volumes

Weekday morning (7:00 to 9:00 a.m.) and evening (4:00 to 6:00 p.m.) peak period intersection turning movement counts were collected at the study intersections in December 2004 and March 2005 on a clear day with area schools in normal session. For each intersection count period, the hour with the highest traffic volume was identified as the peak hour. Existing AM and PM peak hour turning movement volumes are shown in Figure 4.7-4.

TABLE 4.7-2
LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service	Average Control Delay per Vehicle (in seconds)	Description
A	0 – 10	Little or no delay
B	> 10 – 15	Minor delays
C	>15 – 25	Average delays
D	> 25 – 35	Moderate delays
E	> 35 – 50	Lengthy delays
F	> 50	Excessive delays/gridlock

SOURCE: Transportation Research Board, 2000



SOURCE: Fehr & Peers, 2006; and ESA, 2006

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Revised Figure 4.7-4

Existing Peak Hour Traffic Volumes

TABLE 4.7-3
LEVEL OF SERVICE CRITERIA FOR FREEWAY MAINLINE

Level of Service	Description	Density Range (pc/mi/ln)
A	Free-flow operations in which vehicles are relatively unimpeded in their ability to maneuver within the traffic stream. Effects of incidents are easily absorbed.	0 to 11
B	Relative free-flow operations in which vehicle maneuvers within the traffic stream are slightly restricted. Effects of minor incidents are easily absorbed.	> 11 to 18
C	Travel is still at relative free-flow speeds, but freedom to maneuver within the traffic stream is noticeably restricted. Minor incidents may be absorbed, but local deterioration in service will be substantial. Queues begin to form behind significant blockages.	> 18 to 26
D	Speeds begin to decline slightly and flows and densities begin to increase more quickly. Freedom to maneuver is noticeably limited. Minor incidents can be expected to create queuing as the traffic stream has little space to absorb disruptions.	> 26 to 35
E	Operation at capacity. Vehicles are closely spaced with little room to maneuver. Any disruption in the traffic stream can establish a disruption wave that propagates throughout the upstream traffic flow. Any incident can be expected to produce a serious disruption in traffic flow and extensive queuing.	> 35 to 45
F	Breakdown in vehicle flow.	> 45

Note: pc/mi/ln = passenger cars per mile per lane.
Source: Transportation Research Board, 2000

Bicycle, Pedestrian and Transit Access

Within the study area, pedestrian facilities are provided along most of the roadways within the Weston Ranch development. Class II bicycle facilities (signed and striped bicycle lanes) are provided on Carolyn Weston Boulevard and are planned for most of the major roadways in the future including French Camp Road, Manthey Road, and Mathews Road. Pedestrian and bicycle facilities are not provided on roadways in the southern portion of the study area (French Camp Road, east of McDougald Boulevard; Manthey Road, south of William Moss Boulevard; and Mathews Road).

The San Joaquin Regional Transit District (SJRTD) provides transit service within the City of Stockton. Currently, two transit routes provide service to the project site: Route 14 (Weston Ranch) and Route 90 (Stockton/Tracy/Lathrop). Route 14 connects the Weston Ranch area to Downtown Stockton. Service near the project site is provided on Henry Long Boulevard. Route 90 is a flexible fixed-route service that requires reservations. This route connects Stockton with Lathrop and Tracy. Service in the study area is provided on Manthey Road. It is anticipated that with development in the study area, additional transit service would be provided.

Existing Intersection Levels of Service

The levels of service at the study intersections are summarized in Table 4.7-4. As shown, the average intersection service level is within an acceptable range (LOS D or better) for all intersections. It should be noted that at the French Camp Road/I-5 Northbound Ramp intersection, the side-street movement operates at LOS F during the PM peak hour.

TABLE 4.7-4
EXISTING PEAK HOUR INTERSECTION OPERATIONS

	Intersection	Control	Peak Hour	Delay	LOS
1.	McDougald Boulevard/ Carolyn Weston Boulevard	Signal	AM PM	21 17	C B
2.	Manthey Road/Carolyn Weston Boulevard	Signal	AM PM	17 18	B B
3.	I-5 Southbound Ramps/Downing Avenue	Signal	AM PM	13 15	B B
4.	I-5 Northbound Ramps/Downing Avenue	Signal	AM PM	16 18	B B
5.	French Camp Turnpike/Downing Avenue	SSSC	AM PM	4 (16) 6 (18)	A (C) A (C)
6.	McDougald Boulevard/ William Moss Boulevard	Signal	AM PM	20 19	B B
7.	Manthey Road/William Moss Boulevard	Signal	AM PM	14 14	B B
8.	McDougald Boulevard/Henry Long Boulevard	AWSC	AM PM	9 9	A A
9.	Manthey Road/Henry Long Boulevard	SSSC	AM PM	3 (11) 3 (11)	A (B) A (B)
10.	Wolfe Road/EWS Woods Boulevard/ French Camp Road	Signal	AM PM	21 24	C C
11.	McDougald Boulevard/French Camp Road	SSSC	AM PM	3 (14) 2 (13)	A (B) A (B)
12.	Manthey Road/French Camp Road	AWSC	AM PM	26 24	D C
13.	I-5 Southbound Ramps/French Camp Road	SSSC	AM PM	6 (15) 5 (19)	A (B) A (C)
14.	I-5 Northbound Ramps/French Camp Road	SSSC	AM PM	5 (23) 25 (**>50)**	A (C) C **(F)**
15.	French Camp Road/Val Dervin Parkway	SSSC	AM PM	4 (26) 5 (21)	A (D) A (C)
16.	Manthey Road/Yettner Road	SSSC	AM PM	1 (12) 1 (12)	A (B) A (B)
17.	Manthey Road/Mathews Road	AWSC	AM PM	12 18	B C
18.	I-5 Southbound Ramps/Mathews Road	SSSC	AM PM	6 (12) 3 (13)	A (B) A (B)
19.	I-5 Northbound Ramps/Mathews Road	SSSC	AM PM	5 (14) 6 (34)	A (B) A (D)
20.	Wolfe Road/Howard Road	SSSC	AM PM	3 (9) 3 (15)	A (A) A (B)

Notes:
Signal = Signalized intersection; AWSC = All-way stop-controlled intersection; SSSC = Side street stop-controlled intersection; Delay for intersection average (worst movement) at SSSC intersections.
SOURCE: Fehr & Peers, 2006.

Detailed LOS calculations are provided in Appendix ~~E~~A.

Signal Warrants

To assess the need for signalization of stop-controlled intersections, the *Manual of Uniform Traffic Control* (MUTCD) (Federal Highway Administration 2000), presents eight signal warrants. The Peak Hour Volume Warrant (Warrant 3) is used in this study as a supplemental analysis tool to assess operations at unsignalized intersections.[26] The results of the traffic signal warrant analysis are shown in Table 4.7-5. Detailed signal warrant calculations are provided in Appendix ~~E~~A.

TABLE 4.7-5
EXISTING PEAK HOUR SIGNAL WARRANT ANALYSIS

	Intersection	Peak Hour Warrant Met?
5.	French Camp Turnpike/Downing Avenue	Not Met
8.	Henry Long Boulevard/McDougald Boulevard	Not Met
9.	Henry Long Boulevard/Manthey Road	Not Met
11.	McDougald Boulevard/French Camp Road	Net Met
12.	Manthey Road/French Camp Road	Met
13.	I-5 Southbound Ramps/French Camp Road	Met
14.	I-5 Northbound Ramps/French Camp Road	Met
15.	French Camp Road/Val Dervin Parkway	Not Met
16.	Manthey Road/Yettner Road	Not Met
17.	Manthey Road/Mathews Road	Not Met
18.	I-5 Southbound Ramps/Mathews Road	Not Met
19.	I-5 Northbound Ramps/Mathews Road	Not Met
20.	Wolfe Road/Howard Road	Not Met

SOURCE: Federal Highway Administration 2000

As shown in Table 4.7-5, three of the unsignalized study intersections currently satisfy the Peak Hour Volume Warrant: Manthey Road/French Camp Road, I-5 Southbound Ramps/French Camp Road, and I-5 Northbound Ramps/French Camp Road. These locations are included in the French Camp Road interchange project, which was recently approved by Caltrans. The French Camp Road interchange project includes reconstruction of the interchange, relocation of Manthey Road, and signalization of the following intersections: Manthey Road/French Camp Road, I-5 Southbound Ramps/French Camp Road, and I-5 Northbound Ramps/French Camp Road. This project has been submitted to the Federal Highway Administration (FHWA) for review and approval. It is anticipated that construction will begin ~~within the next 18 months~~ in the near future.

[26] Unsignalized intersection warrant analysis is intended to examine the general correlation between existing conditions and the need to install new traffic signals and is intended as a preliminary screening tool. Existing peak-hour volumes are compared against a subset of the standard traffic signal warrants recommended in the MUTCD and associated State guidelines. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. Furthermore, the decision to install a signal should not be based solely on the warrants because the installation of signals can lead to certain types of collisions. The responsible state or local agency should undertake regular monitoring of actual traffic conditions and accident data and conduct a timely re-evaluation of the full set of warrants in order to prioritize and program intersections for signalization.

Freeway Analysis

The I-5 freeway mainline segments from north of Downing Avenue to South of Mathews Road were analyzed based on the peak hour volumes shown in Table 4.7-6 and the LOS criteria shown in Table 4.7-3. The analysis results indicate that I-5 in the study area operates at LOS D or better during both peak hours. Detailed calculations are provided in Appendix ~~E~~A.

TABLE 4.7-6
EXISTING PEAK HOUR FREEWAY ANALYSIS

Segment	Direction of Travel	AM Peak Hour			PM Peak Hour		
		Volume	Density	LOS	Volume	Density	LOS
North of Downing Avenue	Northbound	3,180	17	B	4,760	27	D
North of Downing Avenue	Southbound	4,690	26	D	3,870	21	C
North of French Camp Road	Northbound	2,790	15	B	4,500	25	C
North of French Camp Road	Southbound	4,500	25	C	3,520	19	C
South of French Camp Road	Northbound	2,610	14	B	4,070	22	C
South of French Camp Road	Southbound	4,130	23	C	3,340	18	C
South of Mathews Road	Northbound	2,550	14	B	3,630	20	C
South of Mathews Road	Southbound	3,780	19	C	3,270	18	B

Notes: Traffic volumes from Caltrans.
Density measured in passenger cars per mile per lane.
Mainline segment level of service based on vehicle density, according to the Highway Capacity Manual (Transportation Research Board, 2000).

Source: Fehr & Peers, 2006.

Regulatory Setting

The *City of Stockton 2035 General Plan ~~Policy Document~~ Goals and Policies Report* (adopted ~~January 22, 1990~~ December 11, 2007) was used to provide evaluation criteria for determining project impacts. Key statements from Section ~~3~~8, Transportation and Circulation, which were used for reference in this study, are summarized below.

- **Policy TC-1.7 Road Improvements.** Land use planning and transportation decisions shall be correlated so that planned land uses are supported by the appropriate types of circulation service, levels of service, and the timing of transportation improvements. Wherever practicable, road improvements shall complement regional needs and initiatives. The City's highest priority for road improvement funding shall be regional and local roads servicing infill development, existing community areas, and other areas shown on the General Plan for urban development, which are designed to achieve the City's regional housing allocation and affordable housing goals.

- **Policy TC-1.10 Provision of Transportation Infrastructure and Cost Sharing.** All new development projects shall be required to pay their fair share of the cost of constructing needed transportation and transit facilities, and contributing to ongoing operations and services. This shall include costs associated with mitigating new development impacts on the capacity of existing transportation facilities and services.

All essential facilities and services will be installed prior to or concurrent with such new development or phased as specified in the applicable environmental documents. This requirement shall be made a condition of project approval.

- **Policy TC-2.1 Level-of-Service Standards.** To assist in ensuring efficient traffic operating conditions, evaluating the effects of new development, determining mitigation measures and impact fees, and developing capital improvement programs, the City shall require that Level of Service (LOS) D or better be maintained for both daily and peak hour conditions, with the following exceptions:

    1. In the downtown area (bounded by Harding Way, the Union Pacific railroad tracks, Charter/Martin Luther King Jr. Way, Interstate 5, and Pershing Avenue), the City shall require LOS E or better. However, LOS F may be accepted after consideration of physical or environmental constraints and other City goals and policies. This policy recognizes the importance of an active and vibrant downtown to the overall health of the City, and acknowledges that economic vitality in a relatively constrained downtown area may result in greater levels of traffic congestion.

    2. The following corridors shall be subject to different LOS standards, due to physical constraints that limit the improvements that can be constructed.

        a. Benjamin Holt Drive, Plymouth Road to Gettysburg Place − LOS F

        b. Eight Mile Road, Trinity Parkway to I-5 − LOS E

        c. Eight Mile Road, Lower Sacramento Road to West Lane – LOS E

        d. Eighth Street, I-5 to El Dorado Street – LOS E

        e. Eighth Street, Airport Way to Mariposa Road – LOS E

        f. French Camp Road, Manthey Road to I-5 LOS E

        g. French Camp Road, I-5 to Val Dervin Parkway- LOS F

        h. Hammer Lane, I-5 to Kelly Drive − LOS E

        i. Hammer Lane, West Lane to Holman Road − LOS E

        j. Interstate 5, Hammer Lane to Benjamin Holt Drive − LOS E

        k. Interstate 5, Benjamin Holt Drive to Downing Avenue – LOS F

        l. Interstate 5, Downing Avenue to French Camp Road − LOS E

        m. Otto Drive, I-5 to Thornton Road – LOS F

n. Pacific Avenue, Harding Way to Castle Drive and Alpine Avenue to the Calaveras River – LOS F

o. Pershing Avenue, I-5 to Brookside Road – LOS F

p. SR 4 (Crosstown Freeway), I-5 to SR 99 − LOS E (with exception of the segment from Stanislaus Street to Wilson Way, where the standard will be LOS F)

q. SR 99, Morada Lane to SR 4 (Crosstown Freeway) – LOS E (with the exception of the segments from Hammer Lane to March Lane and from Waterloo Road to SR 4, where the standard will be LOS F)

r. Swain Road, I-5 to Pacific Avenue – LOS F

s. Thornton Road, Davis Road to Pershing Avenue – LOS E

t. West Lane, Hammer Lane to Morada Lane – LOS E

u. Woods Boulevard, French Camp Road to Carolyn Weston Boulevard – LOS

- **Policy TC-2.3 Roadway Standards.** The City shall require City-maintained streets and roads to be designed and constructed according to the standards set out in this General Plan and City of Stockton Standard Plans and Specifications.

- **Policy TC-2.4 Dual Access.** The City shall require at least two (2) independent access routes for all major development areas.

- **Policy TC-2.5 Multiple Transportation Modes.** The City shall require that significant trip-generating land uses be served by roadways and transit connections adequate to provide efficient access by multiple transportation modes with a minimum of delay.

- **Policy TC-2.8 Traffic Signal Management.** The City shall synchronize and otherwise manage traffic signals on arterial streets to the extent possible to facilitate the movement of people and to minimize stops or delays.

- **Policy TC-2.10 Freeway Interchanges.** The City shall seek to improve freeway interchanges along State Route 99, State Route 4, and Interstate 5 to current design standards as required by the traffic demands of new development, within funding constraints.

- **TC-2.20 Parking Supply.** The City shall require a sufficient supply of off-street parking for all land uses in order to reduce congestion, improve overall operation, and ensure land use compatibility.

- **TC-3.1 Park and Ride Lots.** The City shall support the location of park-and-ride lots within the parking lots of commercial and/or office uses or at other appropriate locations, in consultation with SJRTD, San Joaquin County, SJCOG, Caltrans, and other agencies, and in compliance with the design features related to park-and-ride facilities that are specified in Policy TC-4.4.

- **Policy TC-4.4 Transit-Related Design Features.** The City shall strongly encourage new development projects to incorporate the following transit-related design features:

    1. A through roadway shall connect adjacent developments to permit transit circulation between developments.

    2. Parking shall be prohibited on collector and arterial streets to provide access to bus stops in major employment/commercial areas.

    3. Where subdivision sound walls exist or are warranted, appropriate designs shall be used to facilitate direct pedestrian access to transit stops.

    4. Transit operators shall be encouraged to post route and schedule information in major employment/commercial areas.

    5. Commercial and industrial developments shall have easy access to major arterials and transit stops.

    6. Sheltered bus stops shall be provided with new development.

    7. Medium and high-density development shall be located near transit services.

    8. Residential areas shall be linked to transit stops via continuous sidewalks or pedestrian paths.

    9. Park-and-ride facilities shall be strategically located in cooperation with transit providers to maximize transit use.

    10. Park-and-ride facilities shall be designed to accommodate not only motorists but also other users of public transit and van or carpooling.

    11. Major new developments shall be required to provide, operate and maintain park-and-ride facilities.

    12. The City shall work with SJCOG, the County transit providers and existing development to provide park and ride facilities within existing developed areas.

    13. In major new development areas, the project proponents shall be required to coordinate with transit operators in advance of discretionary project

approvals and to provide an agreement for the timely provision of transit service.

- **Policy TC-5.4 Pedestrian Walkways for Commercial Developments.** The City shall encourage existing and new commercial and office establishments to develop and enhance pedestrian pathways through landscaping, frontage improvements, and creating pedestrian crosswalks through parking areas or over major barriers such as freeways or canals.

- **Policy TC-5.7 Bicycle Parking.** The City shall require that safe and secure bicycle parking facilities be provided at major activity centers such as public facilities, employment sites and shopping and office centers.

- ~~Streets and Highways Goal 1.2 - The street system shall provide at least two (2) independent access routes for all major developed areas.~~

- ~~Streets and Highways Goal 1.3 - Significant trip generating land uses should be served by roadways adequate to provide vehicular access with a minimum of delay.~~

- ~~Streets and Highways Goal 1.6 - Traffic signals on arterial streets shall be synchronized to the extent possible to facilitate the flow of traffic and to minimize stops or delays.~~

- ~~Streets and Highways Goal 1.8 - Seek to improve freeway interchanges along both Route 99 and Interstate 5 to current design standards as required by the traffic demands of new development.~~

- ~~Streets and Highways Goal 1.9 - For traffic operating conditions use "Level-of-Service" (LOS) of "D" or better on a peak hour basis as the planning objective for the evaluation of new development, mitigation measures, impact fees and public works capital improvement programs.~~

- ~~Streets and Highways Goal 2.3 – Off-street parking shall be required for all land uses in order to reduce congestion, improve overall operation and land use compatibility.~~

- ~~Streets and Highways Goal 4.2 – Specific Plans for future roadways on the fringe of the City shall be prepared in coordination with the County and/or Caltrans.~~

- ~~Public Transportation Goal 1.2 – Larger new developments along arterial and major collector streets shall provide transit-related public improvements (i.e., bus pullouts, bus shelters) to encourage bus use.~~

- ~~Public Transportation Goal 1.5 – Strongly encourage that new development projects incorporate transit-related design features as outlined below.~~

  - ~~A through roadway should connect adjacent developments so as to permit transit circulation between developments.~~

  - ~~In major employment/commercial areas, parking should be prohibited on collector and arterial streets to provide access to bus stops in these areas.~~

- ~~Shielded openings in subdivisions sound walls should be provided to facilitate more direct pedestrian access to transit stops.~~

- ~~In major employment/commercial areas, the Transit District should be encouraged to post route and schedule information.~~

- ~~Commercial and industrial developments should have easy access to major arterials and transit stops.~~

- ~~Park and ride sites should be strategically located to maximize utilization.~~

- ~~Park and ride lots should be designed to accommodate not only motorists but also other users of public transit and van or carpooling.~~

- ~~Non-Motorized Transportation Goal 1.1 – Pedestrian travel shall be encouraged as a viable mode of movement throughout the City by providing safe and convenient pedestrian facilities, particularly in commercial areas and residential neighborhoods.~~

- ~~Non-Motorized Transportation Goal 1.2 – Within large retail and office centers, provisions shall be made for convenient and safe pedestrian movement through the large parking areas which surround these commercial centers.~~

- ~~Non-Motorized Transportation Goal 1.3 – Recreational bikeways shall be developed and maintained on separate rights-of-way (i.e., Calaveras River path, East Bay Municipal Utility District easement paths).~~

- ~~Non-Motorized Transportation Goal 1.4 – Right-of-way requirements for bike usage shall be considered in the planning of new arterial and collector streets and in street improvement projects.~~

- ~~Non-Motorized Transportation Goal 1.5 – Safe and secure bicycle parking facilities should be provided at major activity centers such as public facilities, employment sites and shopping and office centers.~~

Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State Highway facilities[27], however, Caltrans recognizes that achieving LOS C/LOS D may not always be feasible. Consistent with the City of Stockton Streets and Highways Goal 1.9, a standard of LOS D or better on a peak hour basis was used as the planning objective for the evaluation potential freeway impacts of this development.

4.7.2 Transportation and Circulation Analysis

Analysis Scenarios

The impact analysis has been conducted for the following conditions:

- ***Near-Term*** – Near-term forecast conditions considering existing traffic plus trips from approved near-term future developments and roadway improvements.

[27] *Guide for the Preparation of Traffic Studies*, Caltrans, December 2002.

- ***Near-Term With Project*** – Near-term forecast conditions plus project-related traffic.
- ***~~Future~~ 2025 Cumulative Without Project*** – Future (Year 2025) forecast conditions, based on the *1990 General Plan,* taking into account future development in the City of Stockton and the surrounding jurisdictions in addition to planned roadway improvements.
- ***~~Future~~ 2025 Cumulative With Project*** – Future (Year 2025) forecasted conditions plus project-related traffic.
- ***2035 Cumulative Without Project*** – Future (Year 2035) forecast conditions, based on the *2035 General Plan,* taking into account future development in the City of Stockton and the surrounding jurisdictions in addition to planned roadway improvements.
- ***2035 Cumulative With Project*** – Future (Year 2035) forecasted conditions plus project-related traffic.

In December 2007, ~~the~~ The City of Stockton ~~is currently preparing~~ adopted the Stockton *2035 General Plan Update* and *Infrastructure Master Plans Project* to update the existing City of Stockton *1990 General Plan.* The ~~*1990*~~ *2035 General Plan Update* build-out includes about ~~160,000~~210,000 residential units and about 170 million square feet of non-residential uses. The *2035 General Plan Update* build-out ~~is proposed to include~~ is estimated to add about ~~210,000~~100,000 residential units ~~and 200 million square feet of non-residential uses~~. ~~This~~ These plans take into account future development in the City of Stockton and the surrounding jurisdictions in addition to planned roadway improvements.

The *2035 General Plan Update EIR* ~~is currently being prepared; however, it is uncertain when the EIR will be completed and the *2035 General Plan Update* adopted~~was recently updated and adopted along with the *2035 General Plan Update*. ~~When complete, t~~The EIR ~~will~~ provides an assessment of the updated General Plan, the infrastructure master plans, and the expansions to the City's existing Urban Services Boundary and Sphere of Influence. ~~Because the *2035 General Plan Update* has not yet been adopted, a supplemental cumulative analysis for 2035 conditions both without and with the project was conducted and is provided in Appendix E for informational purposes.~~

Project Traffic

This section describes the procedure used to develop project traffic estimates, including project trip generation, distribution, and assignment characteristics. The results are used to evaluate potential impacts the project would have on the surrounding roadway network.

Project Trip Generation

Project trip generation refers to the process for estimating the amount of vehicular traffic a project would add to the surrounding roadway system. First, estimates of the total amount of traffic entering and exiting the project driveways are calculated for an average weekday. Separate estimates are created for the peak one-hour periods during the morning and evening commute periods when

traffic volumes on the surrounding streets are highest[28]. At retail establishments such as the proposed project, driveway traffic comprises: (1) new traffic generated by the project, (2) traffic that would otherwise already be on the adjacent roadways but the driver decides to stop at the site (e.g., to purchase an item on their way home from work), and (3) traffic on other nearby roadways, but the driver decides to take a short detour to stop at the site. The trips in Item 2 are referred to as "pass-by" trips and the trips in Item 3 are referred to as "diverted-link" trips.

Two sources of driveway count data of similar land uses were used to estimate project driveway volumes. Estimates for the shopping center portion of the project, including the major retail tenant, were developed by using equations contained in the Institute of Transportation Engineers (ITE), *Trip Generation,* (7th Edition) (Land Use Code 820 – Shopping Center and Land Use Code ~~861 – Discount Club~~945 – Gas Station with Convenience Market). Trip generation information documented in a separate study[29] was used for the proposed Wal-Mart Supercenter. That study only had a PM peak hour rate, which was higher than the maximum PM peak hour rate for discount superstores (Land Use Code 813) presented in the ITE *Trip Generation* manual. Therefore, it was selected to provide ***conservatively high*** project traffic estimates. Daily and AM peak hour rates were then estimated by prorating the average daily and AM peak hour ITE rates by the same percentage increase between the VRPA and ITE PM peak hour rates.

Information contained in the ITE *Trip Generation Handbook*, March 2001, was used to estimate pass-by and diverted-link trips. For shopping centers, the average pass-by rate is 34 percent, and the average diverted linked trip rate is 16 percent. In other words, at a typical shopping center, approximately, 50 percent of the traffic entering and exiting the site is already on the surrounding roadway system.

The traffic volumes on the adjacent streets, French Camp Road and Manthey Road, are not high enough to justify the use of a 34 percent pass-by rate. However, as the project site is located close to I-5, which carries a significant amount of traffic (currently approximately 7,000 vehicles during the PM peak hour and 110,000 vehicles on a daily basis; projected to be approximately 13,000 vehicles during the PM peak hour in 2025), it is likely that a large proportion of project traffic would be comprised of vehicles already on this regional roadway facility. Based on this information, the following was estimated:

- 10 percent of the project trips would be pass-by trips from French Camp Road and Manthey Road
- 40 percent of the project trips would be diverted-linked trips from I-5

These pass-by and diverted trip estimations are consistent with the analysis contained in *Revised Final Traffic Analysis Report for the Sperry Road Extension Project, Project Report/ Environmental Document*, Fehr & Peers, July 2004.

[28] It should be noted that based on information in ITE's *Trip Generation*, the one hour in the morning with the highest trip generation for discount superstores is generally between 10:00 and 11:00 a.m., while the highest afternoon/evening hourly traffic for discount superstores occurs during one-hour between 12:00 p.m. and 3:00 p.m.

[29] ITE Journal, *Trip Generation Characteristics of Free-Standing Discount Superstores*, August 2006

Shopping centers could be considered multi-use development because they include retail space, restaurants, and at times, movie theaters. The ITE trip generation data was collected at shopping centers with a variety of these uses and the trip rates and equations reflect the "multi-use" nature of this type of development. Although it is likely that some patrons of the Wal-Mart and the other major retailer would patronize the other retail on site, no reduction for internalization of trips was applied to the trip generation estimates to present a conservative estimate of project trips.

Table 4.7-7 summarizes the trip generation for the Weston Ranch Towne Center, based on a Wal-Mart of less than 100,000 square feet and a mix of other retail uses including a 12-pump gas station. ~~total size of 710,000 square feet (285,000 square feet of general retail space, a 250,000-square-foot Wal-Mart, and a 175,000-square-foot major retailer). While the current project site plan shows development approximately 600,000 square feet of retail area, t~~The off-site intersection analysis was completed assuming a ~~larger~~ maximum building area of 481,000 square feet ~~to account for potential development on the adjacent parcel and~~ to allow for flexibility in the final site design.

REVISED TABLE 4.7-7
WESTON RANCH TOWNE CENTER
REVISED PROJECT TRIP GENERATION

Land Use	Daily Trips	AM Peak In	AM Peak Out	AM Peak Total	PM Peak In	PM Peak Out	PM Peak Total
Shopping Center (378,015 square feet)[a]	16,100	237	152	389	723	783	1,506
Wal-Mart (99,585 square feet)[b]	5,800	140	135	275	301	277	578
Gas Station (12 pump)[c]	1,950	61	60	121	81	80	161
Total Driveway Volumes	23,850	438	347	785	1,105	1,140	2,245
Pass-By Trips (10% - Retail Uses)	-2,000	-33	-33	-66	-104	-104	-208
Pass-By Trips (50% - Gas Station)	-980	-30	-30	-60	-40	-40	-80
Diverted-Link Trips from I-5 (40%)	-8,760	-132	-132	-264	-392	-392	-784
Net New Revised Project Trips[d]	11,140	243	152	395	569	604	1,173
Buildout Driveway Volumes from Proposed Project in DEIR	35,200	601	481	1,082	1,725	1,717	3,442
Difference between DEIR Project and Revised Project	-11,350	-163	-134	-297	-620	-577	-1,167
Buildout Net New Trips from Proposed Project in DEIR	17,600	329	209	538	864	856	1,720
Difference between DEIR Project and Revised Project	-6,460	-86	-57	-143	-295	-252	-547

(a) Trip generation determined from fitted curve equations presented for Shopping Center (Land Use 820) in the Institute of Transportation Engineers' *Trip Generation* (7th Edition), as presented below.

Daily Equation: Ln(T) = 0.65 Ln(X) + 5.83
AM Rate: T = 1.03 (X) (inbound = 61 percent, outbound = 39 percent)
PM Equation: Ln (T) = 0.66 Ln(X) + 3.40 (inbound = 48 percent, outbound = 52 percent)
Where T = Trip ends, Ln = Natural Log, and X = building size in 1,000 square feet.

(b) Trip generation for Wal-Mart based on trip generation rates presented in *Proposed Super Wal-Mart in Spanos Park West – Stockton California* Letter to William D. Kopper from Neal K Liddicoat, P.E. (April 7, 2004), based on rates documented in an unpublished study (VRPA Technologies, Inc. *Trip Generation Characteristics of Free-Standing Discount Superstores*, March 2004).
Daily Rate: T = 58 (X)
AM Rate: T = 2.76 (X) (inbound = 51 percent, outbound = 49 percent)
PM Rate: T = 5.8 (inbound = 52 percent, outbound = 48 percent)

(c) Trip generation determined from average rate for Gas Station with Convenience Market (Land Use 945) in the Institute of Transportation Engineers' *Trip Generation* (7th Edition), as presented below.
Daily Rate: T = 162.78 (P)
AM Rate: T = 10.06 (P) (inbound = 50 percent, outbound = 50 percent)
PM Rate: T = 13.38 (P) (inbound = 50 percent, outbound = 50 percent)
Where T = Trip ends, and p = number of fueling positions.

(d) Although this table displays the net new trips, all project trips were assigned to the roadway system and accounted for in the analysis.

Source: ITE, Fehr & Peers, 2008.

As shown on Table 4.7-7, it is anticipated that traffic volumes at the project driveways would be approximately ~~35,200~~ 23,850 on a daily basis including ~~1,082~~ 785 during the AM peak hour and ~~3,442~~ 2,245 during the PM peak hour. Accounting for the pass-by and diverted-link trips, the proposed project is anticipated to generate approximately ~~17,600~~11,140 new daily trips on the surrounding roadway network, including ~~540~~ 395 new AM peak hour trips and ~~1,720~~1,173 PM peak hour trips. This level of trip generation accounts for delivery vehicles to the site.

It should be noted that the diverted-link trips from I-5 are included as new trips through the study intersections as they travel between the site and the freeway, but they are not counted as new trips in the freeway analysis.

Trip Distribution

The *1990 General Plan* traffic model was used as a preliminary means to determine near-term and Future 2025 general trip distribution patterns for the Weston Ranch Towne Center. The *2035 General Plan* traffic model was used as a means to determine Future 2035 general trip distribution patterns for the Weston Ranch Towne Center. Market data as well as existing traffic patterns were used to refine the trip distribution percentages. Trip distribution percentages are presented in Table 4.7-8 and Figures 4.7-5, ~~and~~ 4.7-6, and 4.7-7 for the near-term ~~and~~, Future 2025, and Future 2035 conditions, respectively. Separate trip distribution percentages were developed for the near-term and, Future 2025, and Future 2035 analyses to reflect planned roadway network improvements and nearby developments that are assumed to be in place by ~~2025~~2035.

REVISED TABLE 4.7-8
WESTON RANCH TOWNE CENTER TRIP DISTRIBUTION PERCENTAGES

	Scenario		
Roadway Facility	**Near-Term**	**Future 2025**	**Future 2035**
I-5, northbound via Downing Avenue	11%	11%	8%
I-5, northbound via French Camp Road	24%	24%	17%
I-5, southbound via French Camp Road	33%	33%	23%
I-5, southbound via Mathews Road	2%	2%	2%
Downing Avenue, East	0%	0%	4%
Manthey Road, South	1%	1%	1%
French Camp Road, East	7%	1%	1%
Sperry Road, East	N/A	12%	14%
Weston Ranch Area	10%	10%	24%
El Dorado Street, North	10%	0%	0%
Val Dervin Parkway to El Dorado Street	N/A	4%	4%
Howard Road, West	1%	1%	1%
Mathews Road, East	1%	1%	1%
Total	**100%**	**100%**	**100%**

Note: N/A = Not Applicable. The Sperry Road and Val Dervin Parkway extensions would not be constructed until the Future 2025 scenario.

Source: Fehr & Peers, 2006.

Trips generated by the project were assigned to the roadway system based on the directions of approach and departure shown in Table 4.7-8. AM and PM peak hour project trip assignments are shown on Figure 4.7-~~7~~ 8 for the near-term analysis~~ and~~, Figure 4.7-~~8~~ 12 for the Future 2025 analysis, and Figure 4.7-~~10~~15 for the Future 2035 analysis.

Near-Term Traffic Conditions

This section discusses near-term traffic conditions both without and with the project. The analysis considers near-term land use development and roadway improvements in the study area.

Near-Term Without Project Traffic

This scenario includes existing traffic volumes, traffic from the build-out of parcels that could be further developed without future entitlements from the City, and traffic from those developments that are approved and/or under construction within the study area. Therefore, these conditions represent the traffic levels that could occur in the next several years. Henry Long Boulevard has been closed to through traffic at Manthey Road in conjunction with development of a subdivision to the east of McDougald Road. Near-term without Project traffic forecasts were adjusted to account for the local traffic shifts.

Traffic volumes for Existing plus Approved Projects conditions were estimated using the City of Stockton's traffic model. The input assumptions and model results were approved by City of Stockton staff. Traffic forecasts from the model were adjusted using the delta method, which considers the difference between the base year and future year model. Figure 4.7-~~9~~ ~~11~~8 shows the resulting traffic volumes that form the basis of the Near-Term without project analysis. Near-term traffic forecasts are higher in some locations that the Future 2025 forecasts due to the different land use and roadway network assumptions. The near-term analysis is based on the recently completed Existing Plus Approved Project traffic model, as described above, while the Future 2025 analysis is based on the *1990 General Plan.*

Near-Term with Project Traffic

The peak hour project traffic volumes (Figure 4.7-~~7~~5) were added to the near-term without project volumes to determine future traffic volumes with the project. Near-term with project peak hour traffic volumes are shown on Figure 4.7-~~10~~9. These volumes take into account traffic shifts that would result with the realignment of Manthey Road through the project site~~ and the vacation of Henry Long Boulevard~~. Near-term lane configurations and traffic control are shown on Figure 4.7-~~11~~10. As part of the project, French Camp Road would be widened to two lanes in each direction from along the project frontage, connecting to the existing four lane cross-section at the I-5 under-crossing.

SOURCE: Fehr & Peers, 2008; and ESA, 2008

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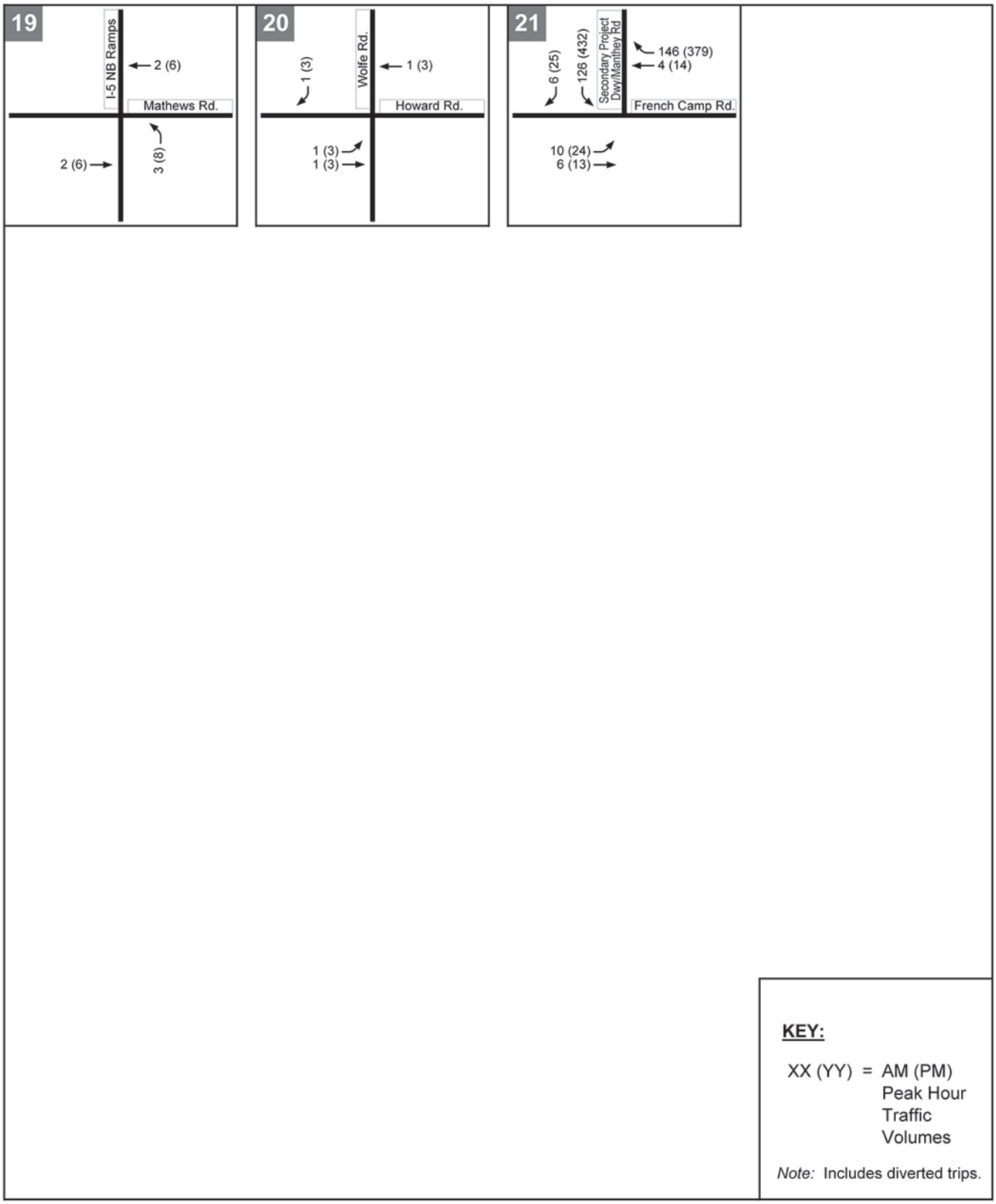
Revised Figure 4.7-5a

Near-Term Peak Hour Project Volumes



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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Revised Figure 4.7-5b

Near-Term Peak Hour Project Volumes

SOURCE: Fehr & Peers, 2008; and ESA, 2008

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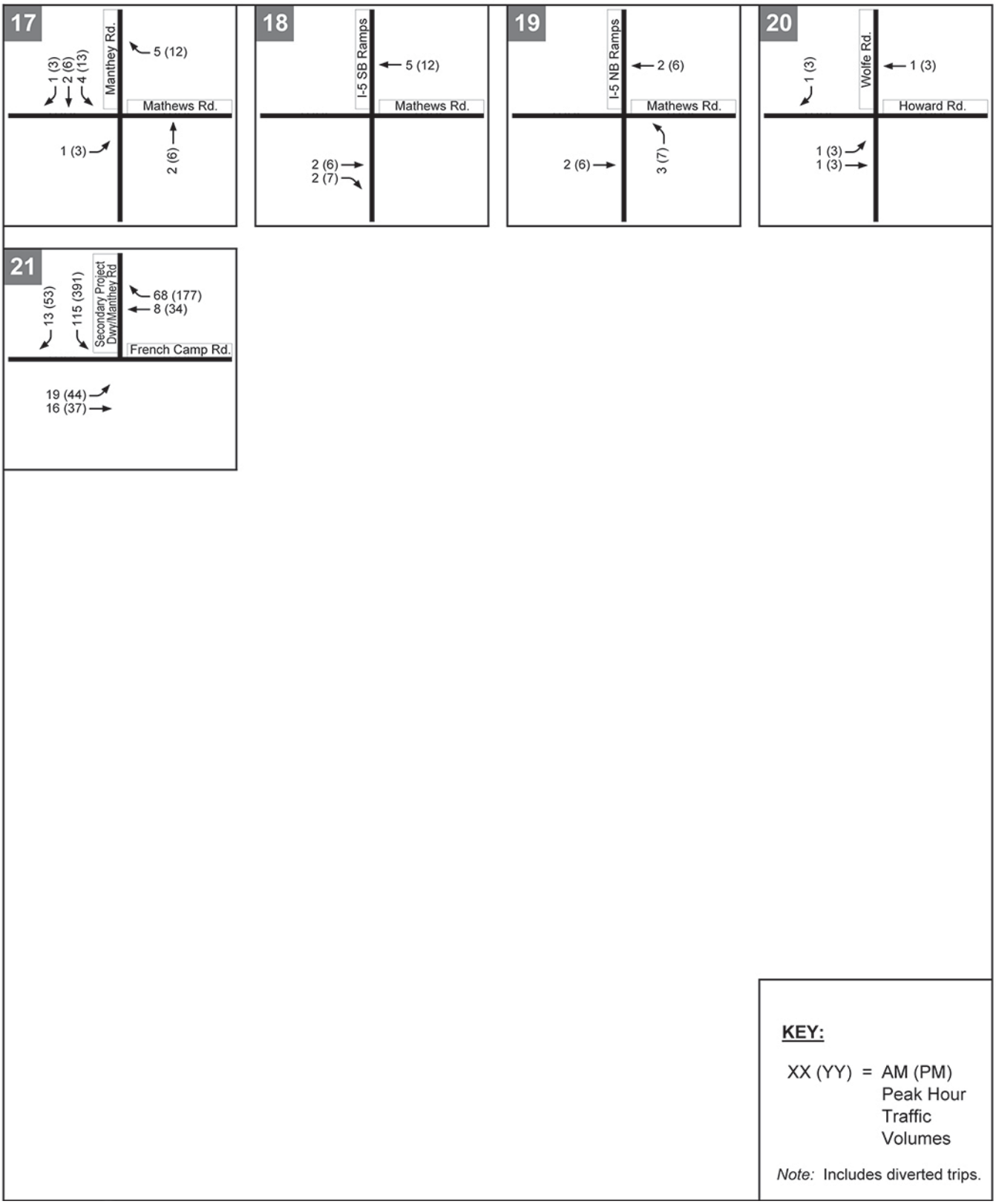
Revised Figure 4.7-6a

2025 Cumulative Peak Hour Project Volumes



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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Revised Figure 4.7-6b

2025 Cumulative Peak Hour Project Volumes

SOURCE: Fehr & Peers, 2008; and ESA, 2008

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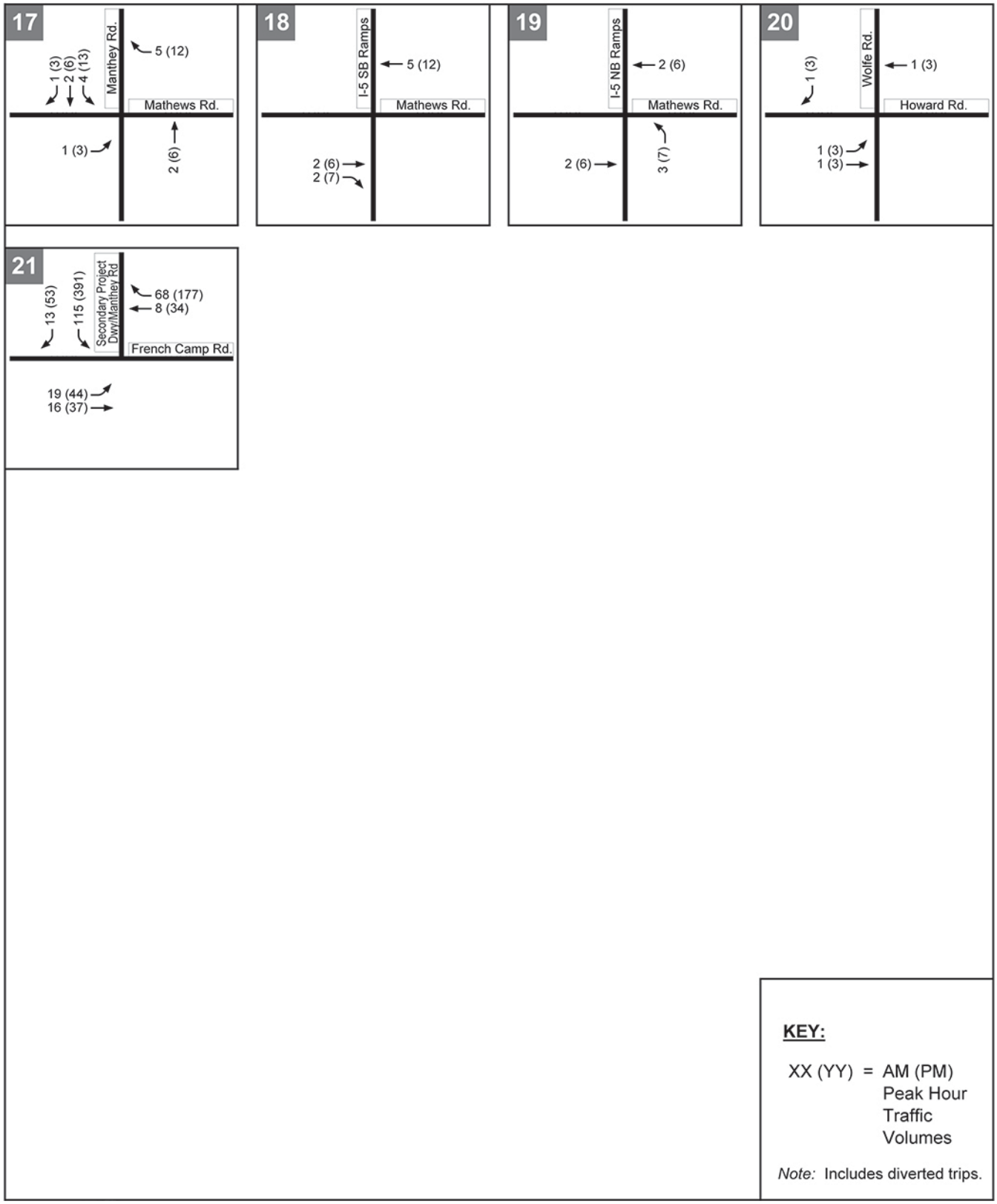
Revised Figure 4.7-7a

2035 Cumulative Peak Hour Project Volumes



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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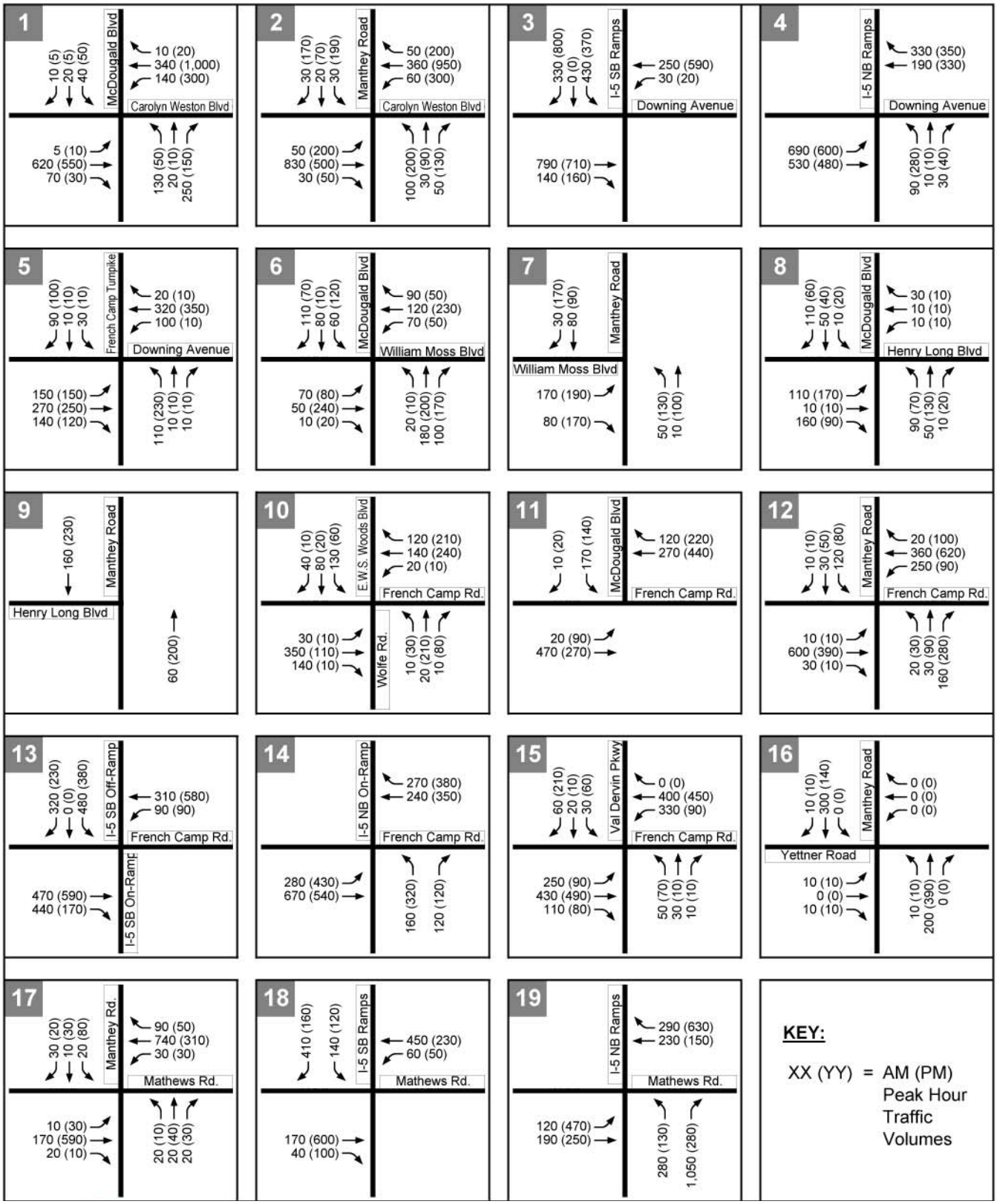
Revised Figure 4.7-7b

2035 Cumulative Peak Hour Project Volumes



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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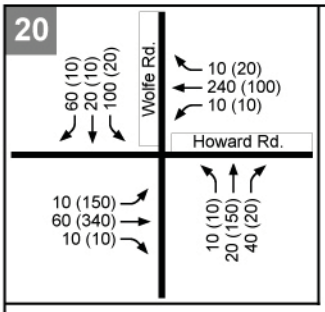
Revised Figure 4.7-8a

Near Term Without Project Peak Hour Traffic Volumes



KEY:

XX (YY) = AM (PM) Peak Hour Traffic Volumes

SOURCE: Fehr & Peers, 2008; and ESA, 2008

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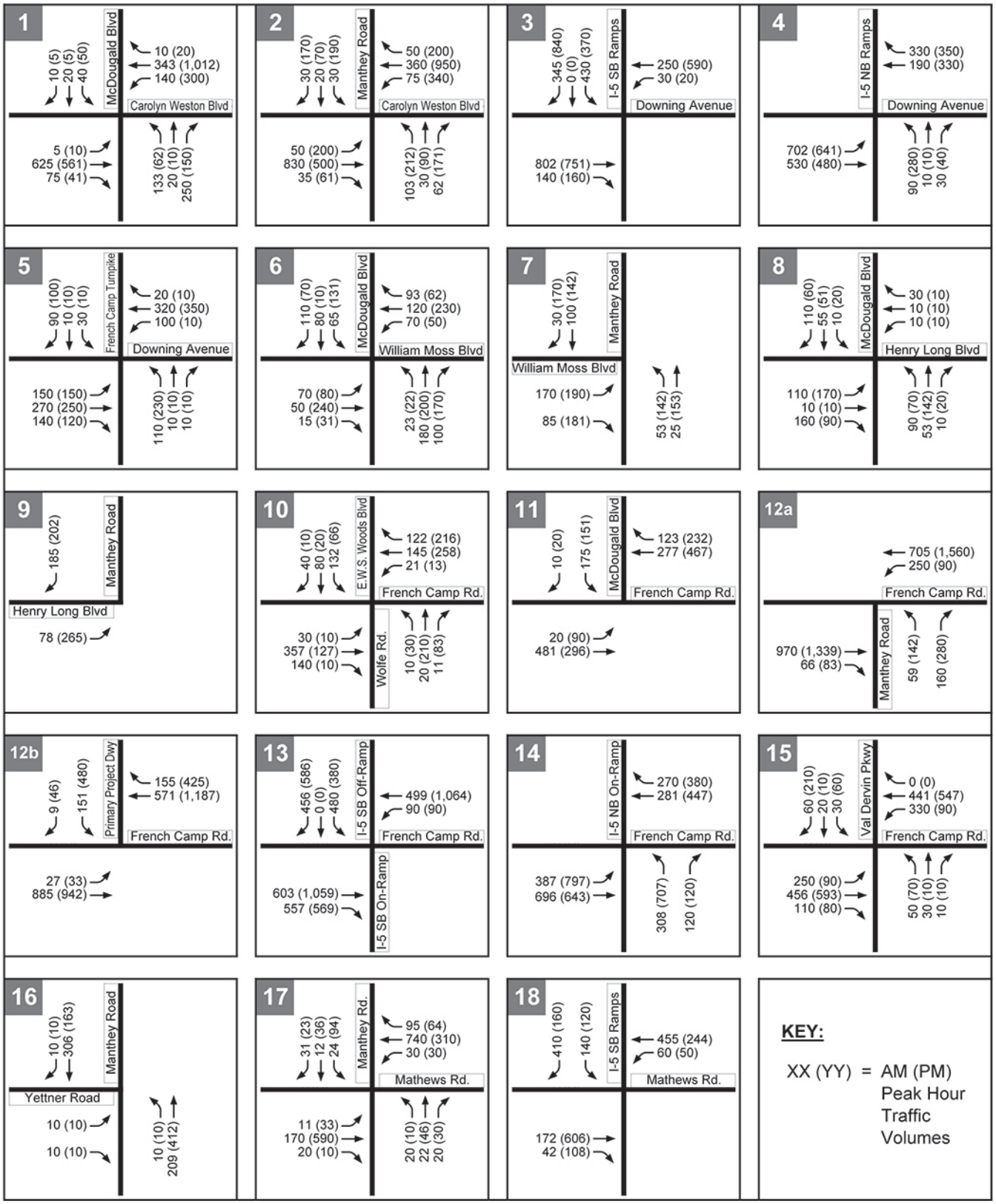
Revised Figure 4.7-8b

Near Term Without Project Peak Hour Traffic Volumes



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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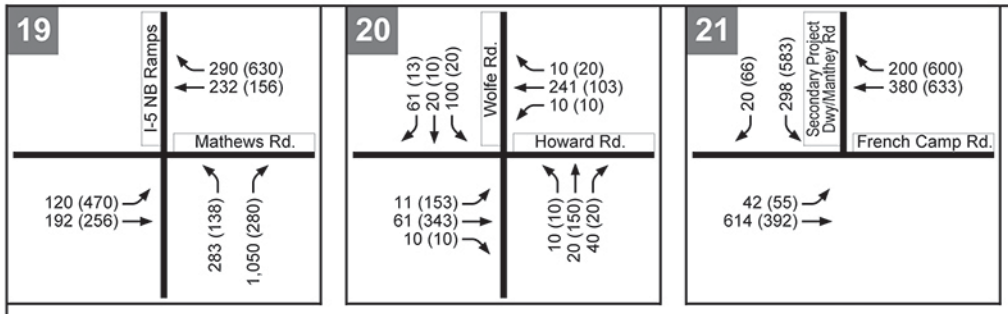
Revised Figure 4.7-9a

Near Term With Project Peak Hour Volumes



KEY:

XX (YY) = AM (PM) Peak Hour Traffic Volumes

SOURCE: Fehr & Peers, 2008; and ESA, 2008

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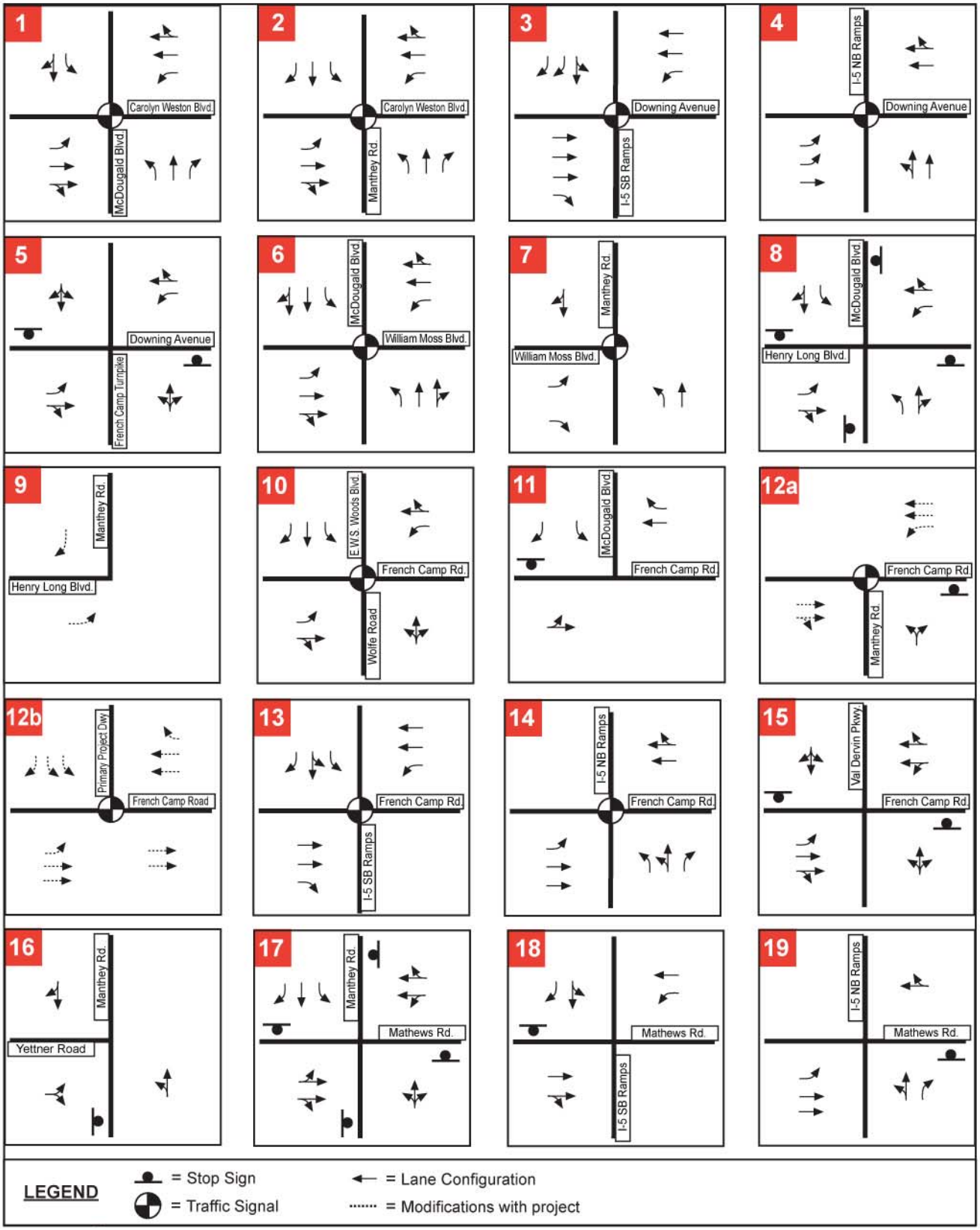
Revised Figure 4.7-9b

Near Term With Project Peak Hour Volumes



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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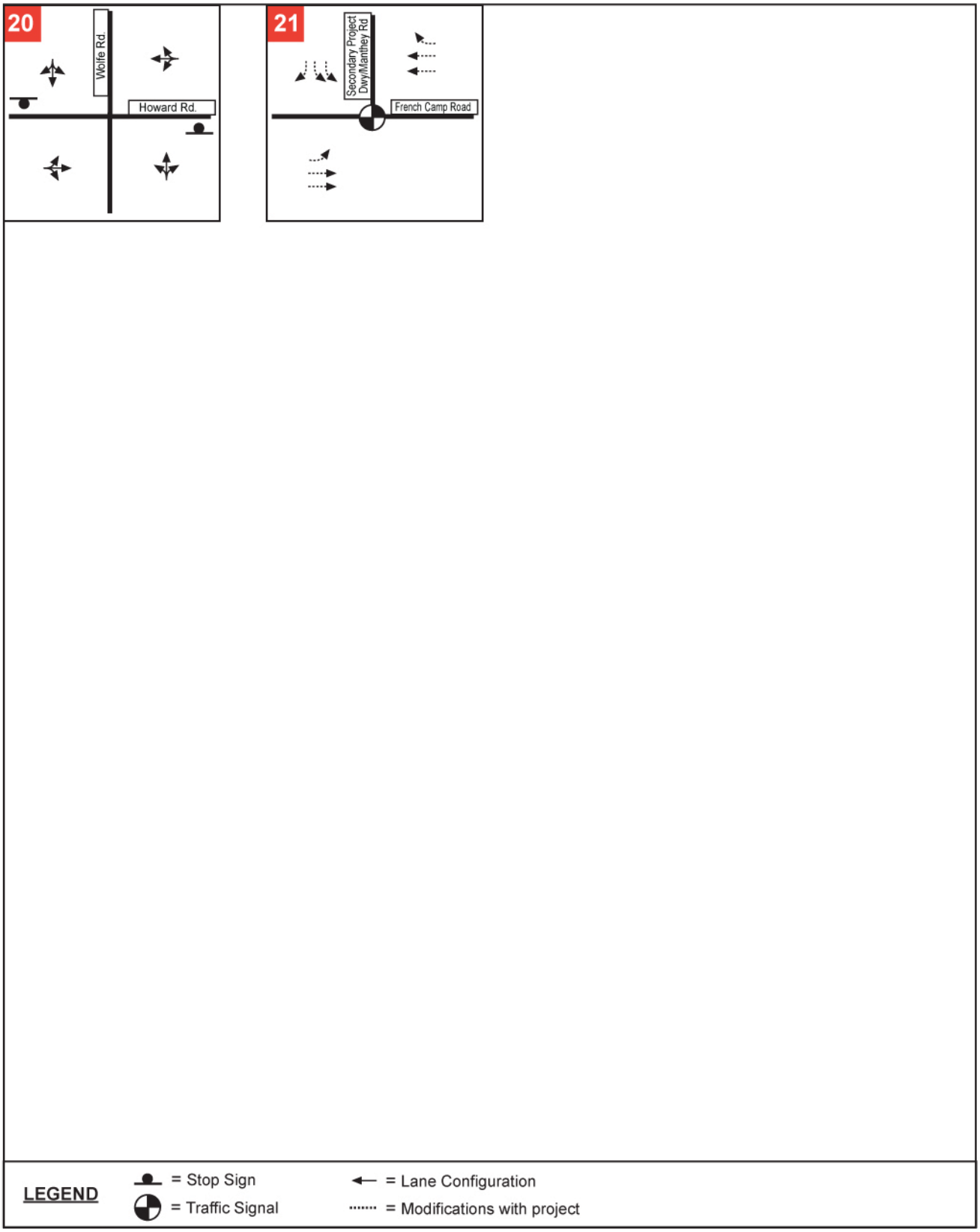
Revised Figure 4.7-10a

Near Term Lane Configurations and Traffic Control



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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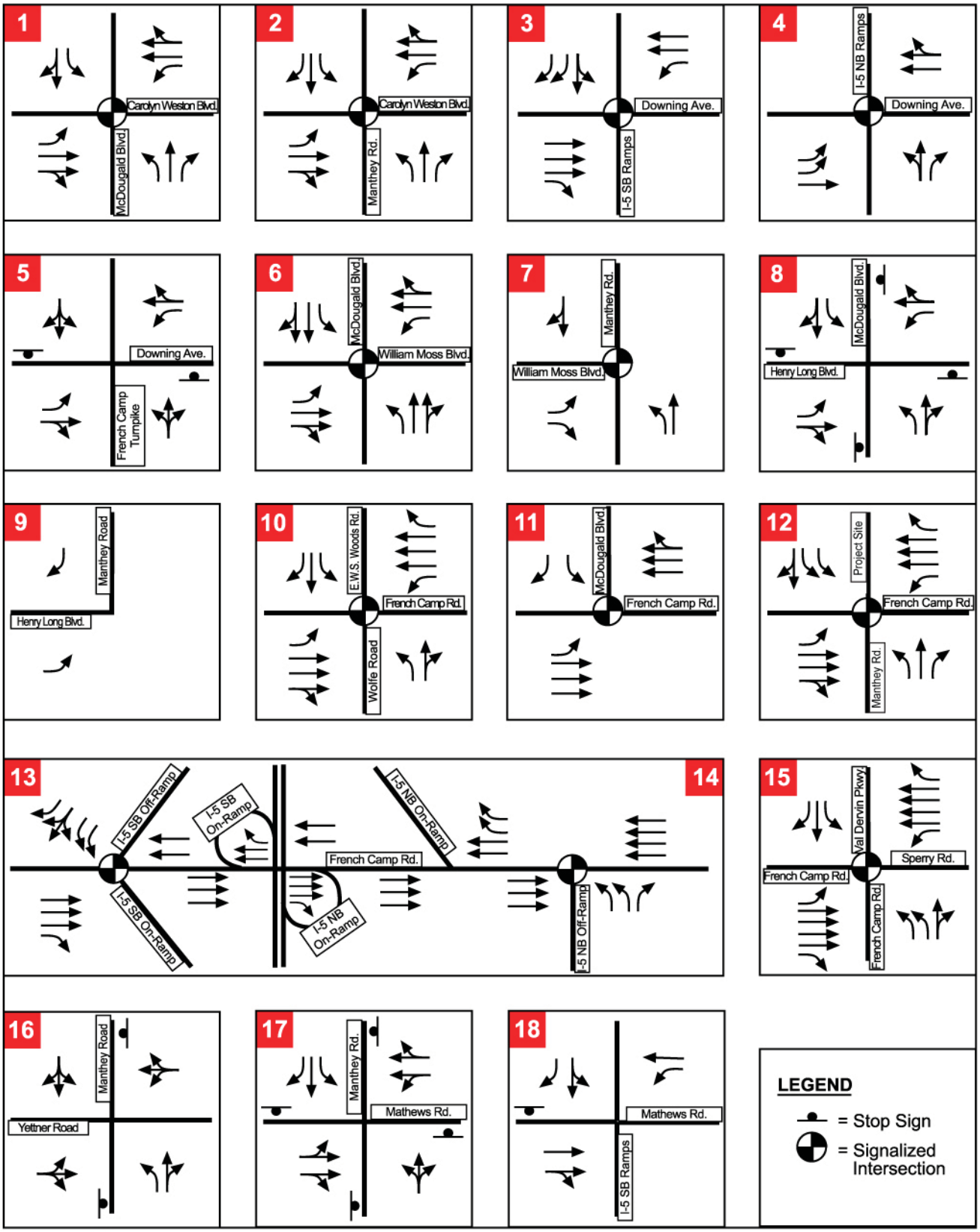
Revised Figure 4.7-10b

Near Term Lane Configurations and Traffic Control



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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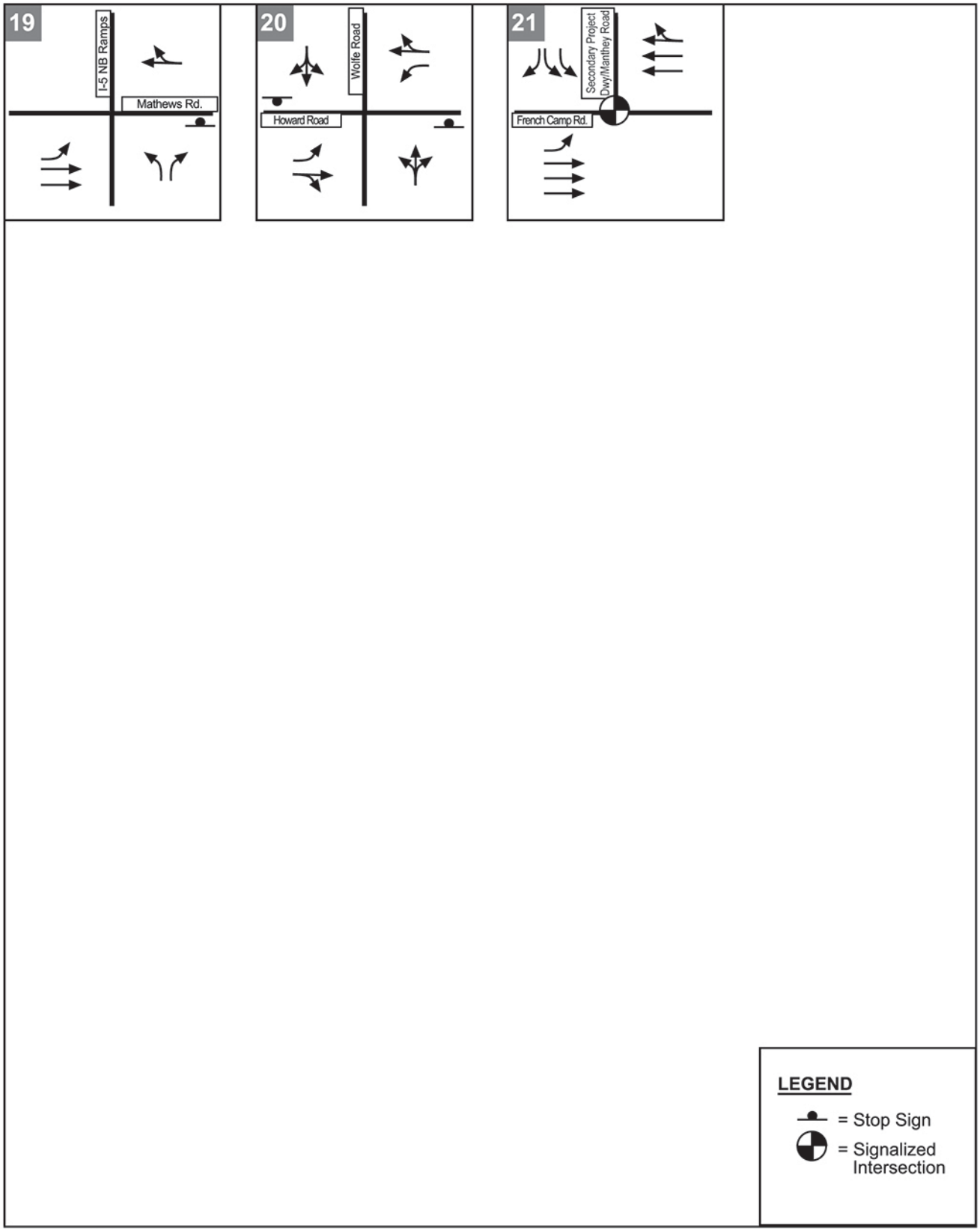
Revised Figure 4.7-11a

2025 Cumulative Lane Configurations and Traffic Control



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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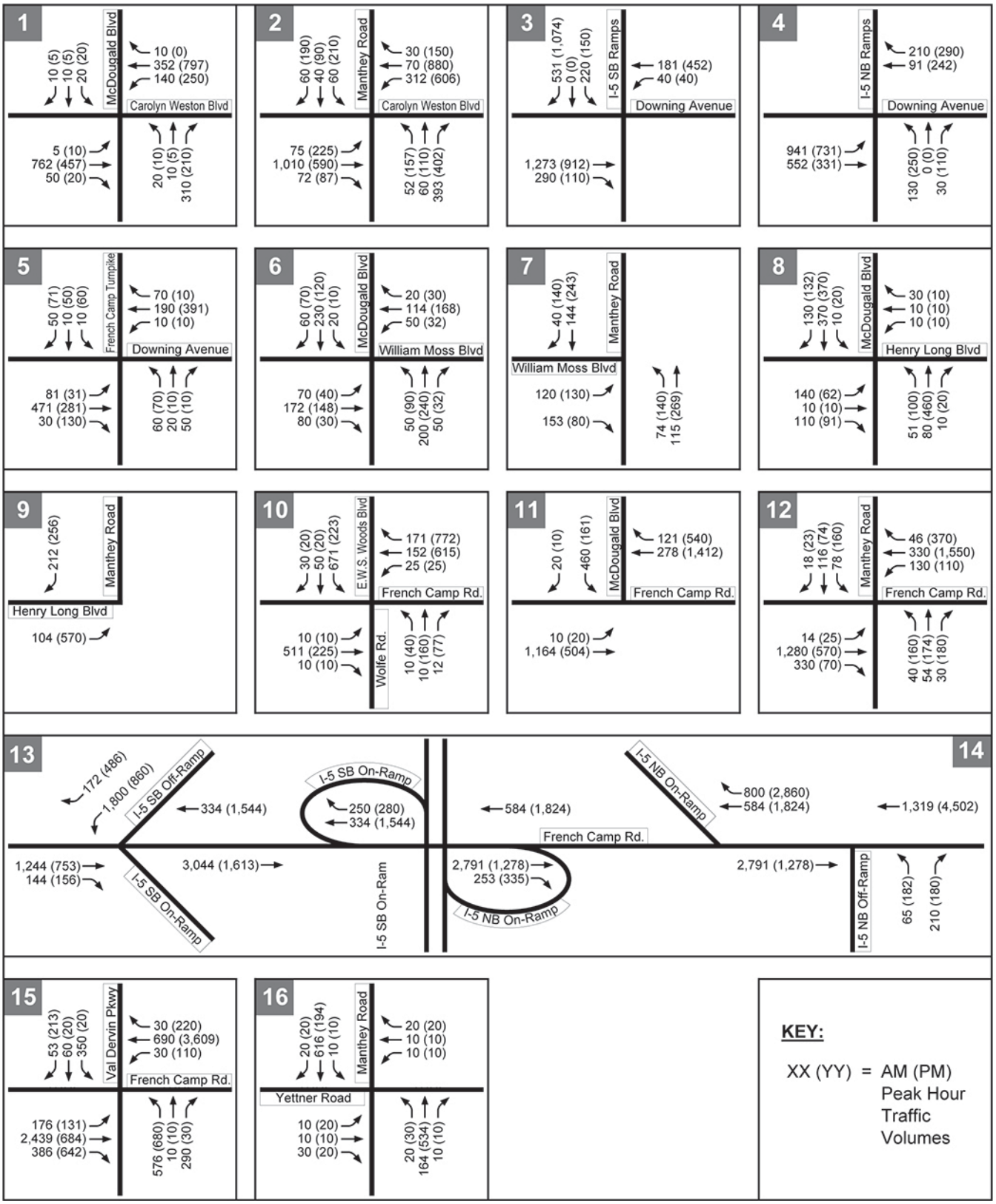
Revised Figure 4.7-11b

2025 Cumulative Lane Configurations and Traffic Control



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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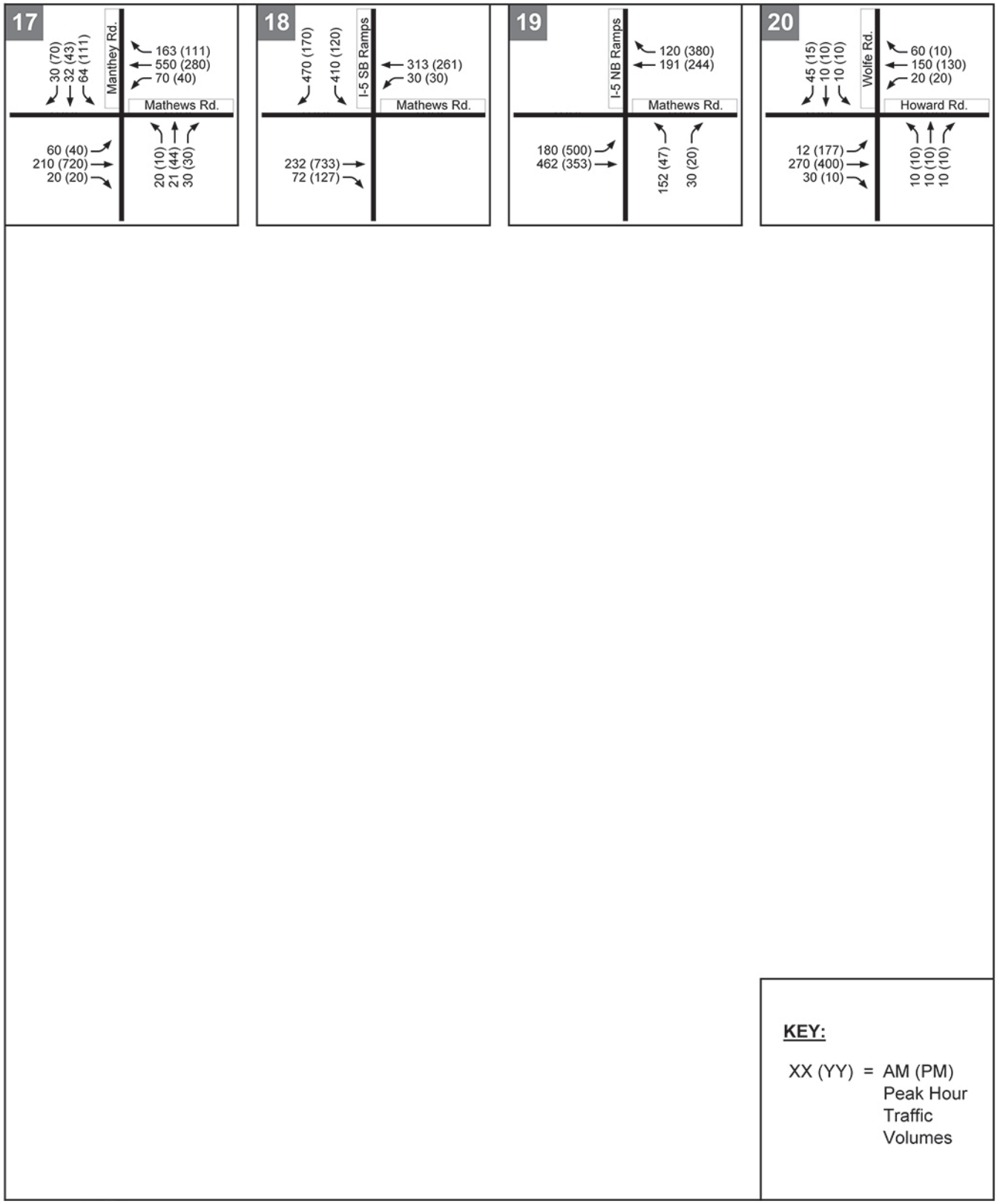
Revised Figure 4.7-12a

2025 Cumulative Without Project Peak Hour Traffic Volumes



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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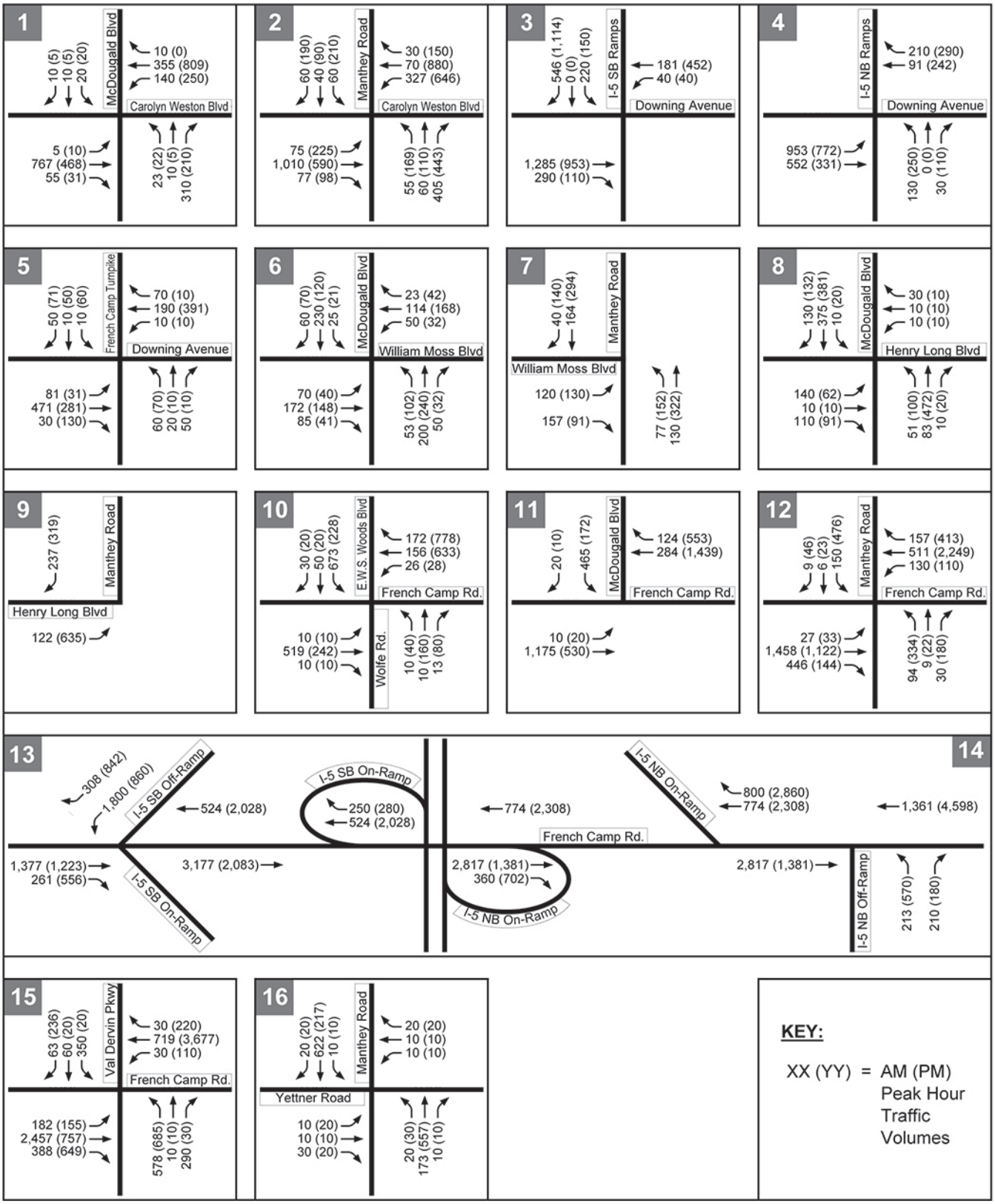
Revised Figure 4.7-12b

2025 Cumulative Without Project Peak Hour Traffic Volumes



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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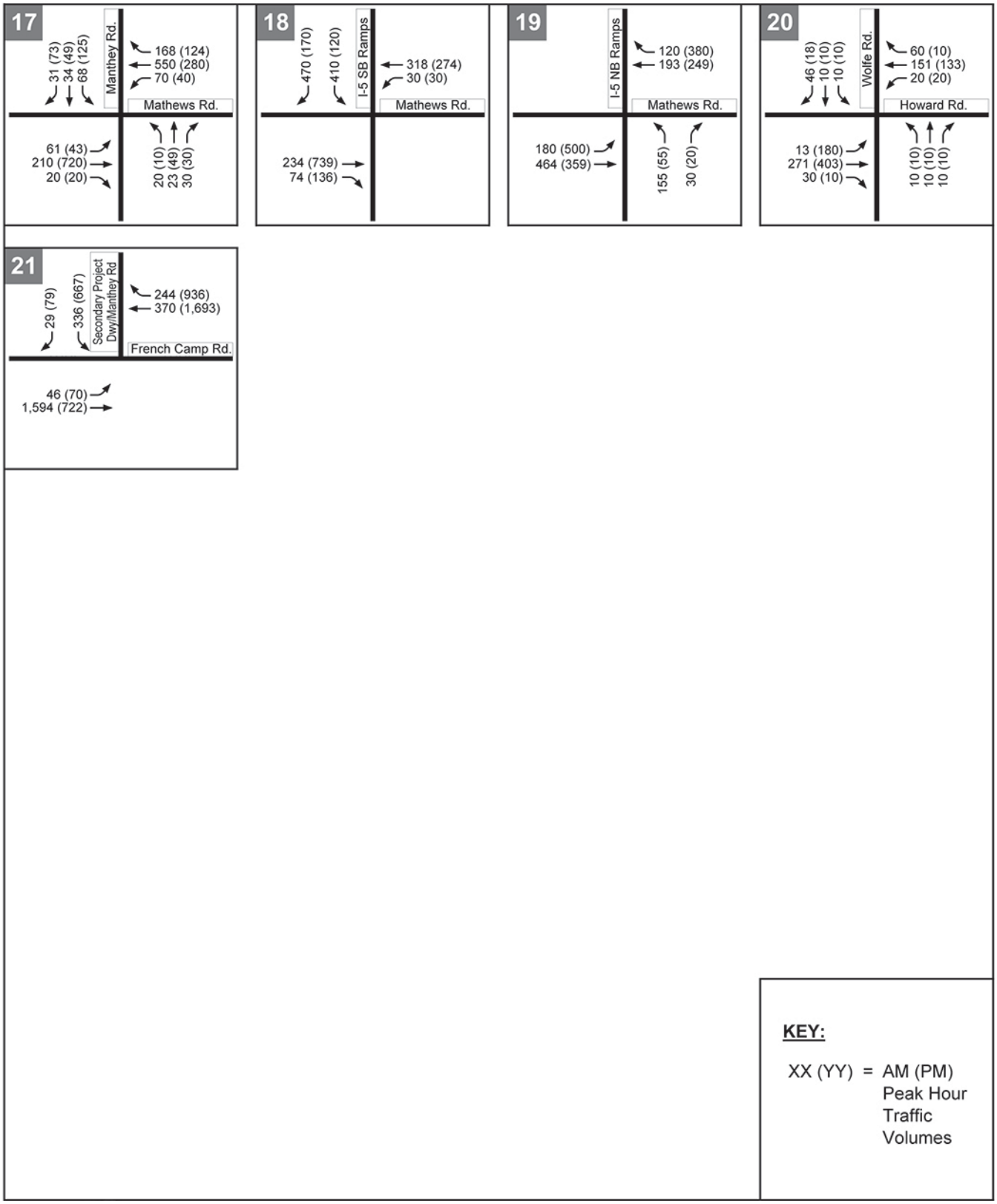
Revised Figure 4.7-13a

2025 Cumulative With Project Peak Hour Traffic Volumes



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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Revised Figure 4.7-13b

2025 Cumulative With Project Peak Hour Traffic Volumes

Analysis of Near-Term Conditions

Intersection Analysis

The near-term conditions analysis results are shown in Table 4.7-9. The results indicate that without the project, ~~six~~ four study intersections are projected to operate at overall deficient service levels (i.e., LOS E or F) during one or both peak hours.

- French Camp Turnpike/Downing Avenue
- Manthey Road/French Camp Road
- French Camp Road/Val Dervin Parkway
- I-5 Northbound Ramps/Mathews Road

REVISED TABLE 4.7-9
NEAR-TERM PEAK HOUR INTERSECTION OPERATIONS

	Intersection	Control	Peak Hour	Near-Term Without Revised Project		Near-Term With Revised Project	
				Delay	LOS	Delay	LOS
1.	McDougald Boulevard/ Carolyn Weston Boulevard	Signal	AM PM	24 28	C C	25 28	C C
2.	Manthey Road/ Carolyn Weston Boulevard	Signal	AM PM	21 36	C D	22 37	C D
3.	I-5 Southbound Ramps/ Downing Avenue	Signal	AM PM	16 17	B B	16 17	B B
4.	I-5 Northbound Ramps/ Downing Avenue	Signal	AM PM	20 21	B C	20 22	B C
5.	French Camp Turnpike/Downing Avenue	SSSC	AM PM	31 **(> 50)** **> 50 (> 50)**	D **(F)** **F (F)**	31 **(> 50)** **> 50 (> 50)**	D **(F)** **F (F)**
6.	McDougald Boulevard/ William Moss Boulevard	Signal	AM PM	21 21	C C	21 21	C C
7.	Manthey Road/ William Moss Boulevard	Signal	AM PM	15 17	B B	15 17	B B
8.	McDougald Boulevard/ Henry Long Boulevard	AWSC	AM PM	9 10	A A	9 10	A A
9.	Manthey Road/ Henry Long Boulevard	SSSC/ AWSC	AM PM	N/A N/A	N/A N/A	8 9	A A
10.	Wolfe Road/EWS Woods Boulevard/French Camp Road	Signal	AM PM	24 36	C D	24 38	C D
11.	McDougald Boulevard/ French Camp Road	SSSC	AM PM	5 (26) 5 (30)	A (D) A (D)	5 (28) 6 (38)	A (D) A (E)
12a.	Manthey Road/French Camp Road	AWSC	AM PM	**> 50** **> 50**	**F** **F**	***> 50*** ***> 50***	***F*** ***F***
12b.	Primary Project Driveway/French Camp Road	Signal	AM PM	N/A N/A	N/A N/A	6 12	A B
13.	I-5 Southbound Ramps/ French Camp Road	SSSC	AM PM	19 17	B B	19 29	B C
14.	I-5 Northbound Ramps/ French Camp Road	SSSC	AM PM	13 19	B B	16 48	B D
15.	French Camp Road/ Val Dervin Parkway	SSSC	AM PM	**> 50 (> 50)** 21 **(> 50)**	**F (F)** C **(F)**	***> 50 (> 50)*** ***38 (> 50)***	***F (F)*** ***E (F)***
16.	Manthey Road/Yettner Road	SSSC	AM PM	1 (11) 1 (11)	A (B) A (B)	1 (12) 1 (11)	A (B) A (B)
17.	Manthey Road/Mathews Road	AWSC	AM PM	15 13	B B	15 14	B B
18.	I-5 Southbound Ramps/ Mathews Road	SSSC	AM PM	11 (24) 3 (14)	B (C) A (B)	11 (24) 3 (14)	B (C) A (B)

REVISED TABLE 4.7-9
NEAR-TERM PEAK HOUR INTERSECTION OPERATIONS

	Intersection	Control	Peak Hour	Near-Term Without Revised Project		Near-Term With Revised Project	
				Delay	LOS	Delay	LOS
19.	I-5 Northbound Ramps/ Mathews Road	SSSC	AM PM	**> 50 (> 50)** **> 50 (> 50)**	**F (F)** **F (F)**	**> 50 (> 50)** ***> 50 (> 50)***	**F (F)** ***F (F)***
20.	Wolfe Road/Howard Road	SSSC	AM PM	6 (14) 11 (**38**)	A (B) B (**E**)	6 (14) 11 (**40**)	A (B) B (**E**)
21.	Secondary Driveway/French Camp Road	Signal	AM PM	N/A N/A	N/A N/A	14 17	B B

Notes:
Signal = signalized intersection; SSSC = side street stop-controlled intersection; AWSC = all-way stop-controlled intersection
Delay for intersection average (worst movement) at SSSC intersections.
N/A = Not Applicable, these driveways only exist with the proposed project
Bold = deficient operations; Bold/italics = significant impact

Source: Fehr & Peers, 2008

~~Additionally, the side-street movement at the I-5 Southbound Ramp/French Camp Road intersection is projected to operate at LOS E during the AM peak hour and LOS F during the PM peak hour.~~ The I-5 Northbound Ramp/Mathews Road, French Camp Turnpike/Downing Avenue, and Manthey Road/French Camp Road intersections are projected to operate at LOS F during the AM peak hour and the PM peak hour. At the Wolfe Road/Howard Road intersection, and the McDougald Boulevard/French Camp Road intersection, the side-street movement is projected to operate at LOS E during the PM peak hour. ~~Both~~ These intersections are projected to operate at an overall unacceptable level during both peak hours.

With the addition of project traffic, the French Camp Road/~~McDougald Road~~Val Dervin Parkway intersection would degrade to an overall deficient ~~LOS F during the AM peak hour and LOS~~ E during the PM peak hour. This intersection would remain at an overall LOS F during the AM peak hour with or without the project. Side-street operations would also degrade to deficient operations during both peak hours. ~~Operations of the I-5 Southbound Ramp/French Camp Road intersection would also degrade to an overall unacceptable service level F with the addition of project traffic.~~ These are potentially significant impacts. No other intersections that are projected to operate acceptably without the project would degrade to unacceptable conditions.

The addition of project traffic could potentially impact ~~the~~ operation of the ~~six~~ four deficient intersections previously identified. Further review shows that the addition of project traffic would not increase average intersection delay by more than 5 seconds at the French Camp Turnpike/Downing Avenue, McDougald Boulevard/French Camp Road, and Wolf Road/Howard Road intersections. Therefore, the project impacts at ~~this~~ these locations are less than significant. However, the addition of project traffic would increase average intersection delay by more than 5-seconds at the ~~remaining five~~ following three intersections:

- Manthey Road/French Camp Road
- ~~I-5 Northbound Ramps/French Camp Road~~
- French Camp Road/Val Dervin Parkway
- ~~Manthey Road/Mathews Road~~
- I-5 Northbound Ramps/Mathews Road

Mitigation measures to address the project's significant impacts are presented in Section 4.7.4. Detailed service level calculations are presented in Appendix ~~E~~A.

Signal Warrants

The Peak Hour Volume Warrant (Warrant 3) of the MUTCD is used in this study as a supplemental analysis tool to assess operations at the unsignalized intersections and to access the need for signalization.[30] The results of the traffic signal warrant analysis are shown in Table 4.7-10. Detailed signal warrant worksheets are presented in Appendix ~~E~~A.

TABLE 4.7-10
NEAR-TERM CONDITION PEAK HOUR SIGNAL WARRANT ANALYSIS

		Peak Hour Warrant Met?		
	Intersection	**Existing**	**Near-Term Without Revised Project**	**Near-Term With Revised Project**
5.	French Camp Turnpike/Downing Avenue	Not Met	Met	Met
8.	Henry Long Boulevard/McDougald Boulevard	Not Met	Not Met	Not Met
9.	Henry Long Boulevard/Manthey Road	Not Met	Not Met	Not Met
11.	McDougald Boulevard/French Camp Road	Not Met	Not Met	Not Met
12.	Manthey Road/French Camp Road	Met	Met	Met
13.	I-5 Southbound Ramps/French Camp Road	Met	Traffic Signals are under construction at this location.	
14.	I-5 Northbound Ramps/French Camp Road	Met		
15.	French Camp Road/Val Dervin Parkway	Not Met	Met	Met
16.	Manthey Road/Yettner Road	Not Met	Not Met	Not Met
17.	Manthey Road/Mathews Road	Not Met	Not Met	Not Met
18.	I-5 Southbound Ramps/Mathews Road	Not Met	Met	Met
19.	I-5 Northbound Ramps/Mathews Road	Not Met	Met	Met
20.	Wolfe Road/Howard Road	Not Met	Not Met	Not Met

SOURCE: Federal Highway Administration, 2000

As shown in Table 4.7-10, four ~~additional~~ intersections would satisfy peak hour signal warrants in the Near-Term Without Revised Project and Near-Term With Revised Project scenarios, as compared to Existing Conditions:

- French Camp Turnpike/Downing Avenue
- Val Dervin Parkway/French Camp Road
- I-5 Southbound Ramps/Mathews Road
- I-5 Northbound Ramps/Mathews Road

~~With the addition of project traffic, the Henry Long Boulevard/McDougald Road and French Camp Road/McDougald Road intersections would satisfy the peak hour traffic signal warrant.~~ Although peak hour signal warrants are projected to be satisfied at the ~~Henry Long Boulevard~~I-5 Southbound Ramps/Mathews ~~McDougald Road intersection~~Road intersection with the addition of project traffic, this intersection is projected to operate at acceptable service levels with ~~all-way~~side-street stop-control. ~~Also, it should be noted that the French Camp Turnpike/Downing Avenue intersection would also operate acceptably with all-way stop-control.~~

Freeway Analysis

The I-5 freeway mainline segments from north of Downing Avenue to south of Mathews Road were analyzed based on the peak hour volumes shown in Table 4.7-11 and the LOS criteria shown

[30] See footnote 3.

in Table 4.7-3. The analysis results indicate that I-5 in the study area would continue to operate at LOS D or better during both peak hours with the addition of project traffic in the near-term scenario~~, except for the northbound segment of I-5 north of Downing Avenue during the PM peak hour, which would degrade to LOS E with the addition of project traffic. This is a potentially significant impact.~~. Detailed service level calculations are presented in Appendix ~~E~~A.

REVISED TABLE 4.7-11
NEAR-TERM PEAK HOUR FREEWAY ANALYSIS

			Without Revised Project			With Revised Project			
Segment	**Direction of Travel**	**Peak Hour**	**Volume**	**Density**	**LOS**	**Volume**	**Density**	**LOS**	**Percentage Increase**
North of Downing Avenue	North	AM	3,840	21	C	3,893	21	C	1.4
		PM	5,450	33	D	5,661	35	D	3.9
North of Downing Avenue	South	AM	5,230	30	D	5,315	32	D	1.6
		PM	4,780	27	D	4,979	29	D	4.2
North of French Camp Road	North	AM	2,950	16	B	2,998	16	B	1.6
		PM	4,830	27	D	5,020	29	D	3.9
North of French Camp Road	South	AM	4,640	26	C	4,717	26	D	1.7
		PM	3,790	21	C	3,969	22	C	4.7
South of French Camp Road	North	AM	2,680	15	B	2,763	15	B	3.1
		PM	4,460	25	C	4,655	27	D	4.4
South of French Camp Road	South	AM	4,370	24	C	4,422	24	C	1.2
		PM	3,440	19	C	3,647	20	C	6.0
South of Mathews Road	North	AM	3,600	20	C	3,685	20	C	2.3
		PM	3,770	20	C	3,969	22	C	5.3
South of Mathews Road	South	AM	3,920	21	C	3,973	22	C	1.4
		PM	3,310	18	B	3,521	20	C	6.4

Notes:
Density measured in passenger cars per mile per lane.
Mainline segment level of service based on vehicle density, according to the Highway Capacity Manual (Transportation Research Board, 2000).
Bold = deficient operations; Bold/italics = significant impact
Source: Fehr & Peers, 2008.

Future 2025 Analysis

This section discusses the method used to develop the Future 2025 traffic forecasts with and without the revised project, based on the *1990 General Plan*.

Planned Transportation Improvements

Several major roadway improvements are planned for the study area, as described in Table 4.7-12. Future lane configurations at the study intersection are shown on Figure 4.7-~~12~~410. These network modifications were used in developing the Future 2025 traffic forecasts.

Intersection Forecasts

Future 2025 intersection traffic forecasts were developed using the *1990 General Plan* traffic model, which reflects the build-out scenario envisioned in the *1990 General Plan.* The forecasting method is consistent with the method used in the *Revised Final Traffic Analysis Report for the Sperry Road*

Extension Project Report/Environmental Document, Fehr & Peers, July 2005. The Future 2025 Without Project forecasts are shown on Figure 4.7-~~1315~~12.

TABLE 4.7-12
PLANNED ROADWAY IMPROVEMENTS FOR 2025 SCENARIO

Location	Lane Configuration
I-5	Eight lanes north of French Camp Road Six lanes south of French Camp Road
French Camp Road	Six lanes west of I-5 interchange Eight lanes east of the I-5 interchange
I-5/French Camp Road Interchange	Construction of an L-9 Interchange including loop on-ramps in the southeast and northwest quadrants. In conjunction with this improvement, Manthey Road would be realigned to the west and Val Dervin Parkway to the east across from the Sperry Road/French Camp Road intersection.
El Dorado Street	Six lanes north of the proposed Sperry Road extension Four lanes south of the proposed Sperry Road extension
Sperry Road/Arch-Airport Road	Eight lanes

SOURCE: City of Stockton 1990 General Plan, Capital Improvement Program 2005-2010 and City-wide Traffic Model for the 1990 General Plan.

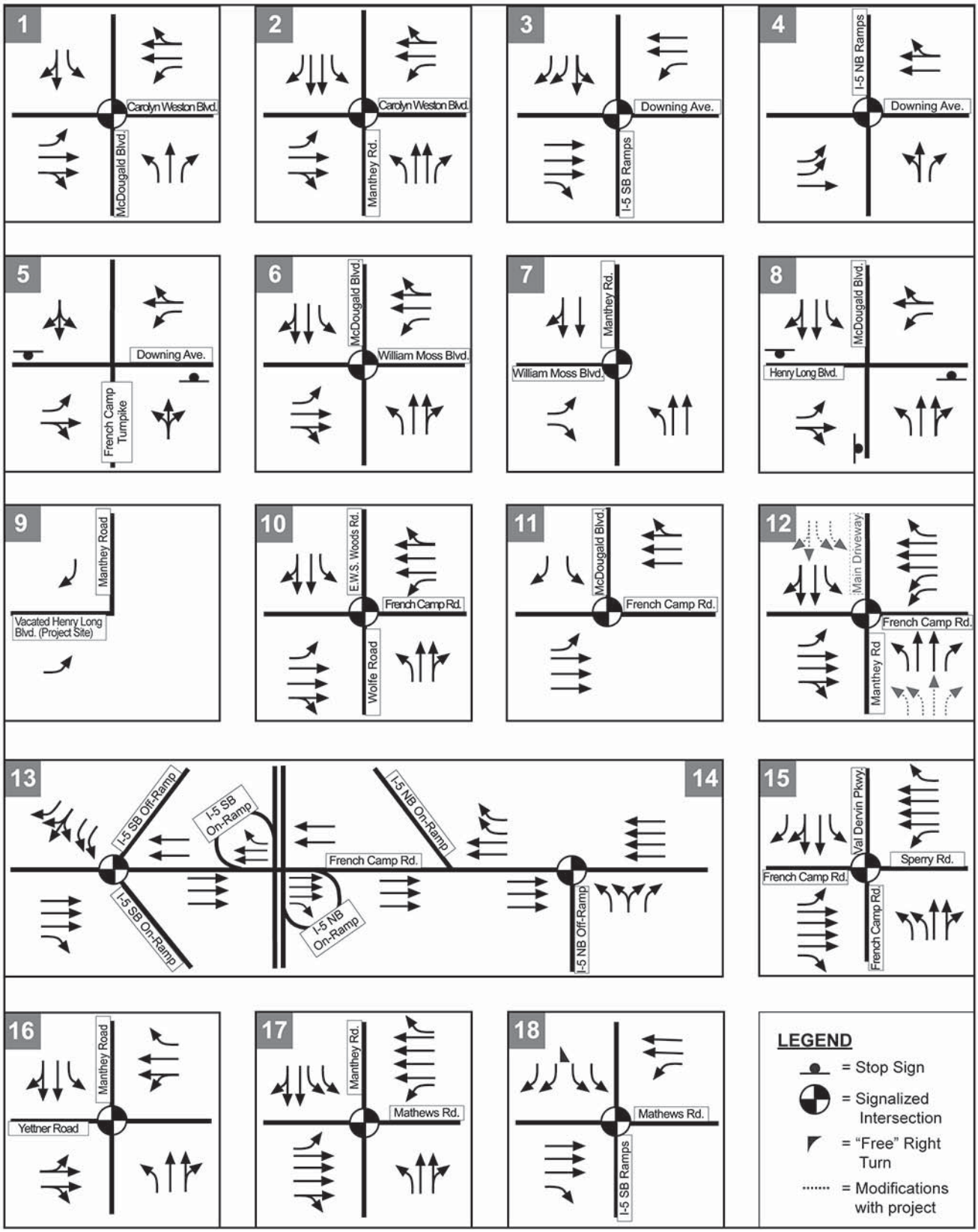
The peak hour project traffic volumes ~~from Figure 4.7-8~~ were added to the Future 2025 without project volumes to determine Future 2025 traffic volumes with the project, as shown on Figure 4.7-~~141~~~~6~~13.

Analysis of Future 2025 Conditions

Intersection Analysis

The Future 2025 without project conditions intersection analysis results are shown in Table 4.7-13. The results indicate that most study intersections would operate at acceptable LOS ranges (i.e., LOS D or better). ~~The Manthey Road/Mathews Road intersection is projected to operate at an overall LOS F during the PM peak hour prior to the addition of project traffic. The project would worsen PM peak hour operation at this intersection.~~ Side-street operations at the Mathews Road/I-5 northbound ~~and southbound~~ ramp intersection~~s~~ would ~~also~~ be deficient, although the intersection~~s~~ ~~are~~is projected to operate at an overall acceptable service level, even with the addition of project traffic.

A queuing analysis was also conducted for the intersections on French Camp Road between Manthey Road and Val Dervin Parkway. Results of this analysis show that the vehicle queues through the I-5 interchange area are expected to be contained within the proposed vehicle storage. Vehicle queues at the Downing Avenue interchange are expected t be maintained within the available storage area. ~~Mitigation measures to address the project's significant impacts are presented in Section 4.7.4.~~



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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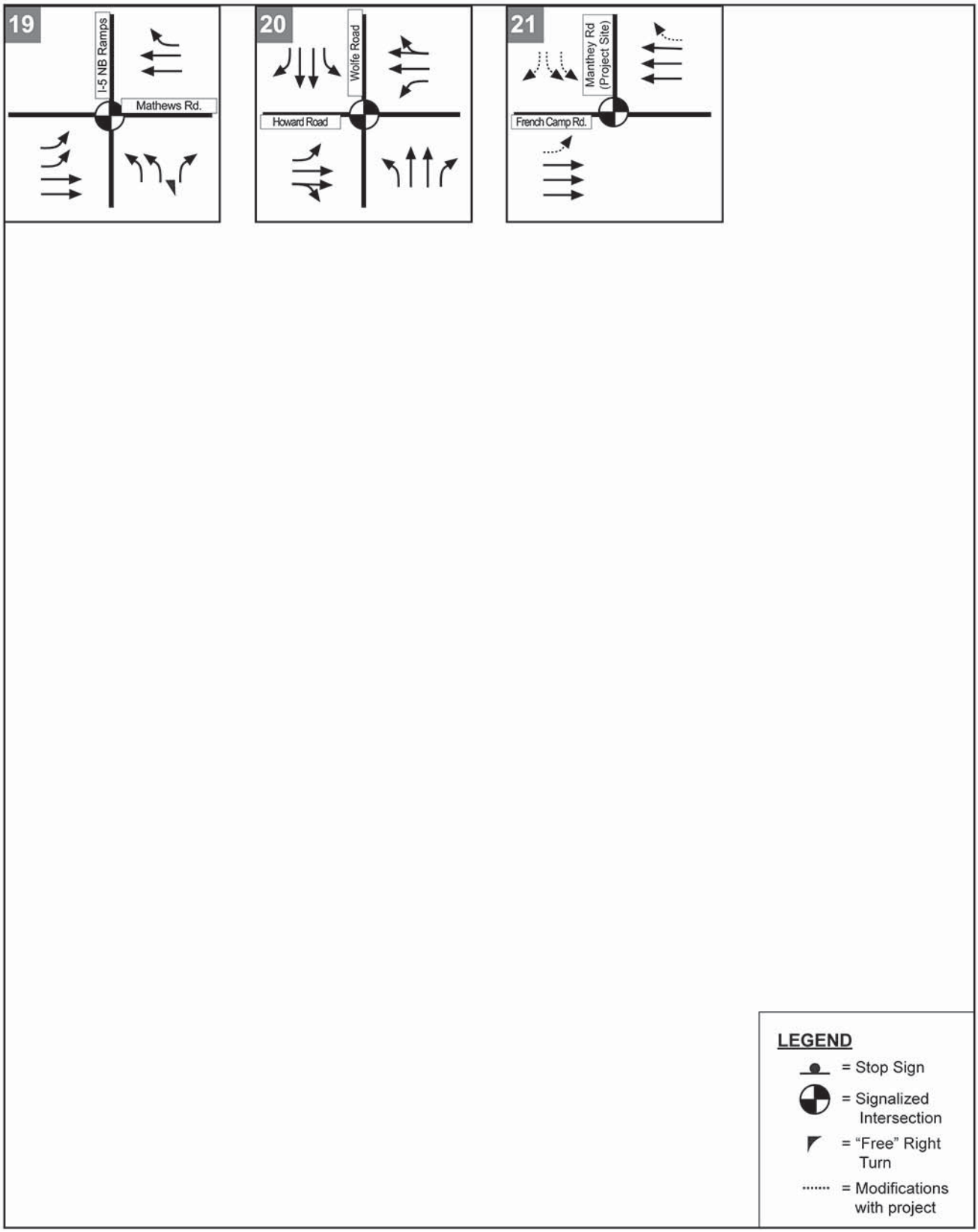
Revised Figure 4.7-14a

2035 Cumulative Lane Configurations and Traffic Control



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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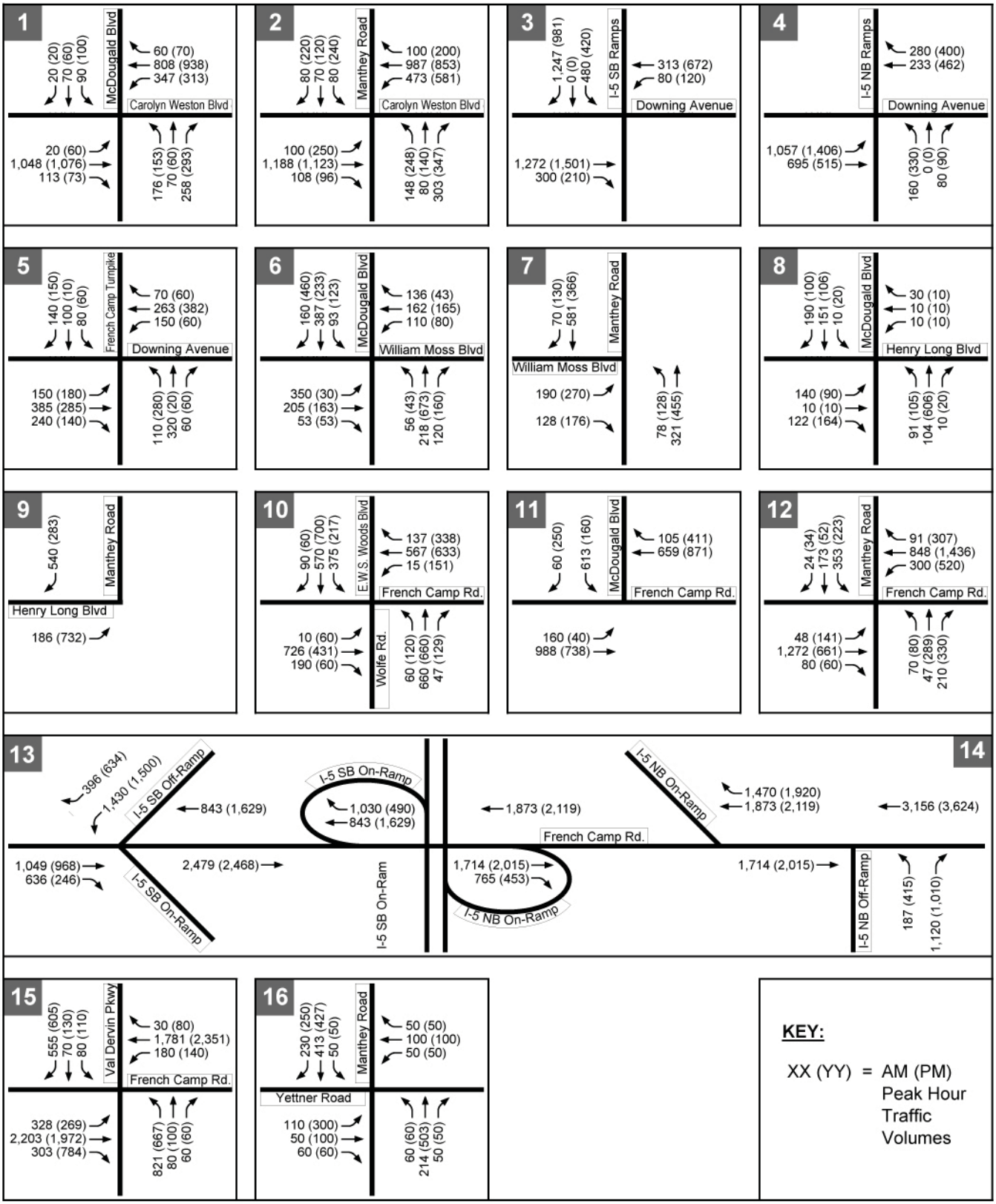
Revised Figure 4.7-14b

2035 Cumulative Lane Configurations and Traffic Control



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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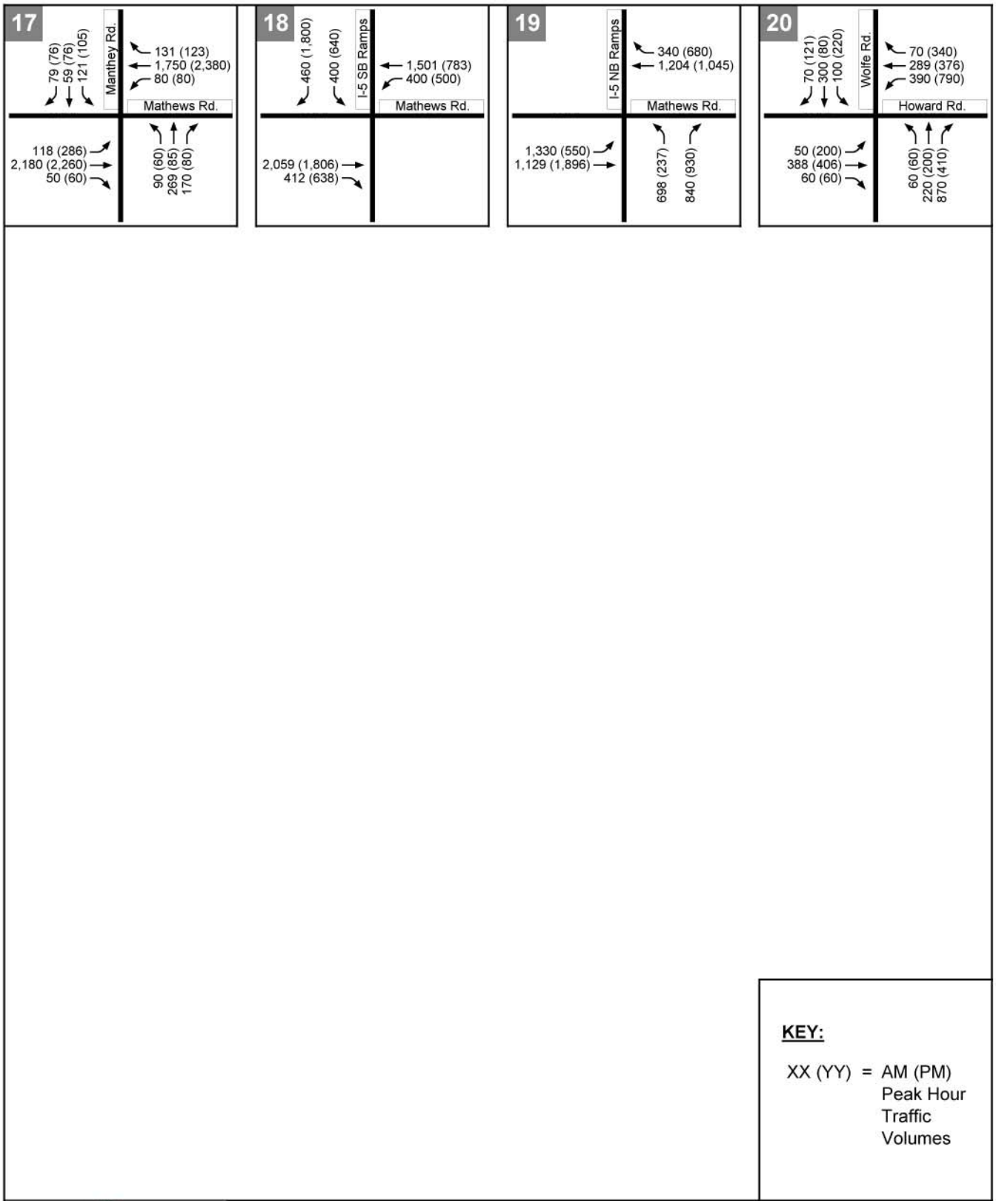
Revised Figure 4.7-15a

2035 Cumulative Without Project Peak Hour Traffic Volumes



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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Revised Figure 4.7-15b

2035 Cumulative Without Project Peak Hour Traffic Volumes

Signal Warrants

The Peak Hour Volume Warrant (Warrant 3) from the MUTCD is used in this study as a supplemental analysis tool to assess operations at the unsignalized intersections.[31] The results of the traffic signal warrant analysis are shown in Table 4.7-14.

~~The peak hour signal warrants would be satisfied at the Manthey Road/Mathews Road and I-5 Southbound Ramp/Mathews Road intersections in the Future 2025 Without Project scenario. No additional intersections are expected to satisfy peak hour signal warrants with the addition of project traffic.~~The results show that the peak hour warrant would not be satisfied at any additional intersections with development of the project. Additionally, with improvements recently installed at the Manthey Road/Mathews Road intersection, the peak hour signal warrants would no longer be satisfied in the 2025 Cumulative Condition, either without or with the project.

REVISED TABLE 4.7-13
2025 CUMULATIVE PEAK HOUR INTERSECTION OPERATIONS

	Intersection	Control	Peak Hour	Future 2025 Without Revised Project		Future 2025 With Revised Project	
				Delay	LOS	Delay	LOS
1.	McDougald Boulevard/ Carolyn Weston Boulevard	Signal	AM	28	C	28	C
			PM	23	C	23	C
2.	Manthey Road/Carolyn Weston Boulevard	Signal	AM	34	C	35	C
			PM	44	D	46	D
3.	I-5 Southbound Ramps/ Downing Avenue	Signal	AM	12	B	13	B
			PM	16	B	16	B
4.	I-5 Northbound Ramps/ Downing Avenue	Signal	AM	11	B	11	B
			PM	16	B	16	B
5.	French Camp Turnpike/Downing Avenue	SSSC	AM	5 (27)	A (D)	5 (27)	A (D)
			PM	7 (31)	A (D)	7 (31)	A (D)
6.	McDougald Boulevard/ William Moss Boulevard	Signal	AM	20	B	20	B
			PM	21	C	21	C
7.	Manthey Road/William Moss Boulevard	Signal	AM	25	B	25	B
			PM	27	B	35	B
8.	McDougald Boulevard/Henry Long Boulevard	AWSC	AM	17	C	17	C
			PM	22	C	23	C
10.	Wolfe Road/EWS Woods Boulevard/French Camp Road	Signal	AM	27	C	27	C
			PM	32	C	33	C
11.	McDougald Boulevard/French Camp Road	Signal	AM	25	C	25	C
			PM	17	B	18	B
12.	Manthey Road/French Camp Road	Signal	AM	20	B	20	C
			PM	22	C	24	D
13.	I-5 Southbound Ramps/ French Camp Road	Signal	AM	26	C	26	C
			PM	25	B	26	C
14.	I-5 Northbound Ramps/ French Camp Road	Signal	AM	7	A	7	A
			PM	10	A	14	B
15.	French Camp Road/Val Dervin Parkway/Sperry Road	Signal	AM	23	C	23	C
			PM	40	D	45	D
16.	Manthey Road/Yettner Road	SSSC	AM	2 (16)	A (C)	2 (17)	A (C)
			PM	2 (16)	A (C)	2 (17)	A (C)
17.	Manthey Road/ Mathews Road	AWSC	AM	14	B	14	B
			PM	17	C	17	C

[31] See footnote 3.

REVISED TABLE 4.7-13
2025 CUMULATIVE PEAK HOUR INTERSECTION OPERATIONS

	Intersection	Control	Peak Hour	Future 2025 Without Revised Project		Future 2025 With Revised Project	
				Delay	LOS	Delay	LOS
18.	I-5 Southbound Ramps/ Mathews Road	SSSC	AM PM	14 (24) 3 (14)	B (C) A (B)	14 (25) 3 (14)	B (C) A (B)
19.	I-5 Northbound Ramps/ Mathews Road	SSSC	AM PM	9 (45) 11 (> 50)	A (E) A (F)	9 (47) 14 (> 50)	A (E) A (F)
20.	Wolfe Road/Howard Road	SSSC	AM PM	2 (13) 3 (19)	A (B) A (C)	2 (13) 3 (20)	A (B) A (C)
21.	Secondary Project Driveway/French Camp Road	Signal	AM PM	N/A	N/A	18 28	B C

Notes:

Signal = signalized intersection; SSSC = side street stop-controlled intersection; AWSC = all-way stop-controlled intersection
Delay for intersection average (worst movement) at SSSC intersections; N/A = Not Applicable, this driveway only exists with the proposed project

Bold = deficient operations; Bold/italics = significant impact

The analysis of the reduced project changes the delay for the "no project" scenario at certain intersections. The change is not significant, and results from the assumption that additional development north of Henry Long Blvd. may occur by 2025.

Source: Fehr & Peers, 2008.

TABLE 4.7-14
~~FUTURE~~ 2025 CUMULATIVE PEAK HOUR SIGNAL WARRANT ANALYSIS

	Intersection	Peak Hour Warrant Met? Future 2025 Without Revised Project	Future 2025 With Revised Project
5.	French Camp Turnpike/Downing Avenue	Not Met	Not Met
8.	McDougald Boulevard/Henry Long Boulevard	Not Met	Not Met
9.	Manthey Road/Henry Long Boulevard	Not Met	Not Met
16.	Manthey Road/Yettner Road	Not Met	Not Met
17.	Manthey Road/Mathews Road	Not Met	Not Met
18.	I-5 Southbound Ramps/Mathews Road	Met	Met
19.	I-5 Northbound Ramps/Mathews Road	Not Met	Not Met
20.	Wolfe Road/Howard Road	Not Met	Not Met

SOURCE: Fehr & Peers, 2008.~~Federal Highway Administration, 2000~~

Freeway Analysis

The I-5 freeway mainline segments from north of Downing Avenue to south of Mathews Road were analyzed based on the peak hour volumes shown in Table 4.7-15, assuming that I-5 was widened to eight lanes north of French Camp Road by 2025. The analysis results indicate that I-5 in the study area would continue to operate at LOS D or better during both peak hours with the addition of project traffic in the Future 2025 scenario. Detailed service level calculations are presented in Appendix ~~E~~A.

REVISED TABLE 4.7-15
2025 CUMULATIVE PEAK HOUR FREEWAY ANALYSIS

			Future 2025 Without Project			Future 2025 With Project			
Segment	Direction of Travel	Peak Hour	Volume	Density	LOS	Volume	Density	LOS	Percentage Increase
North of Downing Avenue	North	AM	4,330	17	B	4,383	17	B	1.2
		PM	6,760	27	D	6,971	28	D	3.1
North of Downing Avenue	South	AM	6,590	26	D	6,675	27	D	1.3
		PM	4,780	18	C	4,979	19	C	4.1
North of French Camp Road	North	AM	3,960	15	B	4,008	16	B	1.2
		PM	6,140	24	C	6,330	25	C	3.1
North of French Camp Road	South	AM	6,030	24	C	6,107	24	C	1.3
		PM	4,320	17	B	4,499	17	B	4.1
South of French Camp Road	North	AM	3,340	17	B	3,423	18	B	2.5
		PM	5,200	28	D	5,395	30	D	3.8
South of French Camp Road	South	AM	5,050	27	D	5,112	27	D	1.0
		PM	3,680	19	C	3,887	20	C	5.6
South of Mathews Road	North	AM	3,250	17	B	3,335	17	B	2.6
		PM	5,070	27	D	5,269	29	D	3.9
South of Mathews Road	South	AM	4,930	26	C	4,983	26	C	1.1
		PM	3,580	18	C	3,791	20	C	5.9

Notes:

Density measured in passenger cars per mile per lane.
Mainline segment level of service based on vehicle density, according to the Highway Capacity Manual (Transportation Research Board, 2000).

Bold = deficient operations; Bold/italics = significant impact

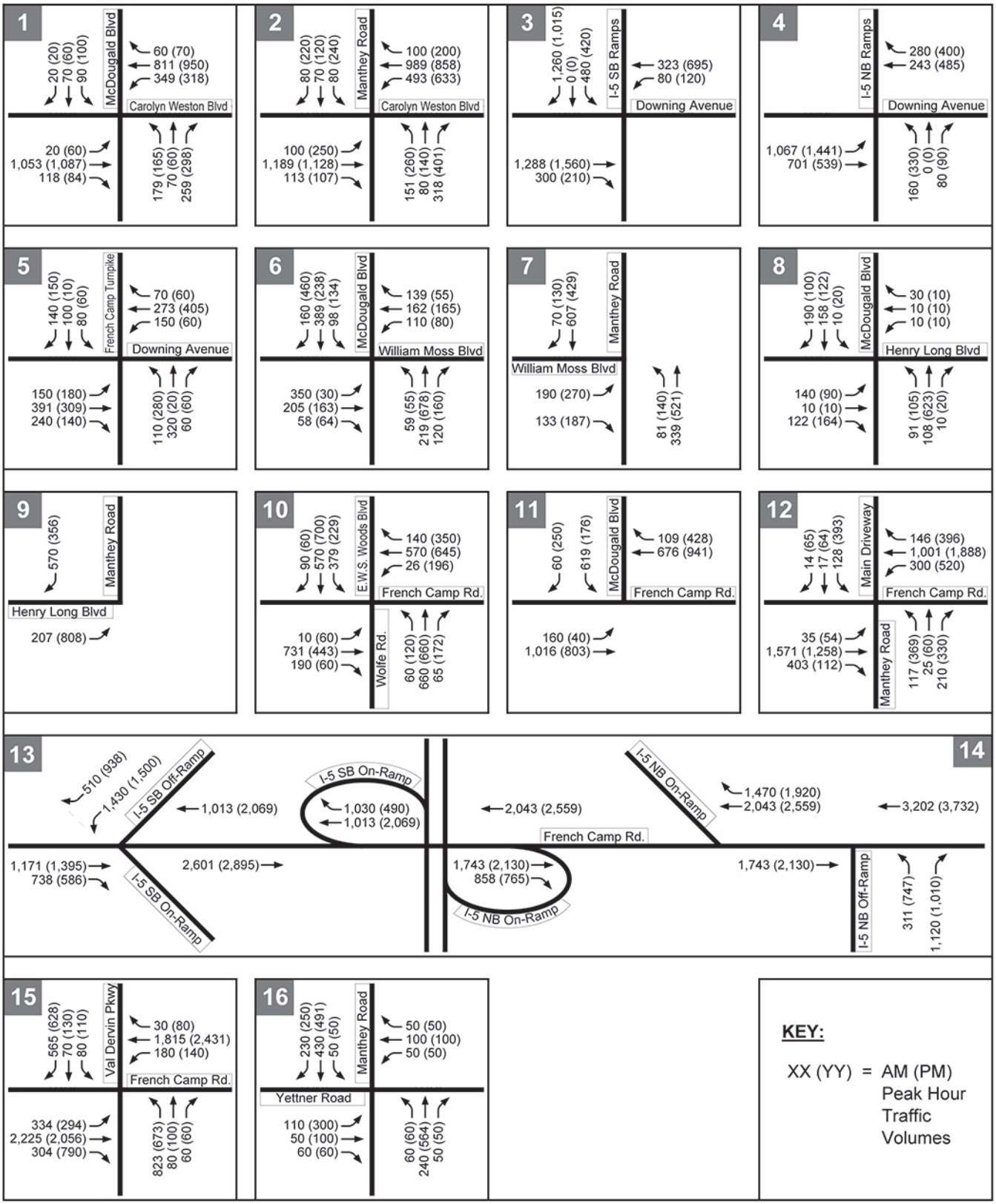
Source: Fehr & Peers, 2008

Future 2035 Analysis

This section discusses the method used to develop the Future 2035 traffic forecasts with and without the revised project, based on the *2035 General Plan*. The DEIR included a 2035 traffic impact analysis in Appendix E.

Planned Transportation Improvements

Several major roadway improvements are planned for the study area, as described in Table 4.7-16. Future lane configurations at the study intersection are shown on Figure 4.7-14. These network modifications were used in developing the Future 2035 traffic forecasts.



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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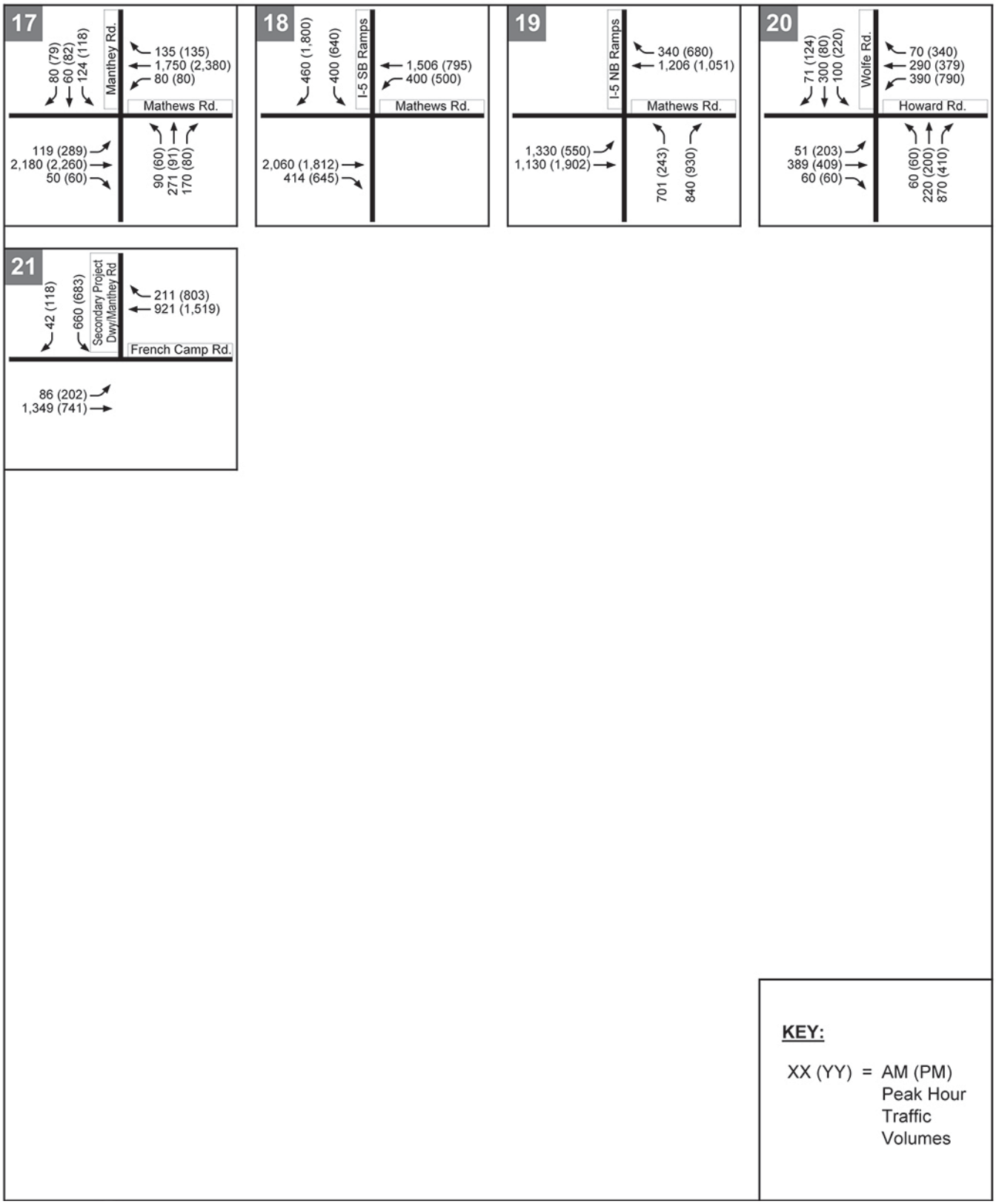
Revised Figure 4.7-16a

2035 Cumulative With Project Peak Hour Traffic Volumes



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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Revised Figure 4.7-16b

2035 Cumulative With Project Peak Hour Traffic Volumes

NEW TABLE 4.7-16
PLANNED ROADWAY IMPROVEMENTS FOR 2035 SCENARIO

Location	Lane Configuration
I-5	Ten lanes between Downing Avenue and Mathews Road
French Camp Road	Eight lanes between Manthey Road and Sperry Road Six Lanes between Wolfe Road and Manthey Road
I-5/French Camp Road Interchange	Construction of an L-9 Interchange including loop on-ramps in the southeast and northwest quadrants. In conjunction with this improvement, Manthey Road would be realigned to the west and Val Dervin Parkway to the east across from the Sperry Road/French Camp Road intersection.
El Dorado Street	Six lanes north of the proposed Sperry Road extension Four lanes south of the proposed Sperry Road extension
Manthey Road	Four lanes between Carolyn Weston Boulevard and Mathews Road
Sperry Road/Arch-Airport Road	Eight lanes between French Camp Road and Airport Way
Mathews Road	Eight lanes from west of Manthey Road to I-5 Six lanes from west of Manthey Road to Wolfe Road
I-5/Mathews Road Interchange	Construction of a diamond interchange with a seven-lane cross section (including turn lanes) under the freeway, and northbound and southbound free right-turn lanes.

Source: City-wide Traffic Model for the 2035 General Plan Update, conversations with City staff.

Intersection Forecasts

Future 2035 intersection traffic forecasts were developed using the *2035 General Plan* traffic model, which reflects the build-out scenario envisioned in the *2035 General Plan*. The forecasting method is consistent with the method used in the Revised Final Traffic Analysis Report for the Sperry Road Extension Project Report/Environmental Document, Fehr & Peers, July 2005. The Future 2035 Without Project forecasts are shown on Figure 4.7-15.

The peak hour project traffic volumes were added to the Future 2035 without project volumes to determine Future 2035 traffic volumes with the project, as shown on Figure 4.716.

Analysis of Future 2035 Conditions

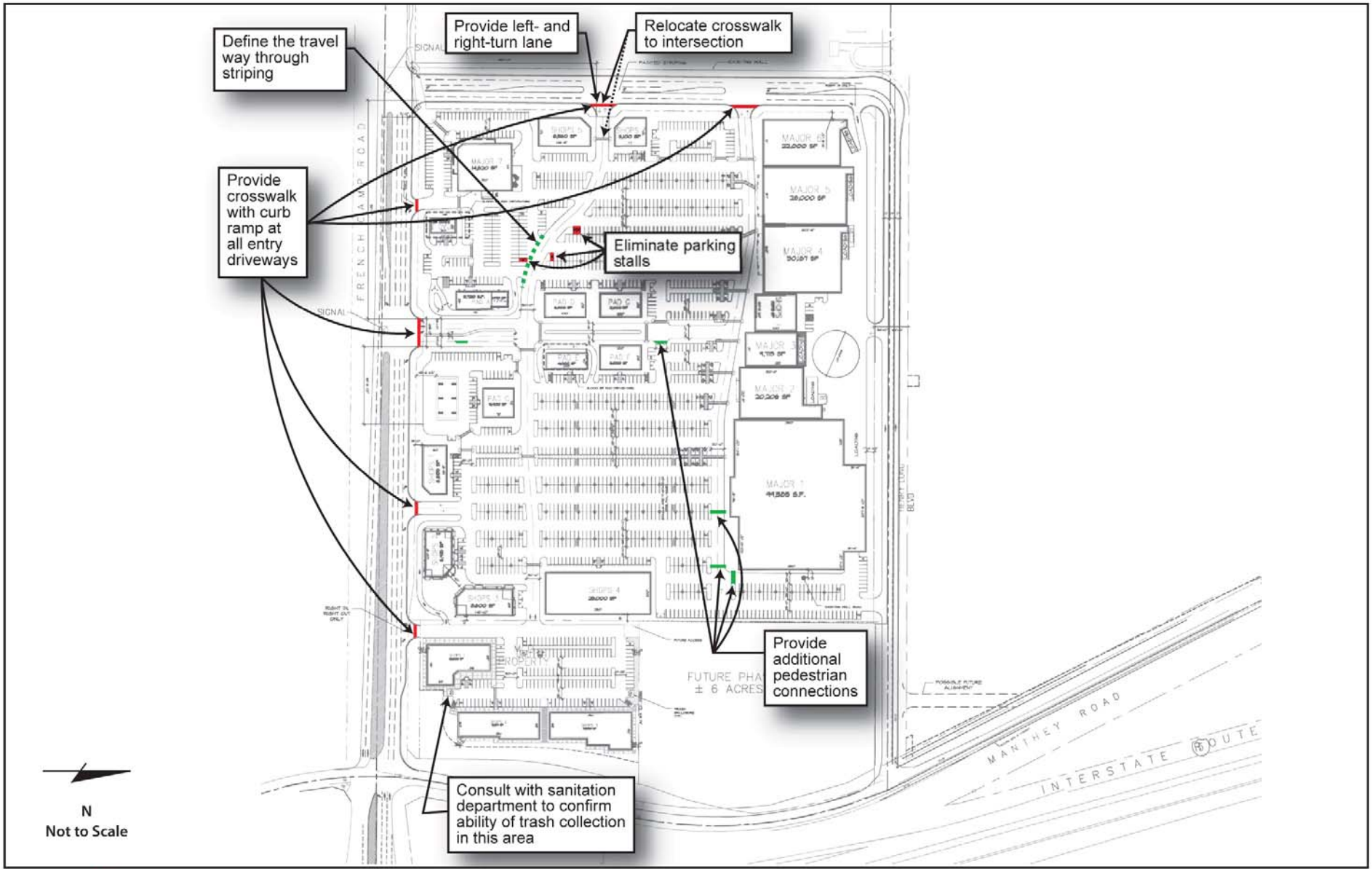
Intersection Analysis

The Future 2035 without revised project conditions intersection analysis results are shown in Table 4.7-17. The results indicate that most study intersections would operate at acceptable LOS ranges (i.e., LOS D or better). The French Camp Turnpike/Downing Avenue intersection is projected to operate at an overall LOS F during the AM and PM peak hours prior to the addition of project traffic. Mitigation measures to address the project's significant impacts are presented in Section 4.7.4.

NEW TABLE 4.7-17
2035 CUMULATIVE PEAK HOUR INTERSECTION OPERATIONS

	Intersection	Control	Peak Hour	Future 2035 Without Revised Project Delay	Future 2035 Without Revised Project LOS	Future 2035 With Revised Project Delay	Future 2035 With Revised Project LOS
1.	McDougald Boulevard/ Carolyn Weston Boulevard	Signal	AM	41	D	41	D
			PM	41	D	42	D
2.	Manthey Road/Carolyn Weston Boulevard	Signal	AM	32	C	32	C
			PM	43	D	45	D
3.	I-5 Southbound Ramps/ Downing Avenue	Signal	AM	21	C	21	C
			PM	22	C	23	C
4.	I-5 Northbound Ramps/ Downing Avenue	Signal	AM	16	B	16	B
			PM	36	D	40	D
5.	French Camp Turnpike/Downing Avenue	SSSC	AM	> 50 (> 50)	F (F)	> 50 (> 50)	F (F)
			PM	> 50 (>50)	F (F)	> 50 (>50)	F (F)
6.	McDougald Boulevard/ William Moss Boulevard	Signal	AM	25	C	25	C
			PM	23	C	23	C
7.	Manthey Road/William Moss Boulevard	Signal	AM	22	B	25	C
			PM	20	B	24	C
8.	McDougald Boulevard/Henry Long Boulevard	AWSC	AM	11	B	11	B
			PM	13	B	14	B
10.	Wolfe Road/EWS Woods Boulevard/French Camp Road	Signal	AM	33	C	34	C
			PM	30	C	31	C
11.	McDougald Boulevard/French Camp Road	Signal	AM	26	C	26	C
			PM	16	B	16	B
12.	Primary Project Driveway/French Camp Road/Manthey Road (east)	Signal	AM	26	C	23	C
			PM	27	C	40	D
13.	I-5 Southbound Ramps/ French Camp Road	Signal	AM	24	C	24	C
			PM	27	C	28	C
14.	I-5 Northbound Ramps/ French Camp Road	Signal	AM	16	B	16	B
			PM	9	A	16	B
15.	French Camp Road/Val Dervin Parkway	Signal	AM	33	C	53	D
			PM	38	D	41	D
16.	Manthey Road/Yettner Road	SSSC	AM	20	B	20	B
			PM	27	C	29	C
17.	Manthey Road/ Mathews Road	AWSC	AM	24	C	24	C
			PM	24	C	25	C
18.	I-5 Southbound Ramps/ Mathews Road	SSSC	AM	15	B	15	B
			PM	24	C	24	C
19.	I-5 Northbound Ramps/ Mathews Road	SSSC	AM	45	D	45	D
			PM	13	B	16	B
20.	Wolfe Road/Howard Road	SSSC	AM	44	D	44	D
			PM	47	D	47	D
21.	Secondary Driveway/French Camp Road/Manthey Road (west)	Signal	AM	N/A	N/A	15	B
			PM			22	C

Notes:
Signal = signalized intersection; SSSC = side street stop-controlled intersection; AWSC = all-way stop-controlled intersection
Delay for intersection average (worst movement) at SSSC intersections; N/A = Not Applicable, this driveway only exists with the proposed project
Bold = deficient operations; Bold/italics = significant impact
Source: Fehr & Peers, 2008.



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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Revised Figure 4.7-17

Conceptual Project Site Plan – Consultant Recommendations

A detailed queuing analysis was also performed for the French Camp Road corridor between the proposed Sperry Road extension and Manthey Road, including the I-5 interchange under 2035 condition. The results are shown on Table 4.7-18. Results of this analysis show that vehicle queues could periodically spillback through the I-5 interchange area. Vehicle queues at the Downing Avenue interchange are expected to be maintained within the available storage area through 2035.

NEW TABLE 4.7-18
2035 PEAK HOUR QUEUING ANALYSIS

Intersection	Movement	Storage Length[1]	Without Revised Project		With Revised Project	
			AM	PM	AM	PM
French Camp Road/Main Entrance/Manthey Road	Westbound Left	400	200	225	250	375
	Westbound Through	800	175	250	275	675
	Westbound Right	400	50	125	50	125
	Southbound Left	250	175	150	100	225
French Camp Road/ I-5 Southbound Ramps	Southbound Left	500	350	425	425	450
	Southbound Right	500	250	375	350	425
	Eastbound Through	800	350	200	450	500
	Eastbound Right	600	275	75	250	150
	Westbound Through	900	575	725	375	475
French Camp Road/ I-5 Northbound Ramps	Northbound Left	300	125	325	200	***400***
	Eastbound Through	900	675	400	525	200
	Westbound Through	600	525	475	500	550

Notes:
95th percentile vehicle queues calculated using CORSIM.
Bold = deficient operations; Bold/italics = significant impact
Source: Fehr & Peers, 2008

NEW TABLE 4.7-19
2035 CUMULATIVE PEAK HOUR SIGNAL WARRANT ANALYSIS

Intersection	Peak Hour Warrant Met?	
	Future 2035 Without Revised Project	Future 2035 With Revised Project
5. French Camp Turnpike/Downing Avenue	Met	Met
8. McDougald Boulevard/Henry Long Boulevard	Not Met	Not Met

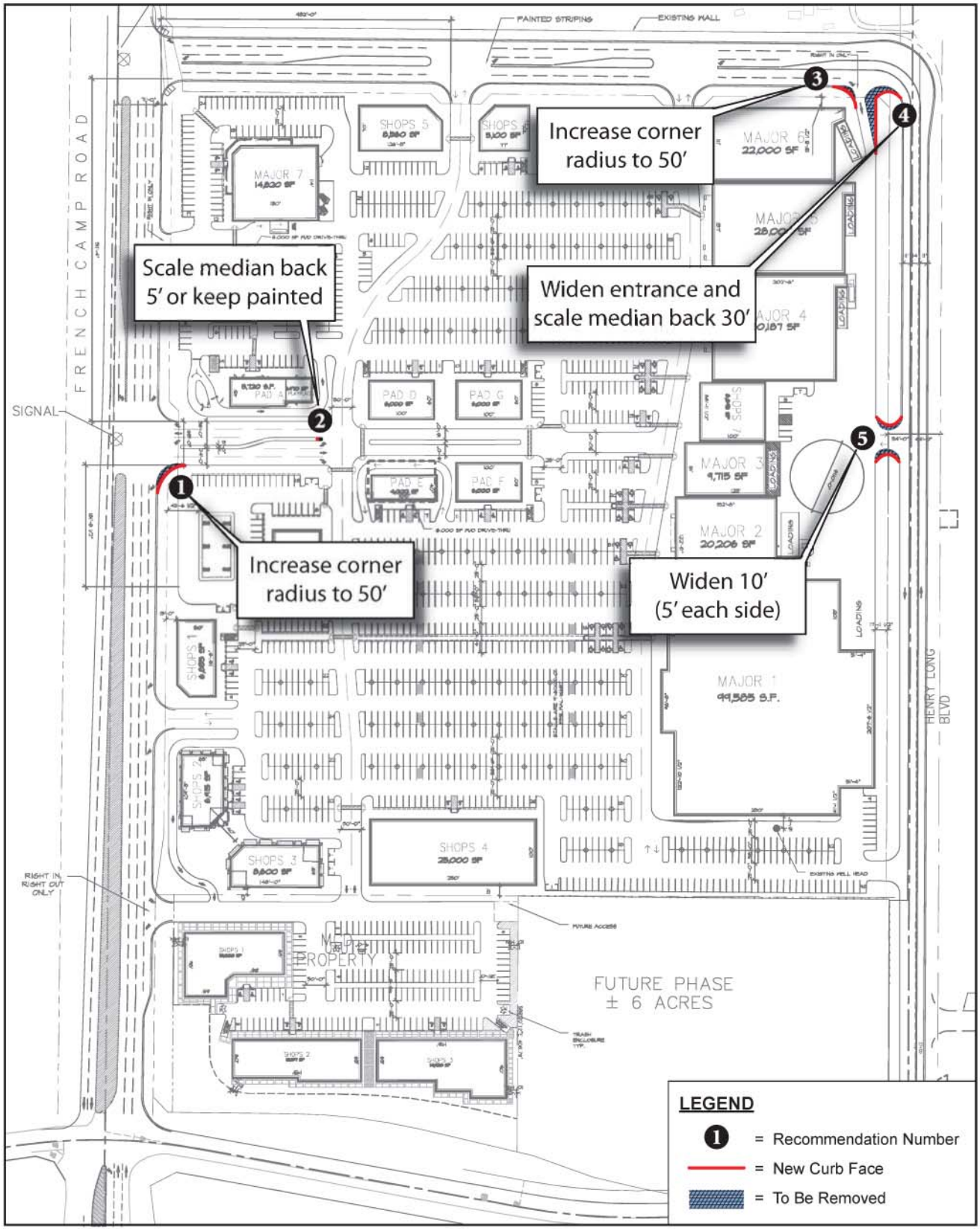
SOURCE: Fehr & Peers, 2008.

Signal Warrants

The Peak Hour Volume Warrant (Warrant 3) from the MUTCD is used in this study as a supplemental analysis tool to assess operations at the unsignalized intersections.[32] The results of the traffic signal warrant analysis are shown in Table 4.7-19.

The peak hour signal warrants would be satisfied at the French Camp Turnpike/Downing Avenue intersection in the Future 2035 Without Revised Project scenario. No additional intersections are expected to satisfy peak hour signal warrants with the addition of project traffic.

[32] See footnote 3.



SOURCE: Fehr & Peers, 2008; and ESA, 2008

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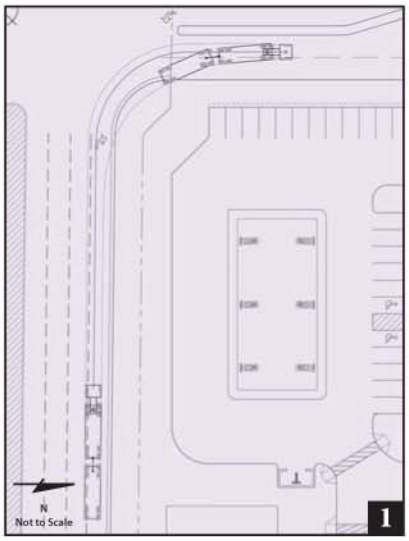
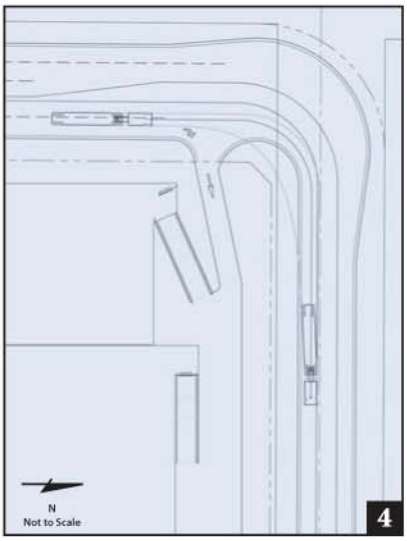
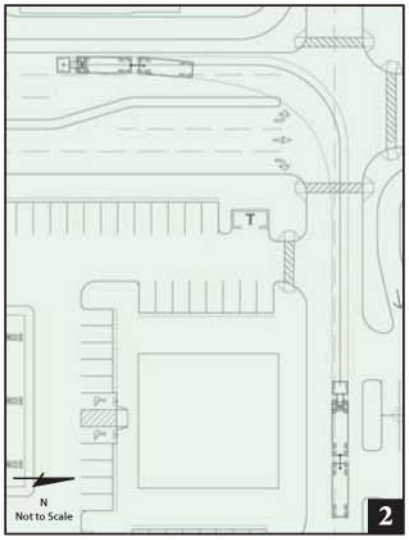
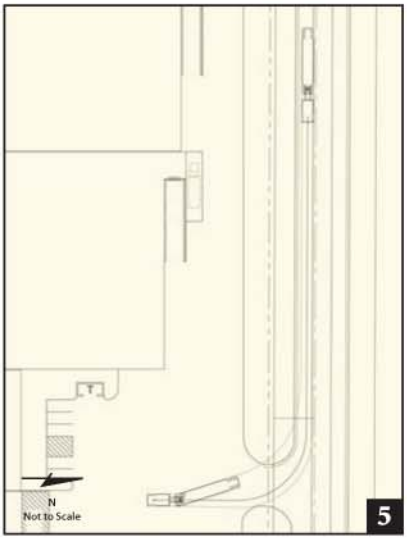
Revised Figure 4.7-18a

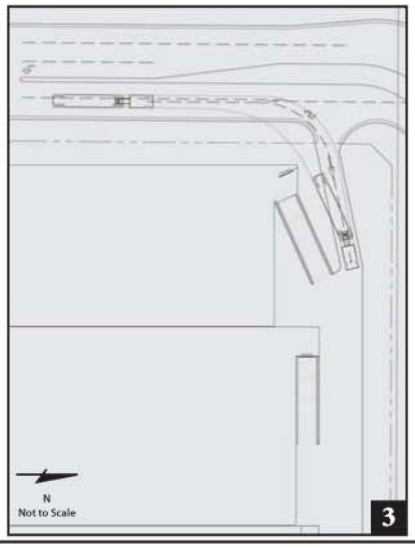
Recommendations to Improve Truck Circulation

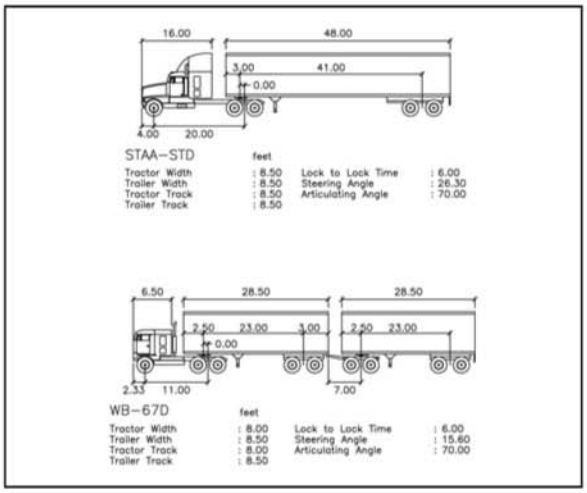












SOURCE: Fehr & Peers, 2008; and ESA, 2008

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Revised Figure 4.7-18b

Truck Turning Template

Freeway Analysis

The I-5 freeway mainline segments from north of Downing Avenue to south of Mathews Road were analyzed based on the peak hour volumes shown in Table 4.7-20, assuming that I-5 was widened to ten lanes through the study area by 2035. The analysis results indicate that most sections of I-5 in the study area would operate at LOS D or better during both peak hours with or without project traffic in the Future 2035 scenarios, with a few exceptions:

- I-5 northbound north of Downing Avenue would operate at LOS E during the PM peak hour without project traffic. This segment would degrade to LOS F with the addition of traffic from the Reduce Project Alternative, although the increase in traffic volumes would be less than 5 percent. Therefore, the project impact is considered less than significant.

- I-5 southbound north of Downing Avenue would operate at LOS E during both the AM and PM peak hours, both without and with the proposed project. The Revised Project Alternative would increase traffic volumes on this segment by less than 5 percent; therefore, the project impact is considered less than significant.

NEW TABLE 4.7-20
2035 CUMULATIVE PEAK HOUR FREEWAY ANALYSIS

			Future 2035 Without Revised Project			Future 2035 With Revised Project			
Segment	Direction of Travel	Peak Hour	Volume	Density	LOS	Volume	Density	LOS	Percentage Increase
North of Downing Avenue	North	AM	9,800	34	D	9,838	34	D	0.4
		PM	11,050	**43**	**E**	11,210	**> 45**	**F**	1.4
North of Downing Avenue	South	AM	10,880	**43**	**E**	10,941	**43**	**E**	0.6
		PM	10,930	**43**	**E**	11,072	**45**	**E**	1.3
North of French Camp Road	North	AM	8,670	28	D	8,704	28	D	0.4
		PM	9,550	33	D	9,686	33	D	1.4
North of French Camp Road	South	AM	9,500	32	D	9,555	33	D	0.6
		PM	9,750	34	D	9,878	35	D	1.3
South of French Camp Road	North	AM	7,700	24	C	7,760	24	C	0.8
		PM	8,650	28	D	8,789	29	D	1.6
South of French Camp Road	South	AM	9,540	32	C	9,577	33	D	0.4
		PM	8,460	27	D	8,608	28	D	1.7
South of Mathews Road	North	AM	7,570	24	C	7,631	24	C	0.8
		PM	8,610	28	D	8,752	28	D	1.6
South of Mathews Road	South	AM	9,500	32	D	9,538	32	D	0.4
		PM	7,180	22	C	7,331	23	C	2.1

Notes:

Density measured in passenger cars per mile per lane.
Mainline segment level of service based on vehicle density, according to the Highway Capacity Manual (Transportation Research Board, 2000).

Bold = deficient operations; Bold/italics = significant impact

Source: Fehr & Peers, 2008

4.7.3 Site Plan Review

This chapter analyzes site access and internal circulation for vehicles, pedestrians, bicycles, transit, and emergency vehicles and also evaluates the proposed parking supply. The analysis ~~is based on projected near-term and 2025 traffic volumes~~considers the near-term and 2035 conditions on the public roadways adjacent to the site.

Site Access

Recommendations for project site access and on-site circulation, including recommended lane configurations and turn pocket storage lengths for intersection internal and adjacent to the site, are summarized on Figure 4.7-~~15a 20~~ 17~~for the near-term condition and Figure 4.7-15b for the 2025 condition~~. Each recommendation is discussed below.

Vehicle Access

The project would have ~~13~~ 9 vehicle access points from French Camp Road, realigned Manthey Road, and the vacated Henry Long Boulevard, plus a signalized intersection at French camp and realigned Manthey Road, as depicted on Figure 4.7-~~15a 20~~17~~and Figure 4.7-15b~~ :

1. Unsignalized right-in/right-out driveway on French Camp Road west of I-5 Southbound Ramps to MCD Property. ~~Signalized intersection at French Camp Road/Secondary Driveway~~
2. Unsignalized right-in/right-out driveway on French Camp Road between Shop 1 and Shop 2. ~~Unsignalized right-in/right-out driveway on French Camp Road west of Manthey Road~~
3. Signalized intersection on French Camp Road at Manthey Road (east) and Main Driveway. ~~Signalized intersection at realigned Manthey Road/French Camp Road~~
4. Unsignalized right-in/right-out driveway on French Camp Road between Major 7 and Pad B. ~~Unsignalized Manthey Road/Driveway A~~
5. Signalized intersection on French Camp Road at Manthey Road (west). ~~Unsignalized Manthey Road/Driveway B~~
6. Unsignalized full access driveway on Manthey Road between Shop 5 and Shop 6. ~~Signalized Manthey Road/Driveway C~~
7. Unsignalized full access driveway on Manthey Road at Major 6. ~~Unsignalized Manthey Road/Driveway D (right-in/right-out only)~~
8. Unsignalized right-turn in only driveway on Manthey Road behind Major 6 (delivery access only). ~~Signalized Manthey Road/Vacated Henry Long Boulevard (west intersection)~~
9. Unsignalized Henry Long Boulevard/Service Entrance. ~~Unsignalized Driveway F/Vacated Henry Long Boulevard~~
10. Unsignalized Henry Long Boulevard/Secondary Driveway. ~~Unsignalized Driveway G/Vacated Henry Long Boulevard~~
11. ~~Unsignalized Manthey Road/Vacated Henry Long Boulevard (east intersection)~~
12. ~~Unsignalized Manthey Road/Service Entrance 1~~
13. ~~Unsignalized Manthey Road/Service Entrance 2~~

PM peak hour operations of the main access locations (Intersections 1 through 7 above) were analyzed based on the projected traffic volumes ~~and the recommended lane configurations~~on the surrounding street work in the near-term and 2035 conditions. An AM peak hour analysis was not performed because AM peak hour trip generation for this proposed retail development is relatively low in comparison to the PM peak hour trip generation (at approximately 31 percent of PM peak hour trip generation). Detailed level of service analysis was not performed for Intersections 8, 9 and 10, as the volumes at these driveways are expected to be low. Intersections 8 and 9 were evaluated to ensure that large delivery vehicles can navigate the Project truck routes. Additionally, access to the proposed gas station for large vehicles was also evaluated.~~Traffic volumes at driveways where detailed analysis was not performed are expected to be low, due to the proposed location (serving delivery areas only).~~ Results of this analysis are presented in Table 4.7-~~16~~21. Recommendations for each location are discussed below and shown on Figure 4.7-~~15a 2017for the near-term condition and Figure 4.7-15b for the 2025 condition~~.

REVISED TABLE 4.7-21
PM PEAK HOUR SITE ACCESS OPERATIONS

	Intersection	Traffic Control	With Recommended Lane Configuration and Traffic Control: Near-Term With Revised Project Delay	Near-Term With Revised Project LOS	2035 With Revised Project Delay	2035 With Revised Project LOS
1.	Right-in/right-out driveway on French Camp Road west of I-5 Southbound Ramps to MCD Property	SSSC	0 (17)	A (C)	0 (20)	A (C)
2.	Right-in/right-out driveway on French Camp Road between Shop 1 and Shop 2	SSSC	0 (16)	A (C)	0 (20)	A (C)
3.	French Camp Road at Manthey Road (east)	Signal	12	B	40	D
4.	Right-in/right-out driveway on French Camp Road between Major 7 and Pad B	SSSC	0 (10)	A (A)	0 (16)	A (C)
5.	French Camp Road at Manthey Road (west)	Signal	17	B	22	C
6.	Full access driveway on Manthey Road between Shop 5 and Shop 6	SSSC	7 (29)	A (D)	13 (>80)	B (F)
7.	Full access driveway on Manthey Road at Major 6	SSSC	6 (17)	A (C)	9 (>80)	A (F)
10.	Full access driveway on Manthey (Old Henry Long) at Major 1	SSSC	2 (10)	A (A)	1 (15)	A (B)

Note: Delay for intersection average (worst movement) at SSSC intersections.
Source: Fehr & Peers, 2008.

1. **Unsignalized right-in/right-out driveway on French Camp Road west of I-5 Southbound Ramps to MCD Property –** This driveway is proposed as a right-in/right-out driveway, with a right-turn pocket on French Camp Road. The right-turn pocket is expected to be approximately 150 feet long, including the taper, and would be part of a continuous right-turn pocket along the project frontage to the realigned Manthey Road (west) intersection. This intersection is expected to operate acceptably through 2035 with the proposed configuration. The proposed driveway throat is adequate to accommodate projected vehicle queues exiting the site and is not expected to affect

operations of the drive-through exit from Shop 2. ~~**French Camp Road/Secondary Entrance** – The recommended lane configuration and turn pocket storage lengths for this intersection is shown on Figure 4.7-15a for the near-term and Figure 4.7-15b for the 2025 condition. Interconnecting and coordinating the traffic signal at this location to the French Camp Road/Realigned Manthey Road intersection is recommended.~~

2. **Right-in/right-out driveway on French Camp Road between Shop 1 and Shop 2~~west of Manthey Road~~** – This driveway is proposed as a right-in/right-out driveway, with a right-turn pocket on French Camp Road extending back to Driveway 1. This intersection is expected to operate acceptably through 2035 with the proposed configuration. The proposed driveway throat is adequate to accommodate projected vehicle queues exiting the site and is not expected to affect operations of the internal drive aisles. ~~would serve a substantial amount of project traffic because it provides direct access to several uses including the proposed Wal-Mart building. The project applicant proposes to provide a right-turn lane on French Camp Road for vehicles using this driveway.~~

3. **French Camp Road at Manthey Road (east) and Main Driveway/~~Realigned Manthey Road~~** – This driveway would serve as the main entrance to the site and provide signalized access to French Camp Road. With construction of the interchange project, the southern leg of Manthey Road would be realigned opposite this driveway. In the near-term and Cumulative 2035 condition, the southbound vehicle queue is expected to be less than 200 feet, which would be accommodated by the proposed storage length of approximately 225 feet. Operation of this intersection would not affect operations of the main internal intersection. The eastbound left-turn into the site should provide 100 to 150 feet to vehicle storage. ~~The recommended lane configuration and turn pocket storage lengths for this intersection is shown on Figure 4.7-15a for the near-term and Figure 4.7-15b for the 2025 condition. Interconnecting and coordinating the traffic signal at this location to the French Camp Road/ Secondary Entrance intersection is recommended. The proposed design would allow for a southbound through lane to be converted to a left-turn lane, resulting in three left-turn lanes, and a through-right shared lane should future traffic volumes warrant a modified circulation scheme.~~

4. **Right-in/right-out driveway on French Camp Road between Major 7 and Pad B (Driveway 3)** – This driveway is proposed as a right-in/right-out driveway, with a right-turn pocket on French Camp Road, which would extend back to the main driveway intersection. This intersection is expected to operate acceptably through 2035 with the proposed configuration. The proposed driveway throat is adequate to accommodate projected vehicle queues exiting the site and is not expected to affect operations of the internal drive aisles.~~**Realigned Manthey Road/Driveway A** – This driveway is in close proximity (less than 300 feet) of the signalized French Camp Road/Realigned Manthey Road intersection. A northbound left-turn lane to provide access to the site is proposed. No left-turns from this driveway to Manthey Road would be permitted. A median would be constructed on Manthey Road to prevent outbound left-turn movements.~~

5. **French Camp Road at Manthey Road (west)** – This driveway is located approximately 600 feet from the signalized French Camp Road/Main Entrance intersection. This intersection is projected to operate acceptably through 2035 with the proposed lane configuration and traffic control. Vehicle queues for the southbound movement are not expected to spillback to the Manthey Road entry between Shop 5 and 6. The eastbound left-turn into the site should provide 100 to 150 feet to vehicle storage in the near-term condition and approximately 225 feet of vehicle

storage for the 2035 condition. The southbound left-turn pockets should provide approximately 175 feet of vehicle storage in the near-term condition and 250 feet of vehicle storage in the 2035 condition. ~~**Realigned Manthey Road/Driveway B** – This driveway is located approximately 400 feet from the signalized French Camp Road/Realigned Manthey Road intersection and would provide access to the eastern portion of site, currently proposed to contain approximately 90,000 square feet of retail uses. As currently proposed, this driveway would provide full access. A median refuge would be provided to facilitate left-turns from the driveway to Manthey Road.~~

6. **Full access driveway on Manthey Road between Shop 5 and Shop 6 (Driveway 4)** – This driveway is located approximately 430 feet north of the French Camp Road intersection, and is proposed to provide full access with side-street stop-control. This intersection would serve as a major access to the site as well as accommodate through traffic on Manthey Road. This intersection is expected to operate acceptably in the near-term as it is currently proposed. However, as traffic volumes increase on Manthey Road, delay is expected to increase for vehicles exiting the site, potentially spilling back past the internal drive aisles. The 95th percentile vehicle queue is estimated to be 10 vehicles in 2035. Providing separate left and right-turn lanes would reduce the 95th percentile vehicle queue to 7 vehicles. (The southbound left-turn pocket would accommodate projected vehicle queues). Therefore, it is recommended that the intersection provide separate left and right-turn lanes out of the site. ~~**Realigned Manthey Road/Driveway C** – This driveway would be a heavily used driveway to the proposed Wal-Mart and would also provide access to the other major retailer. As such, it is anticipated that vehicle turning movements would be substantial at this location. Although peak hour volume warrant would be satisfied during the PM peak hour at this location in both the near-term and 2025 condition, a traffic signal is not recommended for installation at this intersection due to its close spacing (approximately 800 feet) with the signalized French Camp Road/Manthey Road intersection and the proposed to be signalized intersection of Manthey Road/Vacated Henry Long Boulevard (approximately 400 feet). To accommodate projected vehicle queues from the parking areas, it is recommended that the east side of the intersection be reconfigured to provide stacking for at least 4 vehicles (100 feet), and that the west side be reconfigured to provide stacking for at least 6 vehicles (150 feet). Should the driveway be restricted to prevent left-turns from the parking area to Manthey Road, the stacking area on the east side could be reduced to 50 feet.~~

7. **Full access driveway on Manthey Road at Major 6 (Driveway 5)** – This driveway is proposed to provide full access. The intersection is projected to operate at an overall acceptable service level through 2035. The 95th percentile vehicle queue for the westbound movement out of the site is expected to be 7 to 8 vehicles, which can be accommodated within the proposed driveway throat.~~**Driveway D/Manthey Road Entrance** – This driveway is proposed to be right-in/ right-out only. Although this driveway is in close proximity to Driveway C and the intersection Manthey Road/Vacated Henry Long Boulevard (west intersection), volumes through this intersection are projected to be low and it is projected to operate acceptably with minimal queuing.~~

8. **Manthey Road/Right-in only Service Driveway** – This driveway is proposed to serve as a right-in only driveway to the service area behind Major 6. Modifications would be needed at this driveway to accommodate the turning radii of large trucks, as shown on Figure 4.7-18a~~16~~. ~~**Realigned Manthey Road/Vacated Henry Long Boulevard (west intersection)** – The peak hour volume warrant is satisfied during the PM peak hour at this location with projected volumes during both the near-term and cumulative~~

~~condition. With traffic signal installation, this intersection would operate at an acceptable service level in both the near-term and cumulative condition.~~

9. **Henry Long Boulevard/Service Driveway 1 –** This driveway is proposed to serve as a full access driveway for large delivery trucks. It is anticipated that most trucks would enter the site making a right-turn and exit the site making a left-turn to access I-5. This driveway has been designed to accommodate the turning radii of large trucks, as shown on Figure 4.7-18a. Henry Long Boulevard is expected to operate acceptably through 2035 as a two-lane roadway. ~~**Driveway F/Vacated Henry Long Boulevard** – It is recommended that the westbound approach be modified to provide a left-turn pocket. One westbound and one eastbound travel lanes should be provided on vacated Henry Long Boulevard.~~

10. **Henry Long Boulevard/Secondary Driveway –** This driveway is proposed to serve as a full access driveway. This driveway is not expected to be heavily used and would operate acceptably as proposed. Henry Long Boulevard is expected to operate acceptably through 2035 as a two-lane roadway.~~**Driveway G/Vacated Henry Long Boulevard** – It is recommended that the eastbound approach be modified to provide a left-turn pocket. One westbound and one eastbound travel lanes should be provided on vacated Henry Long Boulevard.~~

~~11. **Manthey Road/Vacated Henry Long Boulevard (east intersection)** – With development of the I-5/French Camp Road interchange project, Manthey Road would be rerouted through the project site and would continue along a portion of the vacated Henry Long Boulevard. The resulting intersection would operate with southbound right-turns and eastbound left-turns only, with no conflicting movements.~~

~~12. **Manthey Road/Service Entrance 1** – This driveway should be restricted to right-in/right-out operation only and should be side-street stop controlled.~~

~~13. **Manthey Road/Project Driveway** – A northbound left-turn pocket should be provided into this driveway in addition to side-street stop control. Additionally, it should be designed to accommodate the turning movements of large delivery vehicles.~~

~~**Vehicle Queuing 2025 Conditions**~~

~~In addition to a detailed evaluation of the site access locations, a detailed queuing analysis was performed for the French Camp Road corridor between the proposed Sperry Road extension and Manthey Road, including the I-5 interchange to determine if vehicle queues associated with project traffic would potentially impact operation of the freeway interchange under 2025 conditions. Table 4.7-17 22 summarizes the results based on CORSIM[33] analysis.~~

Pedestrian, Bicycle, and Transit Access

The project would include improvements to Manthey Road and French Camp Road, including roadway paving and construction of sidewalks, curbs, and gutters along the southern and ~~eastern~~ western property lines. Based on the *City of Stockton Existing and Future Bikeway Plan* dated April 26, 2002 (<www.stocktongov.com/parks/pdf/bikepath.pdf>), a Class I bicycle path would

[33] CORSIM is a micro-simulation tool used by engineers to evaluate intersection operations a system. Unlike macroscopic models, such as HCS and Synchro, the effects of turn pocket overflows, vehicle queue spillback, and the interaction of adjacent intersection are taken into consideration during operations analysis.

be constructed on French Camp Road along the project frontage and would be located within an 8-foot meandering sidewalk/path on the north and south sides of French Camp Road. Manthey Road is designated as a Class III bicycle route. These improvements would enhance bicycle and pedestrian access to the site and throughout the area. Although sidewalks would be provided on French Camp Road and Manthey Road along the project frontage with project implementation, pedestrian paths connecting the project site to the adjacent developments are not shown on the conceptual project site plan, dated ~~2006~~2008.

The San Joaquin Regional Transit District has requested that the project applicant provide appropriate transit features, including bus pull-outs on both Manthey Road and French Camp Road, with development of the project. Provision of bus pull-outs with appropriate transit amenities, such as bus shelters, would improve transit accommodation in the area. The location of the proposed bus-pullouts on French Camp Road~~ and Manthey Road should~~will be identified on the final project site plan and pedestrian connections from the site to bus facilities ~~should~~ will also be provided.

Emergency Access

Factors such as number of access points, roadway widths, and proximity to fire stations determine whether a project provides sufficient emergency access. The project provides multiple points of entry from two major roadways. If one of these roadways or entrances is blocked or obstructed, an emergency vehicle could use the other roadway or an alternate entrance to access the site. The internal project roadways have minimum lane widths of 25 feet with adjacent parking provided, which is adequate for emergency vehicle access. A fire station is located on Manthey Road, south of Carolyn Weston Boulevard, less than one mile from the project site, which would allow for timely emergency response to the project site. The applicant should consult with the City of Stockton fire department to ensure that the site plan provides adequate emergency access.

Other On-Site Circulation Considerations

On-site circulation was reviewed with respect to the following: internal intersection operations, drive aisles, throat depth, dead-end drive aisles, vehicle/pedestrian conflicts, delivery vehicles, and parking stall dimensions. Due to the limited detail of the site plan provided, only a general discussion of these elements is included. The City of Stockton *Municipal Code* is the basis for this analysis.

Internal Intersection Operations

Operation of the main internal intersection was evaluated, as it is the intersection of a main east-west internal drive aisle, and the main entryway. It is recommended that this intersection be stop sign controlled for the southbound, eastbound and westbound movements, to allow vehicles from French Camp Road unobstructed access into the site. The intersection is projected to operate at an overall acceptable service level with the proposed configuration. Additionally, the southbound vehicle queue at the signalized entry intersection on French Camp Road is not expected to spillback through the entry intersection.

Drive Aisles

The surface parking area provides major and minor circulation roadways. It appears that all aisles are at least 25 feet wide (the minimum width generally allowed for two-way travel with perpendicular parking), a sufficient width to accommodate vehicle circulation. In the western portion of the site, the east/west main aisle way, that starts at Manthey Road (west) between Shops 5 and 6, curves as it approaches Major 7. The parking aisles from this main aisle way are aligned such that vehicles parked at the end of the aisle could potentially back-out in the main aisle way, creating the potential for vehicle conflicts. Additionally, there is a large area on the northern portion of Major 7 where the roadway is undefined. The southern edge of the drive aisle should be marked so that vehicles remain in the appropriate travel way.~~Although drive aisles provide sufficient width, some aisles are offset with an opposing aisle, which creates potential sight distance constraints. These off-set locations should be eliminated, wherever possible.~~

Throat-Depth

Throat depth refers to the length of continuous curb extending from a project driveway into the project site before a curb break is provided. The continuous curb prevents vehicle queues at the driveway from obstructing internal site circulation. Generally, sufficient throat depth is provided at all driveways.~~At low volume driveways, a throat depth of approximately 50 feet (2 vehicles) is generally sufficient and is generally provided at the low volume driveways on Manthey Road and Vacated Henry Long Boulevard. However, insufficient throat depth would be provided at the Manthey Road/Driveway C intersection. The recommended throat depth is detailed under recommendations for intersection 6 above: 150 feet on the west side and 100 feet on the east side.~~

Dead-End Drive Aisles

Dead-end drive aisles are parking aisles that are obstructed at one end, thereby increasing difficulty navigating through the site. One dead-end drive aisle is shown on the MCD Property site, in the southeastern portion of the site. Fewer than 20 parking stalls are provided in this area and there appears to be sufficient space provided for a vehicle turn around in the loading/garbage area. Garbage trucks may have difficulty navigating this area if there are parked vehicles.~~No dead-end drive aisles are shown on the project site plan.~~

Vehicle/Pedestrian Conflicts

Pedestrian paths are proposed throughout the site. Pedestrian paths are proposed across the major drive aisles. However, there are some locations where the pedestrian path should be relocated, such as the one connecting Shops 5 and 6. This path is located at a mid-block location, approximately 100 feet from an intersection with Manthey Road (west). The pedestrian crossing should be relocated to the entry intersection, as vehicles may not expect a pedestrian crossing at the mid-block location. Additional pedestrian connections are recommended at Major 1.~~Sufficient detail is not provided on the site plan to ascertain the specific location of potential vehicle/pedestrian conflict points. A detailed review of the final plan is recommended to ensure that pedestrian crossings are provided and pedestrian paths are identified throughout the site.~~

Delivery Vehicles

Given the nature of the project, deliveries in large semi-trucks would be expected on a regular basis in addition to smaller delivery vehicles. Any large semi-truck deliveries should be scheduled for off-peak periods to minimize conflicts between delivery trucks and passenger vehicles. Recommendations to improve truck circulation and turning templates of large delivery vehicles through the site are shown on Figure 4.7-~~21~~18a and 18b. This assessment shows that fuel delivery trucks will be able to access the proposed gas station, although the turning radius at the truck access intersections on Manthey Road (west) and Henry Long Boulevard would have to be modified to provide for STAA trucks.~~Additionally, the project driveways should be designed to accommodate the turning radii of large delivery vehicles.~~

Truck counts at an existing Wal-Mart store show that the Wal-Mart portion of the project could expect to have ~~up to 40~~ approximately 20 deliveries per day, with approximately 50 percent heavy duty trucks, 40 percent medium duty trucks, and 10 percent light duty trucks. Although Wal-Mart retailers tend to have higher delivery truck volumes than other retailers, the other portions of the project were anticipated to have truck deliveries at the same ratio of deliveries to square footage as the Wal-Mart store for the purposes of this analysis, to present a worst-case estimate of truck traffic. This equates to approximately ~~60~~ 75 non Wal-Mart deliveries per day, for a total of ~~100~~ 95 delivery truck trips to the site. This level of truck trip generation was accounted for in the off-site analysis. Truck deliveries for buildings not served by the major loading area should be made by smaller delivery vehicles.~~Truck routes should be identified through the site and internal intersection and drive aisles should be designed to accommodate the turning radii of large delivery vehicles.~~

Trash Enclosures

The proposed location of the trash enclosures was also reviewed. It appears that most trash enclosures are accessible from multiple locations, except for one on the southeastern portion of the site on the MCD property. Here, the trash enclosure is located at the end of a dead-end drive aisle. The sanitation department should be consulted to verify if trash vehicles can access the area.

Parking Stall Dimensions

The City of Stockton requires that 90-degree-angle parking stalls be at least 19 feet long and 9 feet wide with 25-foot-wide drive aisles. ~~Parking stalls throughout the site appear to meet these design criteria.~~ A maximum of 25 percent of the site's parking can be designated "compact" spaces, with dimensions of 9 feet wide and 15 feet long. Parking stalls throughout the site appear to meet these design criteria.

Parking

The proposed on-site parking supply was compared to both City Code parking requirements and ITE parking demand rates.

City Code

City Code parking requirements were reviewed to ensure that the project would provide sufficient parking. Retail parking requirements fall into two different categories: one for retail under 400,000 square feet, and one for regional shopping centers—retail development over 400,000 square feet.

- 1 space per 250 square feet of retail space.
- For regional shopping centers over 400,000 square feet, the City of Stockton requires a minimum of 2,000 parking spaces plus one space for each 250 square feet over 400,000 square feet.

Although the current site plan shows 314,541 square feet for Phase 1 (Vestar) and Phase 2 (MCD), the off-site analysis was based on a total building square footage of ~~710,000~~ 481,000 square feet~~, the current site plan shows 600,489~~. Therefore, the parking requirements are based on a regional shopping center. Based on ~~600,489~~ 314,541 square feet of retail uses, the project is required to provide ~~2,802~~ 1,573 parking spaces, as shown in Table 4.7-~~18~~22.

REVISED TABLE 4.7-22
CITY CODE AUTOMOBILE PARKING REQUIREMENTS
(REGIONAL SHOPPING CENTER)

Land Use Type	Size	Parking Code Requirement	Parking Spaces Required
Retail (Phase 1)	304,045 SF	1 space per 200 square feet (<400,000)	1,521
Retail (Phase 2)	10,496	1 space per 200 square feet (<400,000)	52
Total requirement			1,573

SOURCE: City of Stockton Municipal Code 16-345.040

The site plan shows ~~2,929~~ 1,789 parking stalls for Phases 1 and 2 (1,639 for Phase I and 150 for Phase II). Subtracting the 75 park-and-ride spaces leaves 1,714 available spaces, which satisfies City Code parking requirements.

Parking Demand

Parking demand rates, as presented in ITE's *Parking Generation* (3rd Edition), were used to estimate peak parking demands for the project. Weekday and Saturday parking demand rates were reviewed and are presented in Table 4.7-~~19~~23. Rates are based on data collected on Fridays and Saturdays during December in order to present a worst-case scenario, as well as for a typical weekday and Saturday. The peak parking demand rates were applied to the proposed square footage of the Weston Ranch Towne Center.

As shown in Table 4.7-~~19~~23, it is expected that peak weekday parking demand during December would be approximately ~~2,408~~ 1,219 spaces, while peak Saturday parking demand would be ~~2,846~~ 1,441. During non-December months, peak weekday parking demand would be approximately 1,~~813~~ 918 spaces and peak Saturday demand would be approximately ~~1,783~~ 903

spaces. The project generally provides 10 to 15 percent more spaces than typical peak parking demand, which provides for a circulation efficiency factor. This allows patrons to find a parking space close to their ultimate destinations within the center and minimizes excessive circulation. Sufficient on-site parking is proposed to accommodate expected peak parking demand.

REVISED TABLE 4.7-23
PARKING DEMAND ANALYSIS

Land Use	Area (Square Feet)	Average Peak Weekday Parking Demand Rate (Per 1,000 Square Feet)	Average Peak Weekday Parking Demand	Average Peak Saturday Parking Demand Rate (Per 1,000 Square Feet)	Average Peak Saturday Parking Demand
Shopping Center	304,045	4.01[a] (December)	1,219	4.74[b] (December)	1,441
		3.02[c] (Non-December)	918	2.97[d] (Non-December)	903

Notes:
(a) Average parking demand rate for suburban shopping centers on Fridays during December.
(b) Average parking demand rate for suburban shopping centers on Saturdays during December.
(c) Average parking demand rate for suburban shopping centers on Fridays Non-December.
(d) Average parking demand rate for suburban shopping centers on Saturdays Non-December.
SOURCE: Institute of Transportation Engineers, 2004

Bicycle Parking

No bicycle parking is shown on the site plan. Based on City of Stockton Municipal Code 16-345.100, a minimum of one employee bicycle parking space for each ~~7,500~~25,000 square feet of gross floor area (~~80~~ 12 spaces) plus one bicycle parking space for each ~~40~~ 100 parking spaces (~~70~~ 16 spaces based on the city code vehicle parking requirements) is required. Therefore, based on a development of ~~600,489~~304,045 square feet and 1,639 parking stalls for Phase I, approximately ~~150~~ 28 bicycle parking spaces should be provided throughout the site. Phase 2, with 10,496 square feet and 150 spaces would require 2 bicycle spaces. The development standards for bicycle parking outlined in the City Municipal Code should be met.

Handicapped Accessible Parking

The site plan was reviewed to determine the number of handicap accessible parking spaces required for the site and its location. Based on City Code requirements, the project must provide at least ~~40~~ 32 handicap accessible stalls. The site plan shows at least this many accessible stalls. The stalls are well dispersed through the site adjacent to major building entries.~~It is recommended that additional parking stalls be designed/designated as handicap accessible and located in accessible areas throughout the site, as noted on Figure 4.7-15.~~

Park and Ride

The proposed project is located adjacent to the regional roadway network. As such, opportunities exist for an expansion of Park and Ride facilities within the City of Stockton. It is recommended that parking spaces be reserved for park and ride usage, Mondays through Fridays, excluding holidays. These spaces should be located adjacent to transit facilities proposed on ~~Manthey~~ French Camp Road. Based on discussions between the City of Stockton Community Development

Department and Public Works Department, the project will include 75 non-exclusive park-and-ride spots that will be shared between the Vestar site (including the Wal-Mart), the MCD site, and the Barkett property. Specific locations of park-and-ride spaces are still to be determined, and will be noted on final site plans.

4.7.4 Impacts and Mitigation Measures

Significance Criteria

According to CEQA guidelines, a traffic increase from a project is considered a significant impact if the associated change to the transportation system either:

- Conflicts with adopted environmental plans and goals of the community where it is located; or
- Causes an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system. (This will be evaluated based on criteria presented in the *City of Stockton Transportation Impact Analysis Guidelines* [July 30, 2003]).

Conditions without and with the project have been compared to identify significant impacts according to the following criteria:

- If a signalized intersection is projected to operate acceptably (i.e., LOS D or better with a with an average control delay of equal to or less than 55.0 seconds per vehicle) without the project and the project is expected to cause the facility to operate at an unacceptable LOS (LOS E or worse with an average control delay greater than 55.00 seconds per vehicle), the impact is considered significant.
- If an unsignalized intersection is projected to operate acceptably (i.e., LOS D or better with an average control delay equal to or less than 35.0 seconds per vehicle) without the project and the project is expected to cause the facility to operate at an unacceptable LOS (LOS E or worse with an average control delay greater than 35.0 seconds per vehicle), the impact is considered significant.
- If a facility is projected to operate unacceptably (i.e., LOS E or worse) without the project, and the project is expected to increase the average control delay by more than 5 seconds, the impact is considered significant.
- If a facility is projected to operate at an unacceptable LOS E without the project and the project is expected to cause the facility to operate at an unacceptable LOS F, but the average control delay does not increase by more than 5 seconds, City staff would determine whether the project has a significant impact.
- If a freeway segment is projected to operate acceptably (i.e., LOS D or better) without project and the project is expected to cause the facility to operate at an unacceptable service level (i.e., LOS E or worse), the impact is considered significant.
- If a freeway segment is projected to operate unacceptably (i.e., LOS E or worse) without project and the project is expected to increase traffic volumes on the facility by more than 5 percent, the impact is considered significant.

- Failure to comply with the *City of Stockton General Plan Policy Document,* as listed previously, would result in a significant impact.

Impacts

Near-Term Conditions

The following describes the impacts and mitigation measures for the proposed project under the Near-Term With Project condition.

Impact 4.7.1. The proposed project would contribute to the need to construct planned roadway improvements under Near-Term conditions. This impact is considered significant.

The proposed project would generate ~~17,600~~11,140 new daily trips, ~~540~~ 395 new AM peak hour trips, and ~~1,721~~1,173 new PM peak hour trips, which would accelerate the need for construction of planned improvements along French Camp Road.

Mitigation Measures:

Mitigation Measure 4.7.1. The project applicant shall implement the following improvement:

- Widen French Camp Road along the project frontage from two lanes to four lanes

Impact Significance after Mitigation: With implementation of this mitigation measure, this impact would be reduced to a less-than-significant level.

Impact 4.7.2. The French Camp Turnpike/Downing Avenue intersection is projected to operate at a deficient LOS F in the Near-Term condition during the PM peak hour prior to the addition of project traffic. The proposed project is not projected to increase traffic through this intersection in the near-term condition. Therefore, this impact is less than significant.

Mitigation Measures

Mitigation Measure 4.7.2. No mitigation is required.

Impact 4.7.3. The addition of traffic generated by the project in conjunction with traffic shifts associated with the vacation of Henry Long Boulevard, proposed to occur with the project, would result in deficient service levels at the worst movement in the French Camp Road/McDougald Road intersection in the Near-Term With Project condition during the PM peak hour. Levels of service for average traffic at this intersection maintains an acceptable LOS A with and without the revised project traffic for AM and PM peak hours. This impact is considered less-than-significant.

The addition of project traffic would result in overall deficient LOS E conditions during the PM peak hour for the worst movement in the French Camp Road/McDougald Road intersection. ~~Traffic turning from McDougald Road to French Camp Road would also experience LOS E and LOS F conditions during the AM and PM peak hours, respectively, with the addition of project traffic.~~ However, the addition of project traffic would not increase average intersection delay by more than 5 seconds at the French Camp/McDougald Boulevard intersection. The intersection average service level is LOS A for AM and PM peak hours without and with revised project traffic. Therefore, the project impact at this location is less-than-significant.

Mitigation Measures

Mitigation Measure 4.7.3. ~~The project applicant shall widen French Camp Road to provide a westbound right-turn only lane and install stop-signs on all intersection approaches.~~

~~**Impact Significance after Mitigation:** With implementation of this mitigation measure, this impact would be reduced to a less than significant level, as shown in Table 4.7-20.~~No mitigation is required.

Impact 4.7.4. The French Camp Road/Manthey Road (east) intersection is projected to operate at a deficient LOS F in the Near-Term condition during both peak hours prior to the addition of project traffic. Average delay would increase through this intersection by more than 5 seconds with the addition of project traffic. This impact is considered significant.

French Camp Road/Manthey Road. The addition of project traffic would worsen LOS F conditions during both the AM and PM peak hour.

Mitigation Measures

Mitigation Measure 4.7.4. The project applicant shall contribute its fair share ~~(26 percent based on the *1990 General Plan*)~~ towards the planned interchange improvements at the French Camp Road/I-5 interchange through the payment of traffic impact fees. With construction of the French Camp Road interchange improvement project, the southern leg of Manthey Road intersection would be relocated approximately 800 feet from the I-5 southbound ramps/French Camp Road intersection and ~~incorporated into the Weston Ranch Towne Center project driveway~~become the western edge of the project site (it was assumed that as part of the project, the northern leg of the intersection would be realigned and that French Camp Road would be widened to provide two lanes in each direction along the project frontage). With implementation of these planned improvements, this intersection would operate at an acceptable service level.

Should construction of the planned interchange improvements be scheduled for completion subsequent to project completion, the project applicant shall make the following interim improvements:

- Signalize the French Camp Road/Manthey Road (east) intersection and provide a westbound left-turn pocket.

- Interconnect and coordinate the traffic signals at the following intersections along French Camp Road: Secondary Project Driveway, Manthey Road (east), I-5 southbound ramps~~,~~ and I-5 northbound ramps~~, and Val Dervin Parkway~~.

~~Preliminary~~ Synchro 6.0/SimTraffic analyses indicate that as an interconnected system, these intersections would operate acceptably, as shown on Table 4.7-20~~, with minimal queue spillback.~~

Impact Significance after Mitigation: With implementation of interim improvements, this impact would be reduced to a less-than-significant level, as shown in Table 4.7-~~20~~24.

REVISED TABLE 4.7-24
NEAR-TERM PLUS MITIGATION PEAK HOUR INTERSECTION OPERATIONS

	Intersection	Peak Hour	Near-Term Without Revised Project		Near-Term With Revised Project		Near-Term With Revised Project Plus Mitigation	
			Delay	LOS	Delay	LOS	Delay	LOS
12a.	Manthey Road/ French Camp Road	AM	**> 50**	**F**	***> 50***	***F***	12	B
		PM	**> 50**	**F**	***> 50***	***F***	29	C
13.	I-5 Southbound Ramps/ French Camp Road	AM	19	B	19	B	18	B
		PM	17	B	29	C	40	C
14.	I-5 Northbound Ramps/ French Camp Road	AM	13	B	16	B	15	B
		PM	19	B	48	D	34[1]	C
15.	French Camp Road/ Val Dervin Parkway	AM	**> 50 (> 50)**	**F (F)**	***> 50 (> 50)***	***F (F)***	22	C
		PM	21 **(> 50)**	C **(F)**	***38 (> 50)***	***E (F)***	29	C
19.	I-5 Northbound Ramps/ Mathews Road	AM	**> 50 (> 50)**	**F (F)**	**> 50 (> 50)**	**F (F)**	41	D
		PM	**> 50 (> 50)**	**F (F)**	**> 50 (> 50)**	**F (F)**	37	D

Notes:
Delay for worst movement (average intersection delay) at SSSC intersections.
N/A = Not Applicable, this driveway only exists with the proposed project
Bold = deficient operations; Bold/italics = significant impact
1. Maximum eastbound left-turn queue projected to be 725 feet, average queue is expected to be 350 feet.

SOURCE: Fehr & Peers, 2008

Impact 4.7.5. The French Camp Road/I-5 Southbound Ramps intersection is projected to operate at an acceptable overall service level of LOS B in the Near-Term condition during both peak hours prior to the addition of project traffic. The addition of project traffic would result in overall LOS ~~F~~ C conditions. This impact is considered less-than-significant.

French Camp Road/I-5 Southbound Ramps. The addition of project traffic would cause an increase in vehicles at this intersection that would result in LOS ~~F~~ C conditions during both the AM and PM peak hour. LOS C is considered an acceptable service level. Consequently, this impact is less-than-significant.

Mitigation Measures

Mitigation Measure 4.7.5. ~~The project applicant shall contribute its fair share (26 percent based on the *1990 General Plan*) towards the planned interchange improvements at the French Camp Road/I-5 interchange through the payment of traffic impact fees.~~

~~Should construction of the planned interchange improvements be scheduled for completion subsequent to project completion, the project applicant shall install a traffic signal at the I-5 southbound ramps/French Camp Road intersection. This signal shall be interconnected and coordinated with the adjacent traffic signals on French Camp Road.~~No mitigation is required.

~~Impact Significance after Mitigation: **With implementation of interim improvements, this impact would be reduced to a less-than-significant level, as shown in Table 4.7-20.**~~

Impact 4.7.6. The French Camp Road/I-5 Northbound Ramps intersection is projected to operate at ~~a deficient LOS F~~an acceptable level in the Near-Term without project condition ~~during both peak hours prior to the addition of project traffic~~and would continue to do so with the addition of project traffic. ~~Average delay through this intersection would increase by more than 5 seconds with the addition of project traffic~~The addition of traffic from the Revised Project could result in a queuing impact. This impact is considered significant.

French Camp Road/I-5 Northbound Ramps. This intersection would continue to operate at acceptable levels with development of the Revised Project and completion of the signalization project currently under construction. However, the eastbound left-turn movement queue could spillback to the through lanes on French Camp Road.~~The addition of project traffic would worsen LOS F conditions during both the AM and PM peak hour.~~

Mitigation Measures

Mitigation Measure 4.7.6. The project applicant shall contribute its fair share~~ (26 percent based on the *1990 General Plan*)~~ towards the planned interchange improvements at the French Camp Road/I-5 interchange through the payment of traffic impact fees.

Should construction of the planned interchange improvements be scheduled for completion subsequent to project completion, the project applicant shall ~~install a traffic signal at the I-5 Northbound Ramp/French Camp Road intersection;~~ modify the eastbound approach to extend the eastbound left-turn storage to Manthey Road (east intersection)~~ or provide dual eastbound left-turn lanes by converting the second eastbound through lane to a left-turn~~ lane.~~; and modify the westbound approach to provide a 200-foot right-turn-only lane. This signal shall be interconnected and coordinated with the adjacent traffic signals on French Camp Road. These~~ This improvement can be implemented within the existing right-of-way. With ~~either~~ this improvement, the intersection would operate at an overall acceptable service level. Vehicle queue spillback could still occur with extension of the single eastbound left-turn lane, although vehicle queues would clear within one to two signal cycles. Conversion of the through lane to a second eastbound left-turn lane could create trap vehicles intending to travel through the intersection and create construction staging problems during reconstruction of the interchange, although vehicle queues would be minimized under this alternative.

Impact Significance after Mitigation: With implementation of interim improvements, this impact would be reduced to a less-than-significant level, as shown in Table 4.7-~~20~~24.

Impact 4.7.7. The French Camp Road/Val Dervin Parkway intersection is projected to operate at a deficient LOS F in the Near-Term condition during the AM peak hours prior to the addition of project traffic. Average delay would increase through this intersection by more than 5 seconds with the addition of project traffic during the AM peak hour. The addition of project traffic would also result in overall LOS ~~F~~ E conditions during the PM peak hour. This impact is considered significant.

French Camp Road/Val Dervin Parkway. The addition of project traffic would worsen LOS F conditions during the AM and result in LOS ~~F~~ E conditions during the PM peak hour.

Mitigation Measures

Mitigation Measure 4.7.7. The project applicant shall contribute its fair share ~~(26 percent based on the *1990 General Plan*)~~ towards the planned interchange improvements at the French Camp Road/I-5 interchange through the payment of traffic impact fees. With planned improvements at this interchange, Val Dervin Parkway would be closed at French Camp Road, and a new roadway constructed connecting the business park at the new French Camp Road/Sperry Road intersection.

Should construction of the planned interchange improvements be scheduled for completion subsequent to project completion, the project applicant shall install a traffic signal at this intersection. This signal shall be interconnected and coordinated with the adjacent traffic signals on French Camp Road. However, as this intersection would operate acceptably in the Existing Plus Project condition in both the AM and PM peak hours, and this intersection would be relocated and reconstructed as part of the interchange project, the Project Applicant shall monitor operations of this intersection to determine the timing of installation of an interim traffic signal.

Prior to the issuance of the first building permit for the site, the Project Applicant shall retain a qualified traffic engineering firm from the City's list of approved firms to conduct peak period (AM and PM) traffic counts at the intersection. The intersection service levels shall be calculated and peak hour volume and delay traffic signal warrants evaluated. Should signal warrants be satisfied, the Project Applicant shall design and install an interim signal at this location. Should the warrants not be satisfied, trips generated by the permitted uses under construction shall be added to the existing traffic counts based on the trip generation rates and trip distribution percentages presented in the Final Environmental Impact Report (FEIR). If the intersection is projected to operate at an overall deficient service level and peak hour traffic signal warrants are satisfied, the Project Applicant shall design and install an interim signal at this location. The monitoring requirement would be terminated when reconstruction of the I-5/French Camp interchange begins.

Impact Significance after Mitigation: With implementation of interim improvements, this impact would be reduced to a less-than-significant level, as shown in Table 4.7-~~20~~24.

Impact 4.7.8. Mathews Road/Manthey Road intersection is projected to operate at ~~a deficient~~ LOS ~~F~~ B in the Near-Term condition during the AM and PM peak hours ~~and a deficient LOS E during the PM peak hour~~ prior to ~~and after~~ the addition of project traffic. ~~Average~~

~~delay would increase through this intersection by more than 5 seconds with the addition of project traffic during both peak hours.~~ This impact is considered less-than-significant.

Mathews Road/Manthey Road. The addition of project traffic would increase the level of traffic at this intersection. However, ~~worsen LOS E and LOS F conditions during both the AM and PM peak hour~~the intersection would maintain LOS B after the addition of project traffic. Peak hour traffic signal warrants would not be satisfied prior to or after the addition of project traffic. ~~The project is projected to increase traffic through this intersection by 9 percent in the near-term condition.~~

Mitigation Measures

Mitigation Measure 4.7.8. ~~The project applicant shall install a traffic signal at this intersection.[34] No other improvements would be required to achieve an acceptable service level.~~No mitigation is required.

~~**Impact Significance after Mitigation:** This intersection is currently in San Joaquin County and implementation of this measure cannot be assured by the City of Stockton. Therefore, this impact would remain significant and unavoidable. However, with implementation of the signal installation, this impact would be reduced to a less-than-significant level, as shown in Table 4.7-20.~~

Impact 4.7.9. Mathews Road/I-5 Northbound Ramps intersection is projected to operate at a deficient LOS F in the Near-Term condition during both the AM and PM peak hours Average delay would increase through this intersection by more than 5 seconds with the addition of project traffic during both peak hours. This impact is considered significant.

Mathews Road/I-5 Northbound Ramps. The addition of project traffic would worsen LOS F conditions during both the AM and PM peak hours. Peak hour traffic signal warrants would be satisfied prior to the addition of project traffic. ~~The project is projected to increase traffic through this intersection by 7 percent in the near-term condition.~~

Mitigation Measures

Mitigation Measure 4.7.9. ~~The project applicant shall install a traffic signal at this intersection.[7]~~ Signal installation would result in LOS ~~C~~ D conditions during the AM ~~peak hour and LOS B conditions during the~~and PM peak hours. Caltrans has determined that it is infeasible for this project to install a traffic signal. The County of San Joaquin may program this signal as a future improvement. If this occurs, the project applicant shall contribute its fair share to the County.

Impact Significance after Mitigation: With implementation of signal installation, this impact would be reduced to a less than significant level, as shown in Table 4.7-24. However, ~~T~~this intersection is currently in San Joaquin County and implementation of this

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~~[34] See footnote 3.~~

measure cannot be assured by the City of Stockton. Therefore, this impact would remain significant and unavoidable. ~~However, with implementation signal installation, this impact would be reduced to a less than significant level, as shown in Table 4.7-20.~~

Impact 4.7.10. Northbound I-5, north of Downing Avenue is projected to operate at LOS D during the PM peak hour prior to and after the addition of project traffic for the Near-Term condition. The addition of project traffic would ~~worsen LOS D operations to LOS E and~~ increase total freeway volumes by more than ~~5~~ 3 percent. This impact is considered less-than-significant.

I-5 Northbound, north of Downing Avenue. The addition of project traffic would result in LOS ~~E~~ D conditions during the PM peak hour and increase traffic volumes by ~~5.5~~3.9 percent.

Mitigation Measures

Mitigation Measure 4.7.10. ~~The project applicant shall pay their proportionate share of the widening of northbound Interstate 5 to four lanes north of Downing Avenue through the payment of the Public Facilities Fee Street Improvements.~~No mitigation is required.

~~**Impact Significance after Mitigation:** Implementation of this measure would reduce the project's impact to a less-than-significant level, as shown on Table 4.7-21. However, because this project is not yet fully funded, the impact would remain significant and unavoidable.~~

Future 2025 with Revised Project Conditions

The following describes the impacts and mitigation measures for the proposed project under the Future 2025 With Revised Project conditions.

Impact 4.7.11. The proposed project would contribute to the need to construct planned roadway improvements under Future 2025 conditions. This impact is considered significant.

The proposed project would generate 11,140~~17,600~~ new daily trips, 395 ~~540~~ new AM peak hour trips, and 1,173 ~~1,721~~ new PM peak hour trips, which would accelerate the need for construction of planned improvements along I-5, French Camp Road, El Dorado Street, and Sperry Road.

Mitigation Measures

Mitigation Measure 4.7.11. The project applicant shall contribute its fair share towards the implementation of the following improvements:

- Widening of I-5 to eight lanes from French Camp Road to Charter Way ~~(5 percent)~~
- Widening of French Camp Road to six lanes from Wolfe Road to Manthey Road ~~(47 percent)~~

- Widening of French Camp Road to eight lanes from Manthey Road to Val Dervin Parkway ~~(5 percent)~~

- Construction of an L-9 interchange including loop on-ramps in the southeast and northwest quadrants. In conjunction with this improvement, Manthey Road would be realigned to the west and Val Dervin Parkway to the east across from the Sperry Road/French Camp Road intersection ~~(26 percent)~~

- Widening of El Dorado Street to six lanes north of the proposed Sperry Road extension to McKinley Avenue and four lanes south of the proposed Sperry Road extension to I-5 ~~(1 percent)~~

- Widening of Sperry Road/Arch-Airport Road to eight lanes from French Camp Road to Airport Way ~~(4 percent)~~

This measure may be satisfied by ~~direct contribution,~~ payment of adopted impact fee programs to the extent the improvements are included in the programs, or other means deemed appropriate by the City.

Impact Significance after Mitigation: With implementation of this mitigation measure, this impact would be reduced to a less-than-significant level.

Impact 4.7.12. The addition of project traffic would increase average intersection delay by ~~more~~ less than five seconds at the Manthey Road/Mathews Road intersection, which is projected to operate at an ~~un~~acceptable LOS ~~F~~ B in the Future 2025 Without Project and With Project condition for the AM peak hour. The intersection is projected to operate at an acceptable LOS C in the Future 2025 Without Project and With Project condition for the PM peak hour. This impact is considered less-than-significant.

Manthey Road/Mathews Road. The addition of project traffic would result in an increase in traffic at this intersection. However, the intersection would remain at LOS B for the AM peak hour and LOS C for the PM peak hour after the addition of project traffic. ~~nine-second increase in delay (from 72 seconds [LOS F] without the project to 81 seconds [LOS F] with the project) during the PM peak hour.~~

Mitigation Measures

Mitigation Measure 4.7.12. ~~The project applicant shall contribute its fair share (8 percent) towards the improvements at this intersection that would result in acceptable service levels. Improvements include signalization (Mitigation Measure 4.7.8) and the construction of left-turn channelization on all approaches.~~No mitigation is required.

~~**Impact Significance after Mitigation:** With implementation of this mitigation measure, this impact would be reduced to a less-than-significant level, as shown in Table 4.7-22.~~

Future 2035 with Revised Project Conditions

The following describes the impacts and mitigation measures for the proposed project under the Future 2035 With Revised Project conditions.

Impact 4.7.13. The proposed project would contribute to the need to construct planned roadway improvements under Future 2035 conditions. This impact is considered significant.

The proposed project would generate 11,140 new daily trips, 395 new AM peak hour trips, and 1,173 new PM peak hour trips, which would accelerate the need for construction of planned improvements along I-5, French Camp Road, El Dorado Street, and Sperry Road.

Mitigation Measures

Mitigation Measure 4.7.13. The project applicant shall contribute its fair share towards the implementation of the following improvements:

- Widening of I-5 to ten lanes from Roth Road to French Camp Road and from French Camp Road to Charter Way ~~(2 percent).~~
- Widening of French Camp Road to eight lanes between Manthey Road and Sperry Road ~~(21 percent).~~
- Widening of French Camp Road to six lanes between Wolfe Road and Manthey Road ~~(21 percent).~~
- Construction of an L-9 interchange including loop on-ramps in the southeast and northwest quadrants. In conjunction with this improvement, Manthey Road would be realigned to the west and Val Dervin Parkway to the east across from the Sperry Road/French Camp Road intersection ~~(20 percent).~~
- Widening of Manthey Road to four lanes from Carolyn Weston Boulevard to south of Mathews Road ~~(26 percent).~~
- Widening of El Dorado Street to six lanes north of the proposed Sperry Road extension and four lanes south of the proposed Sperry Road extension ~~(1 percent).~~
- Widening of Sperry Road/Arch-Airport Road to eight lanes from French Camp Road to Airport Way ~~(4 percent).~~
- Widening of Mathews Road to six lanes between Wolfe Road and Manthey Road, and eight lanes between Manthey Road and I-5 ~~(2 percent)~~
- Construction of a diamond interchange with a seven lane cross section (including turn lanes) under the freeway, and northbound and southbound free right-turn lane at the Mathews Road/I-5 interchange ~~(1 percent)~~

This measure may be satisfied by ~~direct contribution,~~ payment of adopted impact fee programs to the extent the improvements are included in the programs, or other means deemed appropriate by the City.

Impact Significance after Mitigation: With implementation of this mitigation measure, this impact would be reduced to a less-than-significant level.

Impact 4.7.14. The addition of project traffic would result in vehicle queue spillback at the French Camp Road/I-5 interchange. This impact is considered significant.

The addition of project traffic would worsen the 95th percentile vehicle queues through the interchange area, resulting in vehicle queues exceeding the proposed vehicle storage including westbound French Camp Road through the interchange and the northbound and southbound off-ramps.

Mitigation Measures

Mitigation Measure 4.7.14. Monitoring of the traffic signals to ensure arterial progression through the interchange area could reduce the amount of queue spillback in the area. It should be noted that all intersections in the French Camp Road/I-5 interchange area are projected to operate at acceptable service levels during the morning and evening peak hours in 2035.

Impact Significance after Mitigation: Although monitoring of the traffic signals to ensure minimize vehicle queues through the I-5/French Camp Road interchange area may minimize queue spillover, implementation of this measure can not be ensured. Therefore, the impact would remain significant and unavoidable.

Onsite Impacts and Mitigation Measures

The following discusses onsite impacts and mitigation measures.

Impact 4.7.~~13~~15. The proposed project site access would result in safety and operational deficiencies. This impact is considered potentially significant.

PM peak hour analysis of the project access locations shows that with the recommended lane configurations, all access locations would operate at acceptable service levels. In addition, emergency access and onsite circulation could also be improved.

Mitigation Measures

Mitigation Measure 4.7.~~13~~15. The project applicant shall modify the site plan as described below and shown in Figure 4.7-~~20 and Figure 4.7-21~~17 and 4.7-18a and 18b.

~~**1. French Camp Road/Secondary Entrance** – The recommended lane configuration and turn pocket storage lengths for this intersection is shown on Figure 4.7-15a for the near-term and Figure 4.7-15b for the 2025 condition. Interconnecting and coordinating the traffic signal at this location to the French Camp Road/Realigned Manthey Road intersection is recommended.~~

~~2. **Right-in/right-out driveway on French Camp Road west of Manthey Road** – This driveway would serve a substantial amount of project traffic because it provides direct access to several uses including the proposed Wal-Mart building. The project applicant proposes to provide a right-turn lane on French Camp Road for vehicles using this driveway.~~

~~3. **French Camp Road/Realigned Manthey Road** – The recommended lane configuration and turn pocket storage lengths for this intersection is shown on Figure 4.7-15a for the near-term and Figure 4.7-15b for the 2025 condition. Interconnecting and coordinating the traffic signal at this location to the French Camp Road/ Secondary Entrance intersection is recommended. The proposed design would allow for a southbound through lane to be converted to a left-turn lane, resulting in three left-turn lanes, and a through-right shared lane should future traffic volumes warrant a modified circulation scheme.~~

~~4. **Realigned Manthey Road/Driveway A** – This driveway is in close proximity (less than 300 feet) of the signalized French Camp Road/Realigned Manthey Road intersection. A northbound left-turn lane to provide access to the site is proposed. No left-turns from this driveway to Manthey Road would be permitted. A median would be constructed on Manthey Road to prevent outbound left-turn movements.~~

~~5. **Realigned Manthey Road/Driveway B** – This driveway is located approximately 400 feet from the signalized French Camp Road/Realigned Manthey Road intersection and would provide access to the eastern portion of site, currently proposed to contain approximately 90,000 square feet of retail uses. As currently proposed, this driveway would provide full access. A median refuge would be provided to facilitate left-turns from the driveway to Manthey Road.~~

~~6~~1. ~~**Realigned Manthey Road/Driveway C**~~**Full access driveway on Manthey Road (west) between Shop 5 and Shop 6** –Provide separate left and right-turn lanes to reduce the 95th percentile vehicle queue to 4 vehicles. (The southbound left-turn pocket would accommodate projected vehicle queues). ~~This driveway would be a heavily used driveway to the proposed Wal-Mart and would also provide access to the other major retailer. As such, it is anticipated that vehicle turning movements would be substantial at this location. Although peak hour volume warrant would be satisfied during the PM peak hour at this location in both the near-term and 2025 condition, a traffic signal is not recommended for installation at this intersection due to its close spacing with the (approximately 800 feet) the signalized French Camp Road/Manthey Road intersection and the proposed to-be signalized intersection of Manthey Road/Vacated Henry Long Boulevard (approximately 400 feet). To accommodate projected vehicle queues from the parking areas, it is recommended that the east side of the intersection be reconfigured to provide stacking for at least 4 vehicles (100 feet), and that the west side be reconfigured to provide stacking for at least 6 vehicles (150 feet). Should the driveway be restricted to prevent left-turns from the parking area to Manthey Road, the stacking area on the east side could be reduced to 50 feet.~~

~~7. **Driveway D/Manthey Road Entrance** – This driveway is proposed to be right-in/ right-out only. Although this driveway is in close proximity to Driveway C and the intersection Manthey Road/Vacated Henry Long Boulevard (west intersection), volumes through this intersection are projected to be low and it is projected to operate acceptably with minimal queuing.~~

~~8~~2. ~~**Realigned Manthey Road/Vacated Henry Long Boulevard (west intersection)**~~ **Manthey Road (west)/Right-in only Service Driveway –** This driveway is proposed

to serve as a right-in only driveway to the service area behind Major 6. Modifications would be needed at this driveway to accommodate the turning radii of large trucks, as shown on Figure 4.7-18b~~21~~.~~The peak hour volume warrant is satisfied during the PM peak hour at this location with projected volumes during both the near-term and cumulative condition. With traffic signal installation, this intersection would operate at an acceptable service level in both the near-term and cumulative condition.~~

~~**9. Driveway F/Vacated Henry Long Boulevard** – It is recommended that the westbound approach be modified to provide a left-turn pocket. One westbound and one eastbound travel lanes should be provided on vacated Henry Long Boulevard.~~

~~**10. Driveway G/Vacated Henry Long Boulevard** – It is recommended that the eastbound approach be modified to provide a left-turn pocket. One westbound and one eastbound travel lanes should be provided on vacated Henry Long Boulevard.~~

~~**11. Manthey Road/Vacated Henry Long Boulevard (east intersection)** – With development of the I-5/French Camp Road interchange project, Manthey Road would be rerouted through the project site and would continue along a portion of the vacated Henry Long Boulevard. The resulting intersection would operate with southbound right-turns and eastbound left-turns only, with no conflicting movements.~~

~~**12. Manthey Road/Service Entrance 1** – This driveway should be restricted to right-in/right-out operation only and should be side-street stop controlled.~~

~~**13. Manthey Road/Project Driveway** – A northbound left-turn pocket should be provided into this driveway in addition to side-street stop control. Additionally, it should be designed to accommodate the turning movements of large delivery vehicles.~~

~~14~~**3.** Consult with the City of Stockton fire department to ensure adequate emergency access.

~~15~~**4.** Conduct a detailed review of the final site plan to ensure pedestrian crossings are provided, ~~and~~ pedestrian paths are identified throughout the site, and pedestrian crossings are in appropriate locations to ensure pedestrian safety.

~~16~~**5.** Schedule large semi-truck deliveries for off-peak periods to minimize conflicts between delivery trucks and passenger vehicles.

~~17~~**6.** Design project driveways and internal roadways to accommodate the turning movements of large delivery vehicles.

~~18~~**7.** Provide sufficient bicycle parking designed to City standards to satisfy City code requirements.

~~19~~**8.** Coordinate with SJRTD and City staff to identify the location of potential transit features and ~~shall~~ modify the site plan accordingly.

~~20~~**9.** Designate Park and Ride parking locations adjacent to planned transit facilities.

Impact Significance after Mitigation: Implementation of this measure would reduce the impact to a less-than-significant level.

4.8 Air Quality

This section provides an overview of existing air quality in the proposed project area, the air quality regulatory framework to which the project is subject, and an analysis of potential air quality impacts that could result from the construction and operation of the Weston Ranch Towne Center.

4.8.1 Setting

This setting section provides an overview of the climate and topography in the project site area; existing air quality conditions in the project site area; and the air quality plans, policies, and regulations applicable to the project and its impacts.

Climate and Meteorology

The primary factors that determine air quality are the locations of air pollutant sources and the amounts of pollutants emitted. Meteorological and topographical conditions, however, also are important. Factors such as wind speed and direction, and air temperature gradients interact with physical landscape features to determine the movement and dispersal of criteria air pollutants.

The project lies within the San Joaquin Valley Air Basin (SJVAB), basically a flat area bordered on the east by the Sierra Nevada Mountains; on the west by the Coast Ranges; and to the south by the Tehachapi Mountains. Airflow in the SJVAB is primarily influenced by marine air that enters through the Carquinez Straits where the San Joaquin-Sacramento Delta empties into the San Francisco Bay (SJVAPCD, 2002a). The region's topographic features restrict air movement through and out of the basin. As a result, the SJVAB is highly susceptible to pollutant accumulation over time (SJVAPCD, 2002a). Frequent transport of pollutants into the SJVAB from upwind sources also contributes to poor air quality.

Wind speed and direction play an important role in dispersion and transport of air pollutants. During summer periods, winds usually originate from the north end of the San Joaquin Valley and flow in a south-southeasterly direction through the valley, through the Tehachapi pass and into the neighboring Southeast Desert Air Basin. During winter months, winds occasionally originate from the south end of the valley and flow in a north-northwesterly direction. Also, during winter months, the valley experiences light, variable winds, less than 10 miles per hour (mph). Low wind speeds, combined with low inversion layers in the winter, create a climate conducive to high concentrations of certain air pollutants.

The SJVAB has an inland Mediterranean climate that is characterized by warm, dry summers and cooler winters. Summer high temperatures often exceed 100 degrees Fahrenheit (°F), averaging from the low 90s in the northern part of the valley to the high 90s in the south. The daily summer temperature variation can be as high as 30 degrees °F. Winters are for the most part mild and humid. Average high temperatures during the winter are in the 50s, while the average daily low temperature is approximately 45 degrees °F.

The vertical dispersion of air pollutants in the valley is limited by the presence of persistent temperature inversions. Air temperatures usually decrease with an increase in altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. Air above and below an inversion does not mix because of differences in air density thereby restricting air pollutant dispersal.

Existing Conditions

The SJVAPCD's regional air quality monitoring network provides information on existing ambient concentrations of criteria air pollutants. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors. Table 4.8-1 presents a five-year summary of air pollutant (concentration) data collected at the three monitoring stations in the vicinity of the project area on Hazelton Street, East Mariposa Road, and at the Wagner-Holt School in Stockton. The Hazelton Street station measures concentrations of all air pollutants, including the two for which the SJVAB remains “nonattainment”, ozone, PM10, and PM2.5. The East Mariposa Road Station measures ozone concentrations only. The Wagner-Holt School Station measures PM10 concentrations only. Pollutant concentrations measured at these stations should be representative of background air pollutant concentrations at the project site. In Table 4.8-1, these measured air pollutant concentrations are compared with state and national ambient air quality standard.

Stationary Source Controls

Local air pollution control districts, such as the SJVAPCD, develop plans and implement control measures in their areas. These controls primarily affect stationary sources such as factories and plants. The SJVAPCD’s primary means of implementing air quality plans is by adopting rules and regulations. The SJVAPCD rulebook contains more than 130 rules and more are scheduled for rule development over the next few years. The SJVAPCD rules limit emissions of both criteria air pollutants and toxic air pollutants from stationary sources. The SJVAPCD limits emissions of and public exposure to toxic air contaminants through a number of programs. The potential for new and modified stationary sources to emit toxic air contaminants is reviewed by the SJVAPCD’s Permit Services Division, which implements the SJVAPCD’s Risk Management Policy. Toxic air contaminant emissions from stationary sources are limited by:

- SJVAPCD adoption and enforcement of rules aimed at specific types of sources known to emit high levels of toxic air contaminants;
- Implementation of the Air Toxics “Hot Spots” Program; and
- Implementation of the Federal Title III Toxics program.

Mobile Source Controls

The approach to regulation of toxic air contaminants from mobile sources has been through establishment (by U.S. EPA and ARB) of emissions standards for motor vehicles (imposed on vehicle manufacturers) and through specifications for gasoline and diesel fuel sold in California (imposed on fuel refineries and retailers), rather than through air quality permits or regulations on how motor vehicles are used by the general public.

TABLE 4.8-1
SUMMARY OF MONITORING DATA FOR THE PROJECT AREA, 2001–2005

Pollutant	State Standard	National Standard	Pollutant Concentration by Year [a]				
			2001	2002	2003	2004	2005
Ozone (Hazelton Street)							
Highest 1-hour average, ppm [b]	0.09	NA	**0.103**	**0.102**	**0.104**	**0.096**	**0.099**
Days over State Standard			5	2	3	1	3
Days over National Standard			0	0	0	0	0
Highest 8-hour average, ppm	0.07[c]	0.08	**0.088**	0.081	**0.088**	0.080	**0.086**
Days over National Standard			1	0	1	0	1
Ozone (E Mariposa Road)							
Highest 1-hour average, ppm [b]	0.09	NA	**0.106**	**0.108**	NA	NA	NA
Days over State Standard			5	5	NA	NA	NA
Days over National Standard			0	0	NA	NA	NA
Highest 8-hour average, ppm	0.07	0.08	0.092	0.086	NA	NA	NA
Days over National Standard			1	1	NA	NA	NA
PM10 (Hazelton Street)							
Highest 24-hour average, $\mu g/m^3$ [b]	50	150	**147.0**	**138.7**	**116.4**	**176.1**	**84.0**
Est. Days over State Standard			64	58	17	18	47
Est. Days over National Standard			0	0	0	1	0
Annual average, $\mu g/m^3$	20	50	**36.6**	**36.1**	**28.4**	**29.4**	**29.8**
PM10 (Wagner-Holt School)							
Highest 24-hour average, $\mu g/m^3$ [b]	50	150	**128.0**	**84.0**	**53.0**	50.0	**74.0**
Est. Days over State Standard			NA	39	20	0	18
Est. Days over National Standard			0	0	0	0	0
Annual average, $\mu g/m^3$	20	50	NA	**30.6**	**22.8**	**22.4**	**23.1**
PM2.5 (Hazelton Street)							
Highest 24-hour average, $\mu g/m^3$ [b]	NA	65	**76.0**	64.0	45.0	41.0	63.0
Days over National Standard			2	0	0	0	0
Annual average, $\mu g/m^3$	12	15	NA	**16.7**	**13.6**	**13.2**	12.5
Carbon Monoxide (Hazelton Street)							
Highest 8-hour average, ppm	9.0	9	6.0	3.2	3.1	2.5	2.9
Days over Standard			0	0	0	0	0

NOTE: Bold values are in excess of applicable standard. NA = Not Applicable or Not Available.

a Data was collected at the Hazelton Street monitoring station unless otherwise noted. The E Mariposa Road station monitors for ozone only.

b ppm = parts per million; µg/m3 = micrograms per cubic meter.

c This concentration was approved by the Air Resources Board on April 28, 2005 and became effective May 17, 2006.

SOURCE: California Air Resources Board, Summary of Air Quality Data, Gaseous and Particulate Pollutants, 2001, 2002, 2003, 2004 and 2005 data are from the ARB web site at <www.arb.ca.gov/adam>.

Sensitive Receptors

Land uses such as schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because infants and children, the elderly, and people with health afflictions, especially respiratory ailments, are more susceptible to respiratory infections and other air-quality-related health problems than the general public. Residential areas are also considered to be sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Sensitive receptors in the vicinity of the project include the existing residential communities to the west of the project site (along Sydney Lane, Brittanyann Lane, Riley Ford Lane, Blake Circle, and McDougald Boulevard), the Great Valley Elementary School located at 4223 McDougald Boulevard, and an existing residential neighborhood to the north of the project site along William Moss Boulevard. In addition to the existing sensitive receptors, there is a planned residential community to the west of the project site, vacant parcels zoned for General Business and Single Family Residential to the east of the project site (between Manthey Road and Interstate-5), and an adjacent vacant parcel zoned for residential uses to the north of the project site.

Regulatory Setting

Regulation of air pollution is achieved through both national and state ambient air quality standards and through emissions limits on individual sources of air pollutants. Local Air Quality Management Districts (AQMD's) and Air Pollution Control Districts (APCD's) are responsible for demonstrating attainment with state air quality standards through the adoption and enforcement of Attainment Plans.

Federal

The Federal Clean Air Act (FCAA) requires the U.S. Environmental Protection Agency (U.S. EPA) to identify National Ambient Air Quality Standards (NAAQS) (national standards) to protect public health and welfare. National standards have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, respirable particulate matter (PM10 and PM2.5), and lead. These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria set forth in the FCAA. California has adopted more stringent ambient air quality standards for the criteria air pollutants (referred to as State Ambient Air Quality Standards, or state standards) and has adopted air quality standards for some pollutants for which there is no corresponding national standard. Table 4.8-2 presents current national and state ambient air quality standards and provides a brief discussion of the related health effects and principal sources for each pollutant.

Ambient air quality standards are periodically reviewed in light of the results of ongoing research. In June of 1997, U.S. EPA reaffirmed the national PM10 standard, established a new standard for "fine" particulate matter (PM2.5), and changed the 1-hour ozone national standard of 0.12 to an 8-hour standard of 0.08 ppm. The 1-hour ozone standard continues to apply in areas that violated that standard before the 8-hour standard was adopted.

TABLE 4.8-2
STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour 8 hours	0.09 ppm 0.07 ppm[1]	--- 0.08 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NO_X) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
Carbon Monoxide	1 hour 8 hours	20 ppm 9.0 ppm	35 ppm 9 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
Nitrogen Dioxide	1 hour Annual Avg.	0.18~~25~~ ppm ---	--- 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
Sulfur Dioxide	1 hour 3 hours 24 hours Annual Avg.	0.25 ppm --- 0.04 ppm ---	--- 0.5 ppm 0.14 ppm 0.03 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
Respirable Particulate Matter (PM-10)	24 hours Annual Avg.	50 $\mu g/m^3$ 20 $\mu g/m^3$	150 $\mu g/m^3$ 50 $\mu g/m^3$	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
Fine Particulate Matter (PM-2.5)	24 hours Annual Avg.	--- 12 $\mu g/m^3$	65 $\mu g/m^3$ 15 $\mu g/m^3$	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO_X, sulfur oxides, and organics.
Lead	Monthly Ave. Quarterly	1.5 $\mu g/m^3$ ---	--- 1.5 $\mu g/m^3$	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.

NOTE: ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.
[1] This concentration was approved by the Air Resources Board on April 28, 2005 and became effective May 17, 2006.
SOURCE: California Air Resources Board, 2006b. *Ambient Air Quality Standards,* available at http://www.arb.ca.gov/aqs/aaqs2.pdf, May 17, 2006; California Air Resources Board, 2001. *ARB Fact Sheet: Air Pollution Sources, Effects and Control,* http://www.arb.ca.gov/research/health/fs/fs2/fs2.htm, page last updated December 2005.

Pursuant to the 1990 Federal Clean Air Act Amendments (FCAAA), the U.S. EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the NAAQS had been achieved. Table 4.8-3 shows the current attainment status of the project area. In summary, the area is nonattainment for state and federal ozone, PM10, and PM2.5 standards.

TABLE 4.8-3
SAN JOAQUIN VALLEY ATTAINMENT STATUS

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone – one hour	No Federal Standard[1]	Nonattainment/Severe
Ozone – eight hour	Nonattainment/Serious	No State Standard
PM10	Nonattainment/Serious	Nonattainment
PM2.5	Nonattainment	Nonattainment[2]
CO – San Joaquin County	Unclassified/Attainment	Attainment
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide – San Joaquin County	Unclassified	Attainment
Lead (particulate)	No Designation	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility-Reducing Particles	No Federal Standard	Unclassified

[1] Federal One Hour Ozone National Ambient Air Quality Standard was revoked on June 15, 2005
[2] Nonattainment per CARB's website: <www.arb.ca.gov/desig/adm/s4_pm25.pdf>
Source: <www.valleyair.org/aqinfo/attainment.htm> (November 2005), and <www.arb.ca.gov/desig/adm/adm.htm>

The FCAA required each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The FCAAA added requirements for states containing areas that violate the NAAQS to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The U.S. EPA has responsibility to review all state SIPs to determine if they conform to the mandates of the FCAAA and will achieve air quality goals when implemented. If the U.S. EPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan (FIP) for the nonattainment area and may impose additional control measures. Failure to submit an approvable SIP or to implement the plan within mandated timeframes can result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

Regulation of Toxic Air Contaminants (TACs), termed Hazardous Air Pollutants (HAPs) under federal regulations, is achieved through federal, State and local controls on individual sources. The SJVAPCD regulates toxic air contaminants in District Policies 1905 and 1910, and in regulation VII. The district recognizes all TAC's as defined by the State. The district recognizes federal Maximum Achievable Control Technology (MACT) standards for HAP's in District Rule 4002. The 1977 Clean Air Act Amendments required the U.S. EPA to identify National Emission Standards for Hazardous Air Pollutants (NESHAPs) to protect public health and welfare. These substances include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Although these studies indicate tangible health hazards to humans and other animals, the magnitudes of the hazards are unknown.

State

The California Air Resources Board (CARB) manages air quality, regulates mobile emissions sources, and oversees the activities of county and regional Air Pollution Control Districts and Air Quality Management Districts. CARB regulates local air quality indirectly by establishing state ambient air quality standards and vehicle emissions and fuel standards, and by conducting research, planning, and coordinating activities.

California has adopted ambient standards that are more stringent than the federal standards for some criteria air pollutants (e.g., PM10, daily and annual average standards), the California Ambient Air Quality Standards (CAAQS), pursuant to California Health and Safety Code (CH&SC) [39606(b)]. In July 2003, new annual standards adopted by CARB for PM10 and PM2.5 took effect. The annual PM10 standard was revised from 30 to 20 micrograms per cubic meter ($\mu g/m^{3)}$, and the annual PM2.5 standard was revised from 15 to 12 $\mu g/m^{3.}$ The state standards are shown in Table 4.8-1.

Under the California Clean Air Act (CCAA), patterned after the FCAA, areas have been designated as attainment or nonattainment with respect to the state standards (see Table 4.8-3). The project area is nonattainment for particulates (PM10 and PM2.5) and ozone. The state must verify compliance with the District's plan for achieving attainment before inclusion in the SIP. Once the SIP is complete, EPA must verify the SIP's compliance with the FCAA. If EPA determines the SIP to be inadequate in verifying compliance, EPA may prepare a FIP, as described earlier in this section.

California State law defines toxic air contaminants (TACs) as air pollutants having carcinogenic effects. The State Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). A total of 243 substances have been designated TACs under California law; they include the 189 (federal) hazardous air pollutants (HAP's) adopted in accordance with AB 2728. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; AB 2588 does not regulate air toxics emissions. Toxic air contaminant emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment and, if specific thresholds are violated, are required to communicate the results to the public in the form of notices and public meetings. Depending on the risk levels, emitting facilities are required to implement varying levels of risk reduction measures. SJVAPCD implements AB 2588, and is responsible for prioritizing facilities that emit air toxics (SJVAPCD, 2002c).

In August of 1998, CARB identified particulate emissions from diesel-fueled engines (diesel particulate matter, or DPM) as TACs. CARB developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* and the *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines*. The Board approved these documents on September 28, 2000 (CARB 2000). The documents represent proposals to reduce diesel particulate emissions, with the goal to reduce emissions and the associated health risk by 75 percent in 2010 and by 85 percent in 2020. The program aims to require the use of state-of-the-art catalyzed diesel particulate filters and ultra low sulfur diesel fuel on diesel-fueled engines.

CARB recently published the *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB 2005). The primary goal in developing the handbook was to provide information that will help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution. The handbook highlights recent studies that have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities. However, the health risk is greatly reduced with distance. For that reason, CARB provided some general recommendations aimed at keeping appropriate distances between sources of air pollution and sensitive land uses, such as residences.

Local

The SJVAPCD is the primary local agency responsible for protecting human health and property from the harmful effects of air pollution in the San Joaquin Valley Air Basin, and has jurisdiction over most stationary source air quality matters in the SJVAB, including the NSPS program. The SJVAPCD includes all of Merced, San Joaquin, Stanislaus, Madera, Fresno, Kings and Tulare counties, and the Valley portion of Kern County.

The SJVAPCD is responsible for developing attainment plans for the SJVAB, for inclusion in California's SIP, as well as establishing and enforcing air pollution control rules and regulations. The attainment plans must demonstrate compliance with federal and state ambient air quality standards, and must first be approved by CARB before inclusion into the SIP. The SJVAPCD regulates, permits, and inspects stationary sources of air pollution. Among these sources are industrial facilities, gasoline stations, auto body shops, MSW landfills and dry cleaners to name a few. While the state is responsible for emission standards and controlling actual tailpipe emissions from motor vehicles, the SJVAPCD is required to regulate emissions associated with stationary sources such as agricultural burning and industrial operations. The SJVAPCD also works with eight local transportation planning agencies to implement transportation control measures, and to recommend mitigation measures for new growth and development designed to reduce the number of cars on the road. The SJVAPCD promotes the use of cleaner fuels, and funds a number of public and private agency projects that provide innovative approaches to reducing air pollution from motor vehicles.

The project site is located in the City of Stockton on the geographic boundary between the San Joaquin and Sacramento Valleys, a sub-region within the SJVAB. The SJVAB is designated severe nonattainment for the federal 1-hour ozone standard and serious nonattainment for the federal PM10 standard. In April of 2004, the EPA approved the District's appeal to downgrade its federal 1-hour ozone non-attainment status from "Severe" to "Extreme." While all criteria pollutants are a concern of the SJVAPCD, and a project's air quality impacts are considered significant if they would violate any of the state air quality standards. Ozone precursors, PM10 emissions and toxic air contaminants are emphasized in the review of applications for an Authority to Construct / Permit to Operate. Federal and state air quality laws also require regions designated as nonattainment to prepare plans that either demonstrate how the region will attain the standard or that demonstrate reasonable improvement in air quality conditions. As noted, the SJVAPCD is responsible for developing attainment plans for the SJVAB for inclusion in California's SIP.

The following are the air quality plans with current or recent application to the SJVAB:

- *1998 Carbon Monoxide State Implementation Plan (SIP)*. With the U.S. EPA's redesignation of 10 urban areas in California (including four urban areas in the SJVAB) from nonattainment to attainment for carbon monoxide in 1998, the South Coast Air Basin is the only basin in the state currently considered nonattainment for this pollutant. The 1998 Carbon Monoxide SIP revision modifies the carbon monoxide maintenance plan for the 10 areas, including the urban areas of the SJVAB.

- *The Federal Ozone Attainment Demonstration Plan, (adopted November 14, 1994 and amended 2001)*. This plan established a regulatory framework to bring the SJVAB into compliance with the national standards for ozone and satisfied a required triennial review for state standards. This plan did not achieve its goal of meeting the national standards for ozone by 1999 (SJVAPCD, 1994).

- *2000 Ozone Rate of Progress Report, (adopted April 20, 2000 and amended April 27, 2000).* This report demonstrates that target levels of emissions reductions mandated by the CAA for 1997 to 1999 (9 percent) and for 1990 to 1999 (24 percent) were achieved (SJVAPCD, 2000).

- *Triennial Progress Report and Plan Revisions 1997–1999*. This report states that all areas of the SJVAB have attained the state carbon monoxide standard and focuses on attainment of the state ozone standard, in light of the basin's "severe nonattainment" status under the state Health and Safety Code. The report reviews previously adopted and implemented Best Available Retrofit Control Technology (BARCT) measures and includes an adoption and implementation schedule for new measures to achieve additional emission reductions. Planned measures include new controls on stationary, mobile, and indirect sources, and plan revisions. This report was adopted March 15, 2001 (SJVAPCD, 2001a).

- *2001 Amendment to the 1994 Ozone Attainment Demonstration Plan*. These amendments to the 1994 OADP commit the SJVAPCD to revise, add or delete various Regulation IV rules pertaining to the use and storage of coatings and solvents and specific stationary sources (SJVAPCD, 2001b).

- *2002 and 2005 Ozone Rate of Progress Plan, (adopted May 16, 2002)*. In December 2001 U.S. EPA reclassified the SJVAB from serious to severe nonattainment for the national 1-hour ozone standard. The severe classification triggered a requirement for the SJVAPCD to prepare plans that demonstrate annual reductions of ozone precursors and attainment of the standard by 2005. The district determined that it could not reach attainment in 2005. This plan demonstrates rates of progress in emissions reductions in volatile organic compounds at the mandated average rate of 3 percent per year, based on three-year periods (i.e., 9 percent between 2000 and 2002 and an additional 9 percent between 2003 and 2005). The plan also satisfies the requirement of the CAA that nonattainment areas adopt all reasonably available control measures (RACM) as expeditiously as possible.

- *2003 PM10 Plan: San Joaquin Valley Plan to Attain Federal Standards for Particulate Matter 10 Microns and Smaller.* This plan was adopted by the SJVAPCD Governing Board June 19, 2003 and submitted to CARB, which also has approved it and submitted it to U.S.EPA. U.S. EPA approved the plan as amended on May 26, 2004 effective June 26, 2004. The 2003 PM10 plan demonstrates attainment of the national PM10 standard at all monitoring stations within the air basin by 2010. It supersedes the

district's previous plan, the 1997 *PM10 Attainment Demonstration Plan*, which failed to meet the national standard by the 2001 target date and was withdrawn by the Air District.

- *PM10 Attainment Demonstration Plan Progress Report 1997-1990*. August 17, 2000. This report describes progress achieved by the SJVAPCD implementing the 1997 PM10 plan, including actions pertaining to stationary, area and mobile sources, research programs and revisions to Regulation VIII (Fugitive PM10 Prohibitions) that were then in progress.

The SJVAPCD's primary means of implementing the above air quality plans is by adopting and enforcing rules and regulations. Stationary sources within the jurisdiction are regulated by the District's permit authority over such sources and through its review and planning activities. In 2001, the SJVAPCD revised its Regulation VIII-Fugitive PM Prohibitions, in response to commitments made in the 1997 PM10 Attainment Plan to incorporate best available control measures (BACM). The revision also includes new rules for open areas and agricultural operations. The provisions of the revised regulation took effect in May 2002. Regulation VIII consists of a series of dust control rules intended to implement the *PM10 Attainment Demonstration Plan*. The *PM10 Attainment Demonstration Plan* emphasizes reducing fugitive dust as a means of achieving attainment of the federal standards for PM10.

The SJVAPCD submitted a comment letter in response to the Notice of Preparation on this project identifying District Rules that may apply to the project (SJVAPCD 2005). These are as follows:

- District Rule 2201 (New and Modified Stationary Source Review Rule). This rule applies to all new stationary sources and all modifications of existing stationary sources that are subject to the District permit requirements and after construction emit or may emit one or more affected pollutants.
- District Rule 4002 (National Emission Standards for Hazardous Air Pollutants). Prior to any demolition activity, an asbestos survey of existing structures on the project site may be required to identify the presence of any asbestos containing building materials (ACBM). Any identified ACBM having the potential for disturbance must be removed by a certified asbestos-contractor in accordance with CAL-OSHA requirements.
- District Regulation VIII (Fugitive PM10 Prohibitions). Regulation VIII (Rules 8011-8081) is a series of rules designed to reduce PM10 emissions (predominantly dust/dirt) generated by human activity, including construction, road construction, bulk materials storage, landfill operations, etc. The Dust Control Plan threshold has changed from 40.0 acres to 5.0 or more acres for non-residential sites. If a non-residential site is 1.0 acre to less than 5.0 acres, an owner/operator must provide written notification to the District at least 48 hours prior to his/her intent to begin any earthmoving activities. If a residential site is 1.0 acre to less than 10.0 acres, an owner/operator must provide written notification to the District at least 48 hours prior to his/her intent to begin any earthmoving activities.
    - Regulation VIII specifically addresses the following activities:
    - Rule 8011: General Requirements;

- Rule 8021: Construction, Demolition, Excavation, Extraction and other Earthmoving Activities;
- Rule 8031: Bulk Materials;
- Rule 8041: Carryout and Trackout;
- Rule 8051: Open Areas;
- Rule 8061: Paved and Unpaved Roads; and
- Rule 8071: Unpaved Vehicle/Equipment Traffic Areas.

- District Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). If asphalt paving will be used, then paving operations on this project will be subject to Rule 4841. This rule applies to the manufacture and use of cutback asphalt, slow cure asphalt, and emulsified asphalt for paving and maintenance operations.
- District Rule 4102 (Nuisance). This rule applies to any source operation that emits or may emit air contaminants or other materials. In the event that the project or construction of the project creates a public nuisance, it could be in violation and subject to District enforcement action.

Also, in addition to these above-described rules, District Rule 9510 Indirect Source Review (ISR) was adopted December 15, 2005. ISR was adopted to fulfill the District's emission reduction commitments in the PM10 and Ozone Attainment Plans. ISR requires submittal of an Air Impact Assessment (AIA) application no later than the date on which application is made for a final discretionary approval from the public agency. The AIA will be the information necessary to calculate both construction and operational emissions of a development project. The project qualifies as a development project under Rule 9510 because it contains more than 2,000 feet of commercial space. Section 6.0 of the Rule outlines general mitigation requirements for developments that include reduction in construction emissions of 20% of the total construction NOx emissions, and 45% of the total construction PM10 exhaust emissions. Section 6.0 of the Rule also requires the project to reduce operational NOx emissions by 33.3% and operational PM10 emissions by 50%. Section 7.0 of the Rule includes fee schedules for construction or operational excess emissions of NOx or PM10; those emissions above the goals identified in Section 6.0 of the Rule. Section 7.2 of the Rule identifies fees for excess emissions that are $9,350/ton for NOx emissions after the year 2008, and $9,011/ton for PM10 emissions after the year 2008.

City of Stockton

The City of Stockton General Plan ~~Conservation~~ Health and Safety Element contains goals and policies that encourage emission reduction strategies from mobile, stationary, and area sources that comply with state and federal standards (City of Stockton, 2007a). These goals and policies are provided below:

~~Conservation~~Air Quality

Goal HS-4. To improve air quality and to minimize the adverse effects of air pollution on human health and the economy.

Policy HS-4.3 Regional Air Quality Project Review. The City shall consult with the SJVAPCD during CEQA review for projects that require air quality impact analysis and ensure that the SJVAPCD is on the distribution list for all CEQA documents.

Policy HS-4.5 City Review of Development Proposals. The City shall use the SJVAPCD Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) for determining and mitigating project air quality impacts and related thresholds of significance for use in environmental documents. The City shall continue to cooperate with the SJVAPCD in the review of development proposals.

Policy HS-4.6 CEQA Compliance and Air Quality Mitigation. The City shall ensure that air quality impacts identified during the CEQA review process are fairly and consistently mitigated. The City shall require projects to comply with the City's adopted air quality impact assessment and mitigation process, and to provide specific mitigation measures as outlined in policies of Chapter 8 Transportation and Circulation.

Policy HS-4.7 Air Quality Mitigation Fees. The City shall continue the program for assessing air quality mitigation fees for all new development, with the fees to be used to fund air quality programs.

Policy HS-4.9 Dust Suppression Measures. The City shall require contractors to implement dust suppression measures during excavation, grading, and site preparation activities. Techniques may include, but are not limited to, the following:

a. Site watering or application of dust suppressants,

b. Phasing or extension of grading operations,

c. Covering of stockpiles,

d. Suspension of grading activities during high wind periods (typically winds greater than 25 miles per hour), and

e. Revegetation of graded areas.

Policy HS-4.10 Travel Demand Measures. Coordinating with the SJVAPCD, the City shall require large development projects to mitigate air quality impacts. Mitigation measure may include, but are not limited to the following:

- Providing bicycle access and parking facilities,
- Providing preferential parking for high-occupancy vehicles, car pools, or alternative fuels vehicles, and
- Establishing telecommuting programs or satellite work centers.

Policy HS-4.17 Street Design. The City shall promote street design that provides an environment which encourages transit use, biking and walking.

Policy HS-4.18 Design for Transportation Alternatives. The City shall encourage all new development to be designed to promote pedestrian and bicycle access and circulation, to the greatest extent feasible.

Policy HS-4.19 Transportation Management Associations. The City shall encourage commercial, retail, and residential developments to participate in or create Transportation Management Associations.

Policy HS-4.20 Develop Policies Requiring Minimizing of Greenhouse Gas Emissions. The City shall adopt new policies, in the form of a new ordinance, resolution, or other type of policy document, that will require new development to reduce its greenhouse gas emissions to the extent feasible in a manner consistent with state legislative policy as set forth in Assembly Bill (AB) 32 (Health & Safety Code, § 38500 et seq.) and with specific mitigation strategies developed by the California Air Resources Board (CARB) pursuant to AB 32. In furtherance of this effort, the City shall monitor the process by which CARB promulgates rules, regulations, limits, plans, and reduction measures pursuant to AB 32 to determine whether they result in recommended or mandatory principles or strategies by which greenhouse gas emissions reductions or minimization can be achieved through the land use planning process. If CARB does formulate any such principles or strategies, the City's own greenhouse gas emission reduction and minimization strategies shall be consistent with those promulgated by CARB. If CARB's efforts pursuant to AB 32 do not result in recommended or mandatory principles or strategies by which greenhouse gas emissions reductions or minimization can be achieved through the land use planning process, the City shall develop its own such principles and strategies. In doing so, the City shall consider the following potential mitigation strategies:

a. Increased density or intensity of land use, as a means of reducing per capita vehicle miles traveled by increasing pedestrian activities, bicycle usage, and public or private transit usage;

b. Increased energy conservation through means such as those described in Appendix F of the State Guidelines for the California Environmental Quality Act;

c. Greenhouse gas sequestration measures, such as increasing the effectiveness of carbon dioxide sinks through tree-planting, for example;

d. The payment of fair share fees, or participation in fair share measures, that are imposed pursuant to a reasonable mitigation plan under which the fair share payment or fair share participation will foreseeably result in actual, enforceable mitigation that will offset some or all of the greenhouse gas emissions of

development projects (e.g., through energy conservation, greenhouse gas sequestration, or increased usage of energy sources that do not contribute, or contribute only minimally, to global warming). In order to help achieve the maximum technologically feasible and cost effective greenhouse gas emissions reductions, and in furtherance of the inter-agency coordination objectives of AB 32, such a reasonable mitigation plan may include a multiple-agency program by which City imposed fees are used to fund mitigation strategies implemented in whole or in part by regional or state agencies (e.g., the Air Resources Board, the Public Utilities Commission, or the State Energy Resources Conservation and Development Commission).

e. Public education measures intended to instruct future landowners, tenants, and users with respect to means by which they can reduce their own greenhouse gas emissions.

For purposes of this policy, "feasible" shall have the same meaning as that set forth in Section 15364 of Title 14 of the California Code of Regulations and in case law interpreting the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.).

~~Goal 3. Achieve and maintain levels of air quality that comply with state and federal standards.~~

~~Policies 1. Consider the cumulative air quality impacts from development and land use regulations to reduce air pollution.~~

~~2. The expansion and improvement of public transportation services and facilities shall be promoted for its air quality benefits.~~

~~3. Cooperate with the State Air Resource Board, the County Air Pollution Control District, and other agencies in formulating and monitoring strategies and tactics to reduce air pollution emissions.~~

~~Goal 5. Actively contribute to the solution of local and regional air quality problems.~~

~~Policies 1. Cooperate with other local and regional and State agencies in developing and implementing air quality plans to achieve State and Federal Ambient Air Quality standards.~~

~~2. Review proposed development for local and regional air quality impacts.~~

~~3. Assist project applicants in understanding and meeting the air quality mitigation requirements established by the San Joaquin County Air Pollution Control District.~~

~~4. Coordinate City Transportation System Management programs with county-wide programs developed by the San Joaquin County Council of Governments and the San Joaquin County Air Pollution Control District.~~

~~5. Coordinate City Transportation System Management programs with private transportation management agency programs being developed by the Building Industry Association and the Chamber of Commerce. (City of Stockton Planning Department, 1990)~~

Pollutants Affecting Air Quality/Health Effects

A discussion of the air pollutants of interest to the regulatory agencies for their potential adverse impacts on the environment and sensitive receptors are described below.

Ozone

Short-term exposure to ozone can irritate the eyes and cause construction of the airways. Besides causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROG) and nitrogen oxides (NOx). The time period required for ozone formation allows the reacting compounds to spread over a large area, producing a regional pollution problem. Ozone problems are the cumulative result of regional development patterns rather than the result of a few significant emission sources. Mobile sources are the major source of ozone precursor emissions within the northern region of the SJVAB (SJVAPCD, 2003b).

Once formed, ozone remains in the atmosphere for one or two days. Ozone is then eliminated through reaction with chemicals on the leaves of plants, attachment to water droplets as they fall to earth “rainout”) and absorption by water molecules in clouds that later fall to earth with rain (“washout”).

Carbon Monoxide

Ambient carbon monoxide concentrations normally are considered a local effect and typically correspond closely to the spatial and temporal distributions of vehicular traffic. Wind speed and atmospheric mixing also influence carbon monoxide concentrations. Under inversion conditions, carbon monoxide concentrations may be distributed more uniformly over an area that may extend some distance from vehicular sources.

When inhaled at high concentrations, carbon monoxide combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia, as well as for fetuses.

Carbon monoxide concentrations have declined dramatically in California due to existing controls and programs. Carbon monoxide concentrations are expected to continue declining due to the ongoing retirement of older, more polluting vehicles from the mix of vehicles on the road network.

U.S. EPA designated the SJVAB as attainment for carbon monoxide in 1998. Although the SJVAPCD has been successful in achieving CO standards, localized CO concentrations may warrant concern (SJVAPCD, 2002a).

Respirable Particulate Matter (PM10 and PM2.5)

PM10 and PM2.5 consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. (A micron is one-millionth of a meter). PM10 and PM2.5 represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis and respiratory illnesses in children. Recent mortality studies have shown a direct association between mortality and daily concentrations of particulate matter in the air. Particulates can also damage materials and reduce visibility. One common source of PM2.5 is diesel particulate emissions.

Traffic generates particulate matter and PM10 emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM10 also is emitted by burning wood in residential wood stoves and fireplaces and open agricultural burning. PM10 can remain in the atmosphere for up to seven days before gravitational settling, rainout and washout remove it. The primary classes of PM10 sources in the SJVAPCD include geological material, ammonium nitrate, burning, motor vehicle exhaust, and sulfates. Geological material is the largest contributor annually, while ammonium nitrate constitutes the larges fraction during winter (SJVAPCD, 2003a).

Other Criteria Pollutants

Ozone and particulate matter are the primary focus of this analysis due to the nonattainment status of the air basin for these pollutants. The standards for nitrogen dioxide (NO_2), sulfur dioxide (SO_2), sulfates, and lead are being met in the SJVAB (CARB, 2003a). However, NO_2 is an ozone precursor and thus contributes to the formation of a nonattainment criteria pollutant. Sources and effects of NO_2 are discussed below.

NO_2 is a reddish brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Aside from its contribution to ozone formation, nitrogen dioxide can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Toxic Air Contaminants (TACS)

Non-criteria air pollutants or TACs are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes approximately 200 compounds, including particulate emissions from diesel-fueled engines.

Diesel particulate matter (DPM) is the most complex of diesel emissions. Diesel particulates, as defined by most emission standards, are sampled from diluted and cooled exhaust gases. This definition includes both solids and liquid material that condenses during the dilution process. The basic fractions of DPM are elemental carbon, heavy hydrocarbons derived from the fuel and lubricating oil and hydrated sulfuric acid derived from the fuel sulfur. DPM contains a large portion of the polycyclic aromatic hydrocarbons (PAH) found in diesel exhaust. Diesel particulates include small nuclei mode particles of diameters below 0.04µm and their agglomerates of diameters up to 1µm. Ambient exposures to diesel particulates in California are significant fractions of total TAC levels in the State.

Odorous Emissions

Because offensive odors rarely cause any physical harm and no requirements for their control are included in state or national air quality regulations, the SJVAPCD has no rules or standards related to odor emissions, other than its nuisance rule. Any actions related to odors are based on citizen complaints to local government agencies including the SJVAPCD. The SJVAPCD uses screening distances to determine the potential for odor impacts from various land uses.

4.8.2 Impacts and Mitigation Measures

Significance Criteria

According to Appendix G of the CEQA Guidelines and the professional judgment of City staff and consultants, a project may be deemed to have a significant effect on the environment if it would:

- Conflict with or obstruct implementation of the applicable air quality plan(s);
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

The following analysis discusses the first four criteria; the fifth is not discussed, as the project would not involve development of the types of land uses typically associated with odor issues.[35]

Consistent with CEQA Guidelines Appendix G, the SJVAPCD has established thresholds of significance that may be relied upon in assessing construction impacts, project operations and cumulative impacts.

[35] Restaurants are not among the land uses identified by the SJVAPCD as generating odor complaints.

For construction impacts, the pollutant of greatest concern to the District is PM10.[36] The SJVAPCD recommends that significance be based on a consideration of the control measures to be implemented during project construction (SJVAPCD, 2002b). Compliance with Regulation VIII, Rule 8011, and implementation of appropriate mitigation measures to control respirable particulate matter (PM10) emissions are considered by the SJVAPCD to be sufficient to render a project's construction-related impacts less than significant. The SJVAPCD *Guide for Assessing and Mitigating Air Quality Impacts* (*GAMAQI*) contains a list of feasible control measures for construction-related PM10 emissions.

The SJVAPCD's *GAMAQI* also includes significance criteria for evaluating operational-phase emissions from direct and indirect sources associated with a project. Indirect sources include motor vehicle traffic resulting from the project and do not include stationary sources covered under permit with the SJVAPCD. For this analysis, the project would be considered to have a significant effect on the environment if it would exceed the following thresholds:

- Cause a net increase in pollutant emissions of reactive organic gases (ROG) or NO_X exceeding 10 tons per year.
- Cause a violation of state CO concentration standards. The level of significance of CO emissions from mobiles sources is determined by modeling the ambient concentration under project conditions and comparing the resultant 1- and 8-hour concentrations to the respective state CO standards of 20.0 and 9.0 parts per million.
- Cause "visible dust emissions" due to onsite operations and thereby violate SJVAPCD Regulation VIII.[37]

Stationary sources that comply, or that would comply, with SJVAPCD Rules and Regulations are generally not considered to have a significant air quality impact.

The operation of any project with the potential to expose sensitive receptors to substantial levels of toxic air contaminants would be deemed to have a potentially significant impact. More specifically, proposed development projects that have the potential to expose the public to toxic air contaminants in excess of the following thresholds would be considered to have a significant air quality impact:

- Probability of contracting cancer for the Maximally Exposed Individual[38] (MEI) exceeds 10 in one million.
- Ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index greater than 1 for the MEI.

36 Construction equipment emits carbon monoxide and ozone precursors. The SJVAPCD has determined that these emissions would cause a significant air quality impact only in the case of a very large or very intense construction project (SJVAPCD, 2002b).

37 Visible dust is defined by the SJVAPCD as "visible dust of such opacity as to obscure an observer's view to a degree equal to or greater than an opacity of 40 percent, for a period or periods aggregating more than three minutes in any one hour."

38 MEI represents the worst-case risk estimate based on a theoretical person continuously exposed for 70 years at the point of highest compound concentration in air.

Lastly, any project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. Impacts of local pollutants (e.g., CO and toxic air contaminants) are cumulatively significant when modeling shows that the combined emissions from the project and other existing and planned projects in the area will exceed air quality standards.

Impacts

Impact 4.8.1. Construction activities associated with development of the project would generate short-term emissions of criteria pollutants, including suspended and inhalable particulate matter (PM10) and equipment exhaust emissions. This impact would be significant.

Construction related emissions arise from a variety of activities including (1) grading, excavation, road building, and other earth moving activities; (2) travel by construction equipment and employee vehicles, especially on unpaved surfaces; (3) exhaust from construction equipment; (4) architectural coatings; and (5) asphalt paving.

PM10 emissions from construction would vary greatly from day to day depending on the level of activity, the equipment being operated, silt content of the soil, and the prevailing weather. Larger-diameter dust particles (i.e., greater than 30 microns) generally fall out of the atmosphere within several hundred feet of construction sites, and represent more of a soiling nuisance than a health hazard. Smaller-diameter particles (e.g., PM10) are associated with adverse health effects and generally remain airborne until removed from the atmosphere by moisture. Therefore, unmitigated construction dust emissions could result in significant local effects. The SJVAPCD recommends that determination of significance with respect to construction impacts be based not on quantification of emissions and comparison to thresholds (SJVAPCD, 2002b), but upon inclusion of feasible control measures for PM10 and compliance with Regulation VIII, Rule 8011, of the District's Rules and Regulations.

For all construction projects, implementation of all Regulation VIII fugitive dust control measures are required by law. Based on the size of the construction area and proximity to receptors, additional measures may be required, as described below. Implementation of the Regulation VIII fugitive dust control measures and all additional feasible measures would reduce construction PM10 emissions associated with the project to a ~~less than significant~~less-than-significant level, based on the short-term exposure of any single sensitive receptor to residual fugitive dust emissions.

Construction equipment and construction-worker commute vehicles would also generate criteria air pollutant emissions. ~~These emissions would be relatively major although temporary.~~ Criteria pollutant emissions of ROG and NO_x from these emissions sources would incrementally add to regional atmospheric loading of ozone precursors during the construction period. The SJVAPCD *GAMAQI* recognizes that construction equipment emits ozone precursors, but indicates that such emissions are not considered to be significant unless the project construction is very large or very intense. Construction emissions have been estimated for the project, as recommended by the SJVAPCD[39], and are depicted in Table 4.8-4.

[39] Recommendation provided by John Cadrett, Air Quality Planner, SJVAPCD. February 2005.

REVISED TABLE 4.8-4
CONSTRUCTION EMISSIONS ESTIMATES
(TONS PER YEAR)

Pollutant	Significance Threshold (Tons per Year)	Unmitigated Construction Emissions[1] (Tons per Year)	
		Year 2009	Significant? (Yes/No)
ROG	10	6	No
NOx	10	2	No
PM10	NA[3]	1	NA
PM2.5	NA[3]	0	NA
CO_2	NA[3]	307	NA
CO	NA[3]	92	NA

[1] Project construction emissions estimates were made using URBEMIS 2007, version 9.2. See Appendix F for details.
[2] Values in **bold** are in excess of the applicable SJVAPCD significance threshold.
[3] NA = Not Available. The SJVAPCD has not established significance thresholds for these pollutants.
SOURCE: ESA, 2007.

Mitigation Measures:

Mitigation Measure 4.8.1a: The applicant shall comply with Regulation VIII Rule 8011 and implement the following control measures during construction:

- The applicant shall submit a Dust Control Plan subject to review and approval of the SJVAPCD at least 30 days prior to the start of any construction activity on a site that includes 40 acres or more of disturbed surface area.

Specific control measures for construction, excavation, extraction, and other earthmoving activities required by the Valley Air District include:

- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover in order to comply with Regulation VIII's 20 percent opacity limitation.

- All onsite unpaved roads and offsite unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.

- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.

- When materials are transported offsite, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.

- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. However, the use of blower devices

is expressly forbidden, and the use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.

- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- Within urban areas, trackout shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.
- Any site with 150 or more vehicle trips per day shall prevent carryout and trackout.

Enhanced and additional control measures for construction emissions of PM10 shall be implemented where feasible. These measures include:

- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site.
- Install wind breaks at windward side(s) of construction areas.
- Suspend excavation and grading activity when winds exceed 20 mph.
- Limit area subject to excavation, grading, and other construction activity at any one time.

~~**Mitigation Measure 4.8.1b.** The applicant shall implement feasible control measures during construction to mitigate NOx and ROG emissions from construction equipment, which may include:~~

- ~~Require construction equipment used at the site to be equipped with catalysts/particulate traps to reduce particulate emissions. These catalysts/traps require the use of ultra-low sulfur diesel fuel (15 ppm). Currently, CARB has verified a limited number of these devices for installation in several diesel engine families to reduce particulate emissions. At the time bids are made, have the contractors show that the construction equipment used is equipped with particulate filters and/or catalysts or prove why it is infeasible.~~
- ~~Use alternative fueled construction equipment, where feasible.~~
- ~~Replace fossil-fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).~~
- ~~Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways.~~
- ~~Require that all diesel engines be shut off when not in use on the premises to reduce the emissions from idling.~~

~~**Mitigation Measure 4.8.1c:** Implementation Plans prepared by the applicant, and subsequent development projects, shall comply with Rule 9510 Indirect Source Review. Compliance with Rule 9510 would require reductions of 20% of the NOx construction emissions and 45% of the PM10 construction emissions, or payment of fees (as calculated in Rule 9510) to offset NOx or PM10 construction emissions not reduced to the specified levels.~~

Impact Significance after Mitigation: ~~Although construction of the project is temporary in duration, emissions of NOx (from construction equipment) and ROG (from construction equipment and architectural coating off-gas) would be significant and unavoidable after implementation of feasible mitigation. Compliance with Rule 9510 would reduce NOx emissions 20 percent (about 17 tons) during construction, but the remaining 69 tons of NOx during construction would be 59 tons above the annual NOx significance criteria. Mitigation measures would reduce fugitive dust impacts to a less-than-significant level. Rule 9510 would either reduce construction engine emissions or collect fees to offset emissions by reducing emissions from other sources. This would help to fulfill the SJVAPCD emission reduction commitments in the PM10 and Ozone Attainment Plans, but depending on the implementation and location of the offsite mitigation, may not reduce construction emissions at the construction site or at other downwind areas directly affected by the project construction.~~As compared to the project described in the Draft EIR, this revised project has a reduced construction acreage.~~–~~With implementation of the above mitigation measures, the air quality impact from construction of the revised project would be less than significant.

Typical Health Effects Related to Criteria Pollutants

Quantitative emissions of criteria pollutants from construction activities are provided in Table 4.8-4, the following discussion addresses the adverse health effects associated with these increased levels of ozone (from ROG and NOx), and PM10. The most recent measurements (year 2004 or 2005) for each pollutant are used as the baseline for the following descriptions of potential health effects related to an increase in pollutant concentration and exposure.

Ozone

- Studies have shown that exposure to ambient concentrations of 0.12 ppm ozone for 1 to 3 hours result in increased respiratory irritation and a 10 percent decrease in the FEV1[40] in 10 to 25 percent of the exposed subjects. No effects were observed at concentrations less than 0.12 ppm. Subjects were healthy adults performing moderate exercise (OEHHA, 2004; CalEPA and OEHHA, 2004).
- Studies have shown that exposure to ambient concentrations of 0.18 to 0.20 ppm ozone for 1 hour result in bronchial responsiveness and pulmonary inflammation, capable of aggravating preexisting chronic respiratory disease (i.e., bronchitis, asthma, emphysema) (OEHHA, 2004; CalEPA and OEHHA, 2004).
- Studies have shown that exposure to ambient concentrations of 0.24 ppm ozone for 1 to 3 hours result in increased shortness of breath and pain on deep breath (OEHHA, 2004).

[40] FEV1 is the most common measure of lung function. FEVI is the volume of air exhaled during the first second of a forced expiratory test of the lungs started from the level of total lung capacity. FEV1 is used to test for airway obstructions, bronchoconstriction and bronchodilatation.

- Studies have shown that exposure to ambient concentrations of 0.08 ppm ozone for 6.6 to 8 hours result in significant effects on lung function, respiratory symptoms, and airway hyper responsiveness among healthy, exercising individuals (OEHHA, 2004).

The highest recently measured levels of ozone in Stockton (Table 4.8-1) are 0.099 ppm (1-hour average) and 0.086 ppm (8-hour average). Any increases in ozone levels due to the project would probably occur in other areas of the region due to the dispersion of ozone precursors (ROG and NOx) and the time it takes for ozone to form. Although detailed photochemical modeling was not conducted for this EIR, the project emissions of ROG and NOx would both be ~~2 percent or less~~less than 1 percent of countywide emissions (CARB, 2005) and increases in ozone concentrations would be minor and difficult to quantify. As such, any increases in ozone would be minimal, but would add to ozone levels that already exceed federal and state standards and that can cause respiratory problems.

PM10

- Studies have shown increased mortality due to increases of 10 $\mu g/m^3$ in ambient concentration levels of PM10:
  1. 0.5 to 2.0 percent increase in total mortality risk. Notably, the elderly, individuals with chronic heart or lung disease, and infants appear to be at the greatest risk of PM-associated mortality (CalEPA, 2002).
  2. 0.8 to 1.8 percent increase in risk of cardiac mortality (CalEPA, 2002).
  3. 1.3 to 3.7 percent increase in risk of respiratory mortality (CalEPA, 2002).
- Studies have shown increased morbidity due to increases of 10 µg /m3 of PM10:
  1. 0.6 to 2.0 percent increase in cardiovascular related hospitalizations (i.e., cardiovascular disease, congestive heart failure, and ischemic heart disease[41]). Majority of hospitalizations reported were individuals over age 65 (CalEPA, 2002).
  2. 1.25 to 5 percent increase in respiratory disease hospitalizations or urgent care visits (i.e., total respiratory disease, COPD[42], asthma, pneumonia). These effects have been reported primarily for individuals over 65, but effects have been reported for all age groups (CalEPA, 2002).
  3. 10 to 15 percent decrease in activity for adults (i.e., more days spent in bed, days missed from work, or days when activities are partially restricted due to illness) (CalEPA, 2002).
  4. 4 percent increase in absenteeism (elementary school subjects) (CalEPA, 2002).

The highest recently measured levels of PM10 in Stockton (Table 4.8-1) are 50 to 176 $\mu g/m^3$ (24 hour average) and 22 to 30 $\mu g/m^3$ (annual average). Based on measurements taken at large construction sites, PM10 levels could potentially increase by 10 $\mu g/m^3$ during project construction. Without mitigation, ~~A~~a 10 $\mu g/m^3$ average increase in PM10 levels could lead to the mortality and morbidity health effects discussed above.

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41 Deficient blood supply and oxygen to the heart tissues.

42 Chronic Obstructive Pulmonary Disease, such as emphysema or chronic bronchitis.

Impact 4.8.2. Construction activities associated with development of the Barkett property would potentially produce short-term emissions of suspended asbestos. This impact would be potentially significant.

Construction activities on the Barkett Property, which is a known asbestos disposal site, could generate airborne asbestos. Airborne asbestos fibers pose a serious health threat if adequate control techniques are not carried out when the material is disturbed. Demolition, excavation, or removal of asbestos-containing materials is subject to the limitations of the National Emissions Standards for Hazardous Air Pollutants (NESHAP) as listed in 40 CFR Part 61, Subpart M, requiring notification and inspection. Most demolition and many renovation activities are subject to an asbestos inspection prior to start of the activity (SJVAPCD, 2002b). The applicant will consult with the Valley Air District's Compliance Division prior to commencing any site preparation to determine inspection and compliance requirements. As stated in the *GAMAQI*, strict compliance with existing asbestos regulations will normally prevent asbestos from being considered a significant adverse impact.

Mitigation Measures:

> **Mitigation Measure 4.8.2.** Before any site work is done on the Barkett Property parcels, the ~~applicant~~ property owner shall contact the SJVAPCD Compliance Division and implement all appropriate asbestos cleanup procedures.

Impact Significance after Mitigation: Implementation of appropriate asbestos cleanup procedures would reduce the potential impact to less than significant.

Impact 4.8.3. The project would result in an increase in operational emissions of criteria air pollutants (ROG, NOx and PM10) from on-road motor vehicle traffic traveling to and from the project area and onsite area sources associated with the project. This impact would be significant.

Over the long-term, the project would result in an increase in emissions primarily due to related motor vehicle trips. Onsite stationary sources and area sources (e.g., natural gas emissions from space heating) would result in lesser quantities of pollutant emissions.

Operational emissions for the two development scenarios have been analyzed separately and presented in Table 4.8-5 below. Emissions for project completion year ~~2008~~ 2009 and cumulative analysis year 2025 have been prepared using URBEMIS ~~2002~~ 2007 (version 9.2) and the traffic data provided by Fehr and Peers. The results are shown in Table 4.8-5. The estimates shown in Table 4.8-5 are based on ~~35,20~~21,900~~0~~ daily vehicle trips generated by a ~~710~~481,000-square-foot, mixed-use regional shopping center, as estimated in the traffic report for this project. The table also compares project emissions to the SJVAPCD thresholds for ROG and NOx, as well as an assumed threshold for PM10.

REVISED TABLE 4.8-5
PROJECT AREA AND OPERATIONAL EMISSIONS (TONS PER YEAR)

Pollutant	SJVAPCD Thresholds (tons/yr)	Unmitigated Area plus Operation Emissions (tons/yr)[a]			
		Year 2009	Significant? (Yes or No)	Year 2025	Significant (Yes or No)?[b]
ROG	10	**29**	**Yes**	**10**	**Yes**
NO_x	10	**46**	**Yes**	**11**	**Yes**
PM10	10[c]	**30**	**Yes**	**29**	**Yes**
PM2.5	NA[d]	6	NA	6	NA
CO_2	NA[d]	18,518	NA	18,396	NA
CO	NA[d]	291	NA	87	NA

a Emission factors were generated by the Air Board's URBEMIS 2007 model for San Joaquin Valley Air Basin, and assume a default vehicle mix.

b Comparison to the SJVAPCD criteria for cumulative analysis year does not entirely determine cumulative significance. See the discussion under Cumulative Impact 4.8.6 for significance criteria and analysis for the Year 2025.

c The SJVAPCD does not have an established emissions threshold of significance for PM10. However, the Bay Area Air Quality Management District has established a significance threshold for PM10 that is equivalent to its thresholds for ROG and NOx. In order to determine significance for operational PM10 for this project, project generated emissions will be compared to an assumed 10 ton per year threshold for PM10, which is equivalent to the SJVAPCD thresholds for ROG and NOx.

d The SJVAPCD does not have an established emissions threshold of significance for CO. However, CO hotspot analysis was performed in order to determine if project generated traffic would lead to concentrations that exceed the State Ambient Air Quality Standards. See Impact 4.8.4 below.

NOTE: **Bold** values are in excess of applicable standard. The SJVAPCD established thresholds for ROG and NOx are 10 tons per year, whereas CO, CO_2, PM2.5, and PM10 do not have an established emissions threshold of significance.

Source: ESA, 2007

Based on the estimates shown in Table 4.8-5, the project's contribution to regional air quality would be above the significance thresholds specified by the SJVAPCD for ROG and NOx. The project would also generate unmitigated PM10 emissions that would exceed the assumed threshold of 10 tons per year. Therefore, without mitigation, the operational impacts of the project would be considered significant.

Mitigation Measures:

Mitigation Measure 4.8.3a: ***To reduce the operational impacts of the project, feasible mitigation measures from the following ~~list~~ table shall be implemented as required by the City.***:

Air Quality Mitigation Measure 4.8.3a	Weston Ranch Towne Center Project Implementation
Rideshare Measure: Implement carpool/vanpool program (e.g., carpool, ride matching for employees, assistance with vanpool formation, provision of vanpool vehicles, etc.).	***No employer trip reduction programs proposed. Note that SB 437 (Health and Safety Code § 40717.9) eliminates mandatory employee trip reduction programs, including vanpool/carpools.***
Transit Measure: Construct transit facilities such as bus turnouts/bus bulbs, benches, transit shelters, and, route signs and displays.	***The FEIR Transportation section (Site Plan Review section) states: The San Joaquin Regional Transit District has requested that the project applicant provide appropriate transit features, including bus pull-outs. The applicant has coordinated with the City of Stockton transit authority to include a bus stop at Manthey Road (west). This stop will be accessed by four separate bus routes, providing service to the site from various locations.***

Transit Measure: The project applicant would provide transit enhancing infrastructure that includes transit shelters, benches, street lighting, etc. at the project site.	***The FEIR Transportation section (Site Plan Review section) states: The San Joaquin Regional Transit District has requested that the project applicant provide appropriate transit features, including bus pull-outs. The applicant has coordinated with the City of Stockton transit authority to include a bus stop at Manthey Road (west). This stop will be accessed by four separate bus routes, providing service to the site from various locations.***
Transit Measure: Contribute to regional transit systems (e.g., right-of-way, capital improvements, and park-and-ride lots)	***75 non-exclusive park-n-ride spots will be shared between the Vestar site (including the Wal-Mart) and the MCD site.*** ***Additionally, 15 prioritized parking spaces shall be preserved for electric vehicles, hybrid vehicles, and alternative fuel vehicles (5 prioritized parking spaces for Wal-Mart; 5 prioritized parking spaces for the junior anchors stores; and 5 prioritized parking spaces for the pad buildings).***
Bicycle and Pedestrian Measure: Provide direct, safe, attractive pedestrian and bicycle access to transit stops and adjacent development	***As noted in the project description, relevant improvements to the project site expected to be completed prior to or in conjunction with development of the project includes installation of off-street bikeways, curbs, gutters, and sidewalks in appropriate areas.***
Bicycle and Pedestrian Measure: Provide bicycle lanes and/or paths, connected to community-wide network.	***As noted in the project description, relevant improvements expected to be completed prior to or in conjunction with development of the project include installation of off-street bikeways, curbs, gutters, and sidewalks in appropriate areas.*** ***Additionally, the FEIR Transportation section (Site Plan Review section) states: Based on the City of Stockton Existing and Future Bikeway Plan dated April 26, 2002 (<www.stocktongov.com/parks/pdf/bikepath.pdf>), a Class I bicycle path would be constructed on French Camp Road along the project frontage and would be located within an 8 foot meandering sidewalk/path on the north and south sides of French Camp Road. Manthey Road is designated as a Class III bicycle route. These improvements would enhance bicycle and pedestrian access to the site and throughout the area.***
Bicycle and Pedestrian Measure: Provide street lighting.	***As noted in the project description, relevant improvements expected to be completed prior to or in conjunction with development of the project include lighting for streets, parking, and other outdoor areas; and installation of streetlights, landscaping, signs, and signals in appropriate areas.***
Bicycle and Pedestrian Measure: Improve or construct onsite and offsite pedestrian facilities (e.g., overpasses, wide sidewalks, and building access for pedestrians).	***As noted in the project description, relevant improvements expected to be completed prior to or in conjunction with development of the project include installation of off-street bikeways, curbs, gutters, and sidewalks in appropriate areas. No overpasses are needed for this project.***
Bicycle and Pedestrian Measure: Provide pedestrian safety designs/infrastructure at crossings.	***The individual driveway to the rear of the Wal-Mart building will have an ADA path of travel across it. Truncated domes will be placed to provide additional safety. Additionally, the site plan shows a network of pedestrian access routes that will allow pedestrians to travel onto the site from the adjacent roadways and throughout the site in designated pedestrian routes and crossings.***
Energy Conservation Plan Measure: Increased energy efficiency (meet or exceed California Title 24 Requirements)	***All buildings within the project shall achieve an overall reduction of 5% in energy consumption relative to the requirements of State of California Title 24. To achieve this reduction, the applicant may use singularly or in combination measures noted in this mitigation measure (4.8.3a) as well as the following:*** ▪ ***Establishment of tree-planting guidelines that require the applicants or businesses within the project area to plant trees to shade buildings primarily on the west and south sides of the buildings. Use of deciduous trees (to allow solar gain during the winter) and direct shading of air conditioning systems shall be included in the guidelines.***

	Additionally, the project will use energy efficient HVAC units.
	Wal-Mart will specifically implement this measure, as follows:
	STOCKTON (S), CA WAL MART 3353-00 SUSTAINABLE FEATURE
	(3) Energy efficient HVAC units: The store will utilize "super" high efficiency packaged HVAC units. While the industry standard EER (Energy Efficiency Ratio) is 9.0, the Wal-Mart units are rated at approximately 11.25, which is approximately 6% more efficient than required by California Title 24.
Energy Conservation Plan Measure: Increased wall and ceiling insulation (meet or exceed California Title 24 Requirements)	***The project will meet Title 24 requirements.***
Energy Conservation Plan Measure: Energy efficient windows (double pane and/or Low-EE)	***The project will utilize energy efficient windows (double pane and/or Low-EE) for south and west facing windows.***
	This measure is not applicable for Wal-Mart because the building will not have windows.
Energy Conservation Plan Measure: High-albedo (reflecting) roofing material, or similar	***The project will implement this measure.***
	Wal-Mart will specifically implement this measure, as follows:
	STOCKTON (S), CA WAL MART 3353-00 SUSTAINABLE FEATURE
	(9) White Roofs: The store will include a "white" membrane roof versus most applications that are a darker color. The high solar reflectivity of this membrane results in lowering the "cooling" load by about 8%.
Energy Conservation Plan Measure: Cool paving	***This measure is not applicable for this type of project.***
Energy Conservation Plan Measure: Radiant heat barrier	***This measure will be implemented in wood frame buildings if alternative insulators are not used.***
Energy Conservation Plan Measure: Energy efficient lighting, appliances, and heating and cooling systems	***The project will utilize energy efficient HVAV units.***
	Wal-Mart will specifically implement this measure, as follows:
	STOCKTON (S), CA WAL MART 3353-00 SUSTAINABLE FEATURE
	(3) Energy efficient HVAC units: The store will utilize "super" high efficiency packaged HVAC units. While the industry standard EER (Energy Efficiency Ratio) is 9.0, the Wal-Mart units are rated at approximately 11.25, which is approximately 6% more efficient than required by California Title 24.
	(5) Light Sensors: The store will include occupancy sensors in non-sales floor areas. These sensors detect activity in a room and automatically turn off the lights when the space is unoccupied.
	(6) Dehumidifying: The store will include a dehumidifying system that allows Wal-Mart to operate the store at a higher temperature, use less energy, and allow the refrigeration system to operate more efficiently.
	(7) Food Displays: Wal-Mart does not use heating elements in the freezer doors to combat condensation. Instead, Wal-Mart uses a film on the doors that serves the same purpose but requires no energy.
	(10) Interior Lighting Retrofit Program: All lighting in the store will utilize T-8 fluorescent lamps and electronic ballasts, which are the most efficient lighting on the market. The energy load is reduced by approximately 15-20% as a result. Also, the entire store will also use only "low-mercury" lamps, which are not considered to be a hazardous material and are considered to be very "green friendly." Although these lamps can be

	disposed of with no special precautions, out of concern for the environment, Wal-Mart has volunteered to recycle these lamps instead of simply placing them in a landfill.
	(11) LED Signage Illumination: All internally illuminated building signage will use LED lighting. This application of LED technology is over 70% more energy-efficient than fluorescent illumination. With lamp life ranging to 100,000 hours, using LEDs provides an extended life span of 12 to 20 plus years. This significantly reduces the need to manufacture and dispose of fluorescent lamps.
Energy Conservation Plan Measure: Solar water-heating systems	***This measure will not be implemented because it is not applicable for this type of project.***
	Wal-Mart, however, will implement heat recapture for water heating, as follows:
	STOCKTON (S), CA WAL MART 3353-00 SUSTAINABLE FEATURE
	(8) Water Heating: The store will capture waste heat from the refrigeration equipment to heat water for the kitchen prep areas of the store.
Energy Conservation Plan Measure: Photovoltaic cells	***This measure will not be implemented because it is not applicable for this type of project.***
Energy Conservation Plan Measure: Programmable thermostats for all heating and cooling systems	The project will include programmable thermostats for all heating and cooling systems.
	Wal-Mart will specifically implement this measure, as follows:
	STOCKTON (S), CA WAL MART 3353-00 SUSTAINABLE FEATURE
	(4) Central Energy Management: The store will be equipped with an energy management system that will be monitored and controlled from the Home Office in Bentonville, Arkansas. The system enables Wal-Mart to monitor energy usage, analyze refrigeration temperatures, observe HVAC and lighting performance, and adjust lighting, temperature, and/or refrigeration set points 24 hours per day, seven days per week.
Energy Conservation Plan Measure: Awnings or other shading mechanism for windows	***The project will implement this measure. Awnings have been incorporated into the design.***
	This measure is not applicable for Wal-Mart because the building will not have windows.
Energy Conservation Plan Measure: Porch, patio, and walkway overhangs	***The project includes overhangs at the major tenant entries.***
Energy Conservation Plan Measure: Ceiling fans and whole house fans	***Whole house fans are typically used in residential development. In-line stores may use ceiling fans where appropriate.***
	Wal-Mart will not use ceiling fans because they are infeasible with the high ceilings of supercenters. Additionally, fans are not necessary with the planned HVAC system for Wal-Mart.
Energy Conservation Plan Measure: Orient the units to maximize passive solar cooling and heating when practicable	***Majors 1 through 6 are located on east-west (solar) axis to maximize passive solar cooling and heating.***
Energy Conservation Plan Measure: Use passive solar cooling and heating designs	***The project design includes south facing windows on the Major Retail stores for passive heating as well as overhangs and landscaping for passive summer cooling. The Wal-Mart building will not implement this measure.***
Energy Conservation Plan Measure: Use daylighting (natural lighting) systems such as skylights, light shelves, interior transom windows, etc.	***Daylighting (natural lighting) systems such as skylights, light shelves, or interior transom windows are not feasible for the project due to the size of the retail stores.***
	The project will implement a type of night light system that utilizes night dimming. The stores will include lighting that can

	dim illumination during the later night hours.
	Wal-Mart will specifically implement this measure, as follows:
	STOCKTON (S), CA WAL MART 3353-00 SUSTAINABLE FEATURE
	(1) Daylighting (skylights/dimming): The store will include a daylighting system, which automatically and continuously dims all of the lights as the daylight contribution increases. Over 90% of the facilities Wal-Mart builds from the ground up include a daylight harvesting system (skylights, electronic dimming ballasts, computer controlled daylight sensors, etc.). Nationwide, Wal-Mart has approximately 2,100 stores with this system in place, resulting in an annual savings of approximately 600,627,600 KWH.
	(2) Night Dimming: The store will include lighting that will dim to about 75% illumination during the late night hours. Since many Wal-Mart stores are open 24 hours, Wal-Mart utilizes state-of-the-art Energy Management Systems to dim sales floor lighting during the evening hours, which results in annual savings nationwide of approximately 44,000,000 KWH.
Energy Conservation Plan Measure: Electrical outlets around the exterior of the units to encourage use of electric landscape maintenance equipment	***The project will include electrical outlets around the exterior of the units to encourage use of electric landscape maintenance equipment. Wal-Mart will not include this measure as the outlets on other Wal-Mart stores are rarely used.***
Energy Conservation Plan Measure: Bicycle parking facilities for patrons, employees, and/or students in a covered secure area	***The project will meet standard City bike parking ratios.***
Energy Conservation Plan Measure: Employee shower and locker areas for bicycle and pedestrian commuters	***The project will not require employee showers because it is not applicable for this type of project. Wal-Mart will provide lockers for employees.***
Energy Conservation Plan Measure: On-site employee cafeterias or eating areas	***The project will have eateries that will afford employees a place to eat without leaving the project site.***
Energy Conservation Plan Measure: Low or non-polluting landscape maintenance equipment (e.g., electric lawn movers, reel mowers, leaf vacuums, electric trimmers, and edgers, etc.)	***The project will implement this measure.***
Energy Conservation Plan Measure: Exits to adjoining streets should be designed to reduce time to re-enter traffic from the project site.	***The redesigned access street is designed to provide greater efficiency.***
Energy Conservation Plan Measure: The project will include an information center for residents to coordinate carpooling and vanpooling.	***The project will implement this measure.***

~~1. Transit service infrastructure shall be approved by the City prior to development of each phase of the project.~~

~~**Rideshare Measures:** Implement carpool/vanpool program (e.g., carpool, ride matching for employees, assistance with vanpool formation, provision of vanpool vehicles, etc.).~~

~~**Transit Measures:** Construct transit facilities such as bus turnouts/bus bulbs, benches, transit shelters, and, route signs and displays.~~

~~The project applicant would provide transit enhancing infrastructure that includes transit shelters, benches, street lighting, etc. at the project site.~~

~~Contribute to regional transit systems (e.g., right-of-way, capital improvements, and park-and-ride lots)~~

~~**Bicycle and Pedestrian Measures:** Provide direct, safe, attractive pedestrian and bicycle access to transit stops and adjacent development~~

~~Provide bicycle lanes and/or paths, connected to community-wide network.~~

~~Provide street lighting.~~

~~Improve or construct onsite and offsite pedestrian facilities (e.g., overpasses, wide sidewalks, and building access for pedestrians).~~

~~Provide pedestrian safety designs/infrastructure at crossings.~~

~~2. Implement feasible energy-conserving features from the list provided by the SJVAPCD (SJVAPCD, 2005). Prior to the implementation of the project, the applicant will present for City approval an energy-conservation plan that includes consideration of each of the following potential measures. The City, in consultation with the SJVAPCD, will require implementation of clearly feasible measures from this list.~~

- ~~Increased energy efficiency (meet or exceed California Title 24 Requirements)~~
- ~~Increased wall and ceiling insulation (meet or exceed California Title 24 Requirements)~~
- ~~Energy efficient windows (double pane and/or Low-EE)~~
- ~~High-albedo (reflecting) roofing material, or similar~~
- ~~Cool paving~~
- ~~Radiant heat barrier~~
- ~~Energy efficient lighting, appliances, and heating and cooling systems~~
- ~~Solar water-heating systems~~
- ~~Photovoltaic cells~~
- ~~Programmable thermostats for all heating and cooling systems~~
- ~~Awnings or other shading mechanism for windows~~
- ~~Porch, patio, and walkway overhangs~~
- ~~Ceiling fans and whole house fans~~
- ~~Orient the units to maximize passive solar cooling and heating when practicable~~
- ~~Use passive solar cooling and heating designs~~
- ~~Use daylighting (natural lighting) systems such as skylights, light shelves, interior transom windows, etc.~~
- ~~Electrical outlets around the exterior of the units to encourage use of electric landscape maintenance equipment~~
- ~~Bicycle parking facilities for patrons, employees, and/or students in a covered secure area~~
- ~~Employee shower and locker areas for bicycle and pedestrian commuters~~

- ~~On-site employee cafeterias or eating areas~~
- ~~Low or non-polluting landscape maintenance equipment (e.g., electric lawn movers, reel mowers, leaf vacuums, electric trimmers, and edgers, etc.)~~
- ~~Exits to adjoining streets should be designed to reduce time to re-enter traffic from the project site.~~
- ~~The project will include an information center for residents to coordinate carpooling and vanpooling.~~

Mitigation Measure 4.8.3b: Implementation Plans for the project shall comply with Rule 9510 Indirect Source Review. Compliance with Rule 9510 will require reductions of 33.3% of the NOx operational emissions and 50% of the PM10 construction emissions, or payment of fees (as calculated in Rule 9510) to offset NOx or PM10 operational emissions not reduced to the specified levels.

Impact Significance after Mitigation: Depending on the level of implementation, the above mitigation measures would reduce the operational impacts of the project by reducing motor vehicle trips generated by the project. It is likely that the mitigation measure could reduce ROG and NOx emissions to less-than-significant. However, the residual impact would still be significant and unavoidable due to PM10 emissions that would exceed the significance criterion. See the Impact 4.8.1 ~~"Impact Significance after Mitigation"~~ discussion, above, for potential health effects associated with increased criteria pollutant emissions from project construction and operation activities.

Impact 4.8.4: Project traffic would increase localized carbon monoxide concentrations at intersections in the project vicinity. This impact would be less than significant.

Traffic generated by the project was analyzed to determine its potential to affect carbon monoxide concentrations along surface streets in the project area. The modeling method included background CO concentration levels recommended by the SJVAPCD, and traffic projections prepared for the project at the most affected local intersections in the project vicinity, as well as the roadway segment in the vicinity of the Great Valley Elementary School:

- Intersection of Carolyn Weston and McDougald Boulevard
- Intersection of French Camp Road and McDougald Boulevard
- McDougald Boulevard, near the Great Valley Elementary School

As these were the intersections most affected by project-related traffic, it was assumed that if carbon monoxide concentrations at these three areas would not exceed the ambient air quality standards, the project's contribution to impacts at other intersections affected by project traffic to a lesser extent would also be less than significant.

As shown in Table 4.8-6, the analysis demonstrated that no violations of the CO standard would occur at the receptor locations near the intersections and segments that were modeled. In fact, CO concentrations would decrease in the Cumulative 2025 scenarios compared to existing levels

(due to reductions in the predicted future CO emission factors resulting from a cleaner future mix of vehicles). Project traffic would have a less-than-significant-effect upon CO concentrations in the area. Thus, project-related and cumulative traffic would have a less-than-significant impact on local carbon monoxide concentrations, as shown in Table 4.8-6.

Mitigation: None required.

Impact 4.8.5. Emissions of diesel particulate matter from truck traffic and operations within the loading dock and toxic air contaminants from the service station area could pose a risk to human health. This impact would be less than significant.

Implementation of the project would locate large retail facilities (Wal-Mart Supercenter~~ and a major retailer~~) and smaller retailers near existing and approved residential developments. The loading docks at these retail stores primarily accommodate diesel trucks. A supplemental health risk assessment, which is summarized below, was conducted (see Appendix F for full discussion) to assess the diesel particulate matter (DPM) impacts due to diesel vehicle traffic and transportable thermal refrigeration units (TRU's) on nearby sensitive receptors. Air toxics impacts due to the service station fuel dispensing operations were also included in the health risk assessment.

The SJVAPCD has established a significance threshold for health risk exposure to TACs, including diesel emissions, of 10 cases of cancer per million ~~population~~populations over a 70-year exposure period. The ~~DPM~~ cancer risk is the probability of an individual developing cancer as a result of exposure to air toxics~~DPM~~. The cancer risks ~~from DPM~~ were assumed to occur exclusively through the inhalation pathway. Based on diesel truck engine and truck TRU activity at an existing Wal-Mart Supercenter in Stockton (3223 East Hammer Lane), it was determined that for this project, the cancer risks ~~DPM concentrations~~ would be greatest ~~(0.0409 µg/m^3)~~ to the north~~west~~ of the Wal-Mart Supercenter (along ~~, along the site boundary, south of~~ Henry Long Boulevard). This area is designated as commercial land use within the proposed 2035 General Plan.~~ on the eastern edge of the approved residential development located at French Camp Rd and McDougald Boulevard.~~ The cancer risks are primarily due to DPM impacts. The air toxics impacts from the service station are primarily non-cancer health impacts. As shown in Figure 4.8-1, the~~se~~ DPM concentrations equate to cancer ~~health~~ risks that are less~~greater~~ than 10 cancers per million at all locations of existing or potential residences~~ west of the project site~~ (the maximum cancer risk is ~~value in the model was~~ 5~~124.3~~ cancers per million)[9]. Under the commercial land use for the area north of the project site, this would be less than significant impact[10].

~~The estimated risks were all below 10 cancers per million at the locations that were modeled directly north of the project site.~~ The maximum increase of 5~~124.3~~ cancers per million is relatively small compared with the overall cancer incidence of 200,000 to 250,000 per million in the United States. However, public health officials view this significance standard differently: if efforts aren't made to reduce the risk from other sources of cancer-causing pollutants, then the overall odds will climb above the existing rate of one in every four or five persons. ~~This would be a significant impact without mitigation.~~

TABLE 4.8-6
ESTIMATED CARBON MONOXIDE CONCENTRATIONS AT SELECTED INTERSECTIONS IN PROJECT VICINITY

Receptor ~~Location[b]~~ Location[c]	Averaging Time (hours)	State Standard	Existing (2005)	Near Term (2011) plus Project	Incremental Increase of Near Term Plus Project Versus Existing	Significant? (Yes or No)	Cumulative (2025) Plus Project	Incremental Increase of Cum. 2025 Plus Project Versus Existing	Significant? (Yes or No)
		Concentrations (ppm)[a,b]							
1. Carolyn Weston and McDougald	1	20	4.7	4.9	0.2	No	4.1	-0.6	No
	8	9	3.2	3.3	0.1	No	2.8	-0.4	No
2. French Camp Rd and McDougald	1	20	5.1	6.2	1.1	No	4.8	-0.3	No
	8	9	3.5	4.3	0.8	No	3.3	-0.2	No
3. McDougald, across from school	1	20	4.0	4.1	0.1	No	3.8	-0.2	No
	8	9	2.7	2.8	0.1	No	2.6	-0.1	No

a Concentrations relate to receptor locations at approximately 40 feet for Receptor 1, 25 feet for Receptor 2, and 30 feet for Receptor 3 from the middle of the roadways that form the intersection. The carbon monoxide analysis focuses on the weekday evening (p.m.) peak-hour because the project's effects on traffic congestion and related carbon monoxide concentrations are greater during that period than the a.m. peak-hour or off-peak periods. Carbon monoxide estimates shown above include background year 2004 concentrations of 3.7 ppm, one-hour average, and 2.5 ppm, 8-hour average. This background was recommended by the SJVAPCD and pulled from the EPA website (www.epa.gov/air/data/reports.html). Although the background concentration would be reduced from 2004 to 2005, 2011, and 2025, the 2004 concentration was implemented as the background for each scenario as a conservative assumption.

b These concentrations were determined based on a previously proposed project that would generate 35,200 daily traffic trips. The current project would generate 21,900 daily traffic trips. Since the CO impact was already determined to be less-than-significant for a greater number of trips, the CO impact for the current project would also be less than significant.

~~b~~c Since these receptors are located at the intersections most affected by project-related traffic, other receptors in the project vicinity would experience lower CO concentrations and the impact would also be ~~less than significant~~less-than-significant.

The Hazard Index is an expression used for the potential for non-cancer health effects. The SJVAPCD has established a significance threshold for non-cancer health risk based on ground-level concentrations of TACs that would result in a Hazard Index greater than 1.0 for the MEI. Based on the modeling analysis of diesel truck engine and truck TRU activity and the service station, the non-cancer health risks are ~~well~~ below the Hazard Index of 1.0 at all receptors. This would be a less-than significant impact and does not require mitigation.

Finally, the gas station would contain 12 fueling positions and, on the basis of average throughput for similar-sized fuel stations in California, would have an estimated throughput of 2.8 million gallons a year. This amount of throughput would be below the 3.6 million-gallon threshold established by the CARB Air Quality and Land Use Handbook for a large fuel station and, therefore, would be classified as a typical fuel station. The CARB advisory guidelines suggest that new typical fuel stations be located a minimum of 50 feet from the nearest sensitive receptor.

As shown on the project site plan, the fuel canopy would be more than 500 feet from the nearest residences to the west of the project site; therefore, it would be consistent with the advisory separation distance recommendations.

Although not required to mitigated a significant health risk, the following mitigation measure would restrict idling time for heavy vehicles, reducing air emissions from diesel-powered engines.

Mitigation Measures:

> **Mitigation Measure 4.8.5a.** All diesel truck operators shall be monitored to strictly abide by the applicable state law requirements for idling, as described in the air borne toxic control measure (CCR, Title 13, section 2485), which limits vehicles with gross vehicular weight ratings of more than 10,000 pounds to no more than 5 minutes of idling of the primary engine or the diesel-fueled auxiliary power system at any location. This limit shall be posted onsite.
>
> ~~**Mitigation Measure 4.8.5b.** TRU operation will be limited to no more than 120 minutes within the loading dock area or anywhere else on the project site. This limit will be posted onsite, and enforceable by City code enforcement staff.~~
>
> ~~**Mitigation Measure 4.8.5c.** To support the requirements of Mitigation Measure 4.8.5a, overhead panels shall be installed over the loading bays to provide shade for docked trucks in order to keep the truck cabin and trailer cooler and to decrease the need for truck idling to power air conditioning units. The panels shall be of sufficient size and oriented to shade the cabin during the summer season.~~

~~**Impact Significance after Mitigation:** With implementation of Mitigation Measures 4.8.5a – 4.8.5c, the health risk impacts would be reduced to a less-than significant level. The mitigated DPM concentrations would be greatest (0.0242 µg/m^3) to the west of the Wal-Mart Supercenter. This concentration translates to an approximate incremental cancer risk of 7.3 cancers per million. Thus, the mitigation measures would reduce the incremental cancer to less than 10 in a million and with the implementation of the mitigation measures; the impact would be less than significant.~~

Cumulative Impact

According to the SJVAPCD *GAMAQI*, a cumulative impact occurs when two or more individual effects, considered together, are considerable or would compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant impacts, meaning that the project's incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects. Notably, any project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact.

Cumulative Impact 4.8.6. The project would contribute to a cumulative air quality impact in the project area. This impact is considered significant.

Construction emissions from the project would result in the generation of air pollutants in the project area and in the immediate vicinity, and would incrementally add to cumulative emissions. The project would also add to ozone precursor emissions on a regional basis and would incrementally add to PM10 and CO emissions on a local basis. As discussed in Impact 4.8.4 above, however, CO emissions associated with the project on a Near Term and Cumulative basis would be ~~less than significant~~less than significant.

Based on the procedure for evaluating cumulative impacts of projects specified by the SJVAPCD's *GAMAQI*, any project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. Emissions from project sources would be combined with emissions from other sources, primarily including area traffic (local streets and freeways) from existing and future development in the greater project

Although cumulative traffic volumes would increase by 2025 over the estimated traffic associated with project operation in ~~2008~~2009, attrition of older, high polluting vehicles, improvements in the overall automobile fleet, and improved fuel mixtures (as a result of on-going State and federal emissions standards and programs for on-road motor vehicles) would reduce the cumulative NOx, ROG, and CO emissions from associated motor vehicles. Table 4.8-5 shows the operational emissions of criteria pollutants due to the project, as estimated using the ARB model URBEMIS ~~2002~~2007 ~~, and Table 4.8-6 shows the specific CO emissions generated by project traffic, as estimated using the Caline 4 model~~. Although ROG, NOx, and CO emissions decline in future years for project operations and countywide (see Tables 4.8-5 through 4.8-7), the project individually has significant air quality impacts (estimated emissions of the project would exceed the significance criteria of 10 tons per year for ROG, NOx, and PM10 in 2009~~2008~~ and 2025), and thus the project's incremental impact on air quality of the region would be considered cumulatively considerable, and thus significant, for cumulative analysis year 2025.

> **Mitigation Measure 4.8.6:** Implement Mitigation Measure 4.8.3a and Mitigation Measure 4.8.3b.

Impact Significance after Mitigation: Significant and unavoidable.

TABLE 4.8-7
SAN JOAQUIN COUNTY–EXISTING AND FORECASTED ANNUAL EMISSIONS

	Total Estimated Annual Average Emissions (tons/day) for San Joaquin County[a]						
Pollutant	**Year 2005**	**Year 2010**	**% Increase (2010 vs 2005)**	**Year 2015**	**% Increase (2015 vs 2005)**	**Year 2020**	**% Increase (2020 vs 2005)**
ROG	46.2	41.8	-9.5%	40.1	-13.2%	40.0	-13.4%
NOx	74.8	61.2	-18.1%	51.2	-31.6%	45.7	-39.0%
PM10	36.8	38.4	4.2%	40.1	9.0%	41.9	13.9%
CO	236.6	189.4	-19.9%	159.1	-32.8%	143.0	-39.5%

[a] Data from the ARB website, which presents the Almanac Emissions Projection Data, published in 2005. <www.arb.ca.gov/app /emsinv/emssumcat.php>. San Joaquin County data for the years 2005, 2010, 2015, and 2020.

4.9 Noise

This section addresses potential noise impacts from transportation sources, stationary sources, and temporary construction due to the project. This analysis uses typical construction equipment and vehicular traffic noise levels ~~and~~ to estimate corresponding noise levels at the nearest sensitive receptor locations.

4.9.1 Setting

Noise Principles and Descriptors

Noise Background

Noise is defined as unwanted sound. Sound, traveling through the air as waves outward from a source, exerts a sound pressure level (referred to as sound level) which is measured in decibels (dB). Pressure waves traveling through air exert a force registered by the human ear as sound. Zero dB corresponds roughly to the threshold of human hearing and 120 to 140 dB corresponds to the threshold of pain. Continuous human exposure to sound above roughly 90 dB can cause permanent hearing loss.

Sound pressure fluctuations can be measured in units of hertz (Hz) that correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of each measured Hz and the corresponding sound power level. The audible sound spectrum consists of a frequency range spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force of all wave energy in the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. Consequently, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz to imitate the human ear's decreased sensitivity to low and extremely high frequencies. This emulation of the human ear's frequency sensitivity is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). Frequency A-weighting follows an international standard method of frequency

de-emphasis and is typically applied to community noise measurements. In practice, the specific sound level from a source is measured using a meter incorporating an electrical filter corresponding to the A-weighting curve. Some representative noise sources and their corresponding A-weighted noise levels are shown in Figure 4.9-1. All of the noise levels reported here are A-weighted unless otherwise stated.

Noise Exposure and Community Noise

An individual's noise exposure is a measure of sound experienced over a period of time. A noise level is a measure of noise at a given instant in time. The noise levels presented in Figure 4.9-1 are representative of measured noise at a given instant in time; however, they rarely persist consistently over long periods of time. Rather, community noise varies continuously over a period of time with respect to the contributing sound sources in the community noise environment. Community noise is primarily the product of many distant noise sources that constitute a relatively stable background noise exposure, within which individual contributors are indistinguishable. Background noise levels change throughout a typical day, but do so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and wind. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short-duration, single-event noise sources, such as aircraft flyovers, passing vehicles, or sirens, which are readily identifiable to the individual. These successive additions of sound to the community noise environment change the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize community noise environment and evaluate noise impacts in qualitative terms. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

L_{eq}: the equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound level that would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

L_{max}: the instantaneous maximum noise level for a specified period of time.

L_{10}: the noise level that is equaled or exceeded 10 percent of the specified time period. The L_{10} is often considered the maximum noise level averaged over the specified time period.

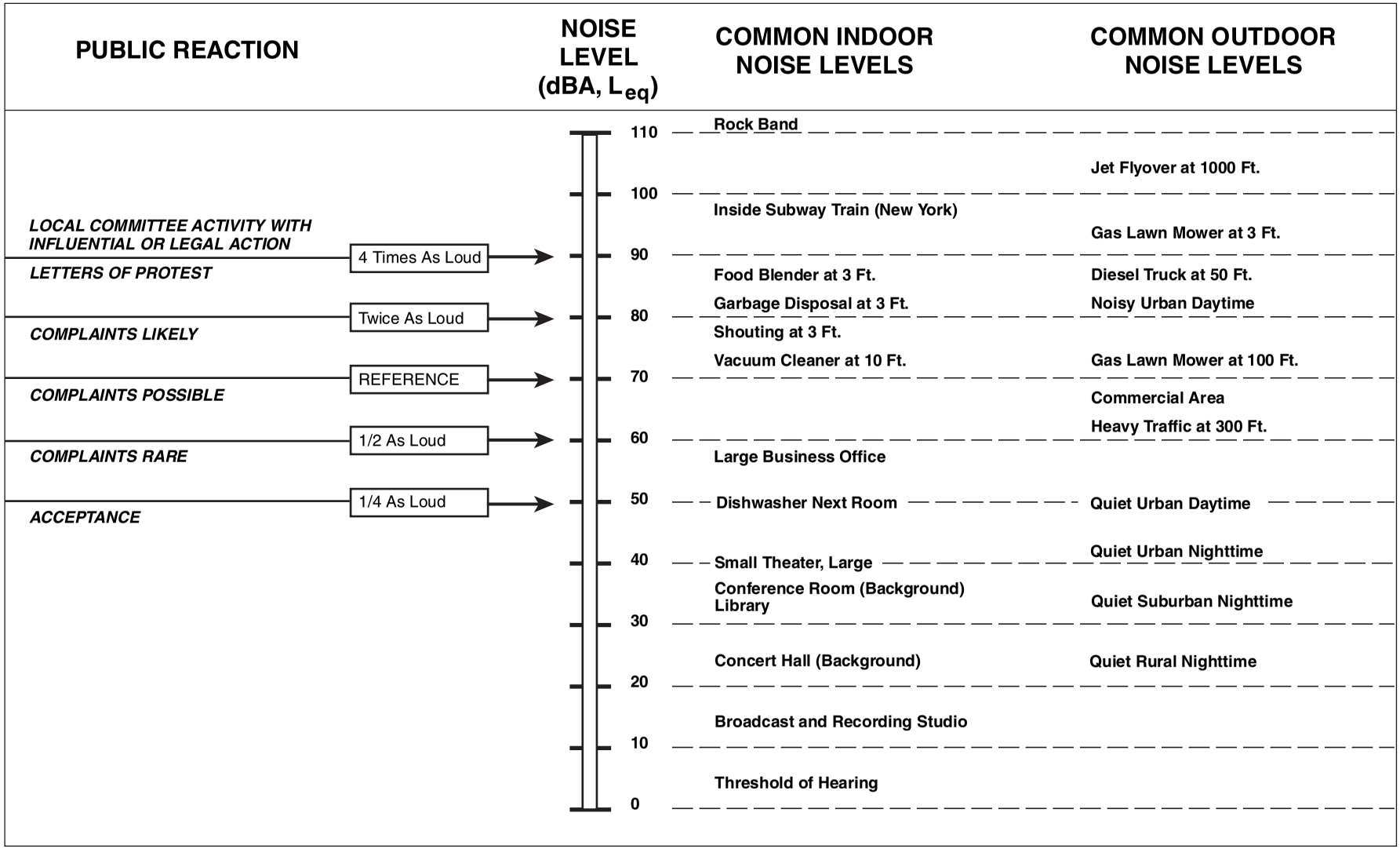
Ldn: See DNL, the Ldn is the same as the DNL.

L_{90}: the noise level that is equaled or exceeded 90 percent of the specified time period. The L_{90} is often considered the background noise level averaged over the specified time period.

DNL: the Day/Night Average Sound Level is the 24-hour day and night A-weighed noise exposure level which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night. Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noise. (Formerly called Ldn).

CNEL: similar to the DNL, the Community Noise Equivalent Level adds a 5 dBA penalty for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to a 10 dBA penalty between the hours of 10:00 p.m. and 7:00 a.m.

SEL: a receiver's cumulative noise exposure from a single noise event. Often used to calculate L_{eq} and DNL values.



SOURCE: CalTrans Transportation Laboratory Noise Manual, 1982

Weston Ranch Towne Center . 204152

Figure 4.9-1

Effect of Noise on People

Effects of Noise on People

The effects of noise on people can be categorized as follows:

- Subjective effects of annoyance, nuisance, dissatisfaction;
- Interference with activities such as speech, sleep, learning; and
- Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a persons reaction to a new noise environment is the way it compares to the existing environment to which the person has adapted: the so called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. For increases in A-weighted noise level the following relationships obtain (Caltrans, 1998):

- Under controlled conditions in an acoustics laboratory, the trained healthy human ear is able to discern changes in sound levels of 1 dBA;
- Outside such controlled conditions, the trained ear can detect changes of 2 dBA in normal environmental noise;
- It is widely accepted that the average healthy ear, however, can barely perceive noise level changes of 3 dBA;
- A change in level of 5 dBA is a readily perceptible increase in noise level; and
- A 10 dBA change is recognized as twice as loud as the original source.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple linear fashion, but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Stationary "point" sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 dBA to 7.5 dBA per doubling of distance from the source, depending on environmental conditions (i.e., atmospheric conditions and noise barriers, either vegetative or manufactured, etc.). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles (a "line" source), would typically attenuate at a lower rate, approximately 3 to 4.5 dBA per doubling distance from the source (also dependent on environmental conditions) (Caltrans, 1998). Noise from large construction sites (or a landfill with heavy equipment moving dirt and solid waste daily and trucks entering and exiting the main gate daily-activities similar to construction sites) would have characteristics of both "point" and "line" sources, and attenuation would therefore generally range between 4.5 and 7.5 dBA per doubling of distance.

Regulatory Setting

In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains fairly constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas.

Generally, the federal government sets noise standards for transportation-related noise sources that are closely linked to interstate commerce, such as aircraft, locomotives, and trucks, and, for those noise sources, the state government is preempted from establishing more stringent standards. The state government sets noise standards for those transportation noise sources that are not preempted from regulation, such as automobiles, light trucks, and motorcycles. Noise sources associated with industrial, commercial, and construction activities are generally subject to local control through noise ordinances and general plan policies.

Federal

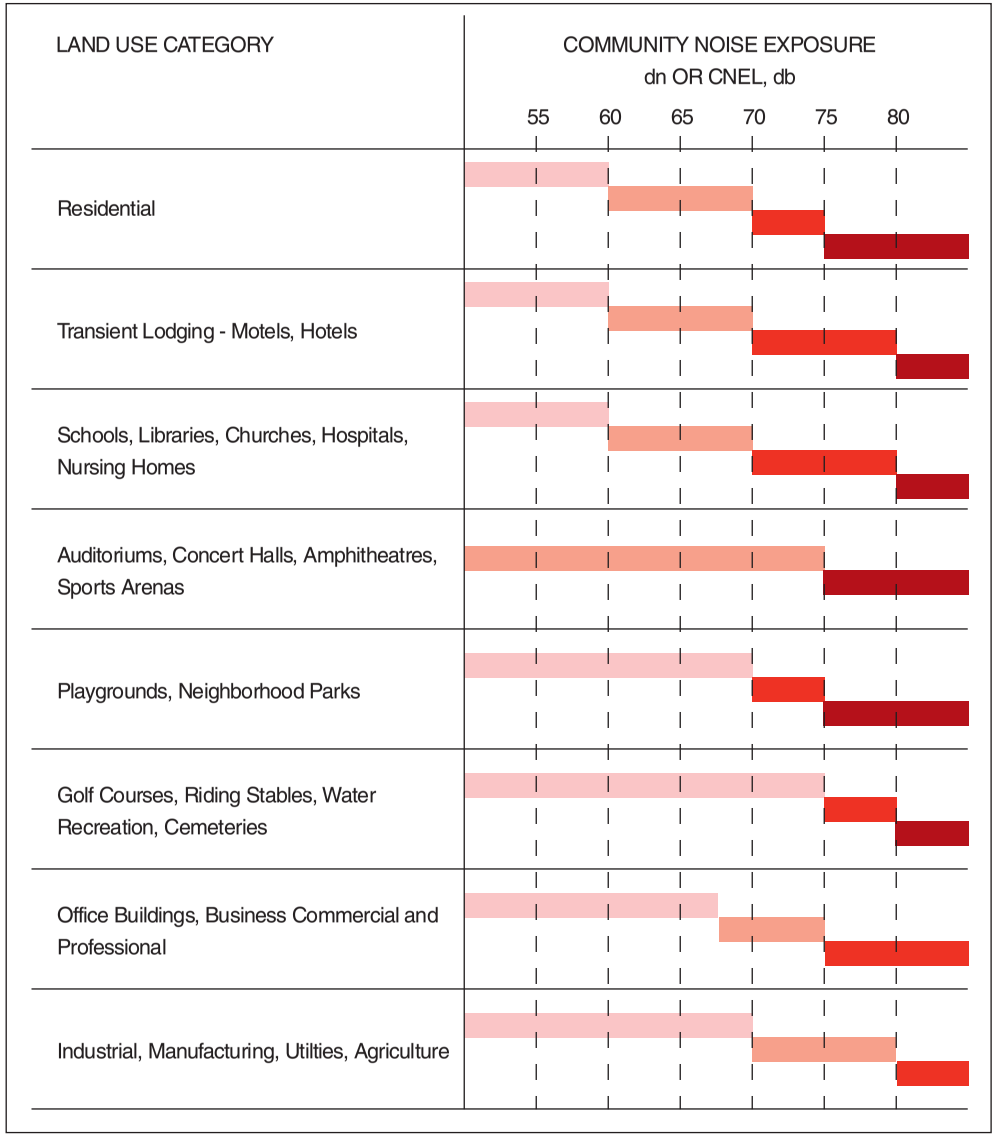
Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 CFR, Part 205, Subpart B. The federal truck pass-by noise standard is 80 dB at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

State

Title 4, California Code of Regulations has guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. The land use compatibility guidelines are listed in Figure 4.9-2.

The State of California establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the pass-by standard is consistent with the federal limit of 80 dB. The pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dB at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by state and local law enforcement officials.

The State has also established noise insulation standards for new multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of DNL 45 dB in any habitable room. They require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to exterior noise levels greater than DNL 60 dB. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.



INTERPRETATION

NORMALLY ACCEPTABLE
Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

CONDITIONALLY ACCEPTABLE
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

NORMALLY UNACCEPTABLE
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and the needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE
New construction or development should generally not be undertaken.

SOURCE: State of California, Governor's Office of Planning and Research, 1998; and ESA, 2005

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Figure 4.9-2
Land Use Compatibility for Community Noise Environment

Local

Local regulation of noise involves implementation of general plan policies and noise ordinance standards. Local general plans identify general principles intended to guide and influence development plans. General plans recognize that different types of land uses have different sensitivities toward their noise environment; residential areas are generally considered to be the most sensitive type of land use to noise and industrial/commercial areas are generally considered to be the least sensitive. Noise ordinances set forth the specific standards and procedures for addressing particular noise sources and activities. Local noise ordinances typically set forth standards related to construction activities, nuisance-type noise sources, and industrial property-line noise levels. The City of Stockton noise regulations and standards apply to the land uses near the project site.

City of Stockton General Plan

The City of Stockton has adopted noise compatibility guidelines for various land uses that are contained in the Noise Element of the General Plan (City of Stockton, ~~1990a~~2007a). The City considers a noise environment of up to 60 DNL to be acceptable for residential and church uses. A noise environment of up to 65 DNL is allowed for new development of these types of uses only when a detailed analysis of noise reduction requirements has been conducted and the best practicable and available noise insulation features have been incorporated into the project design, which typically involves construction of a noise barrier. ~~In addition, the City has exterior noise level standards for stationary sources located in close proximity to residential areas. Table 4.9-1 summarizes these standards in terms of the hourly and maximum daytime and nighttime noise levels not to be exceeded by stationary noise sources.~~

~~**TABLE 4.9-1**~~
~~**GENERAL PLAN EXTERIOR NOISE LEVEL STANDARDS**~~
~~**FOR STATIONARY NOISE SOURCES**~~

~~Noise Descriptor~~	~~Daytime (7:00 a.m. to 10:00 p.m.)~~	~~Nighttime (10:00 p.m. to 7:00 a.m.)~~
~~Hourly Leq~~	~~55~~	~~45~~
~~Maximum Level (Lmax)~~	~~75~~	~~65~~

~~SOURCE: City of Stockton, 1990a~~

The City's General Plan recognizes noise pollution as a significant source of environmental degradation. The City's General Plan Policy Document identifies community noise goals and establishes policies to reduce noise pollution. Many of the goals and policies address new residential development. The General Plan goals and policies applicable to the project include (City of Stockton, ~~1990a~~2007a):

Goal HS-2. To protect the community from health hazards and annoyance associated with excessive noise levels.

Policy HS-2.1 Sensitive Receptors. The City shall prohibit the development of new commercial, industrial, or other noise-generating land uses adjacent to existing residential uses, and other sensitive noise receptors such as schools, health care facilities,

libraries, and churches if noise levels are expected to exceed 70 dBA Community Noise Equivalent (CNEL) (decibels on A-weighted scale CNEL) measured at the property line of the noise sensitive land use.

Policy HS-2.3 Noise Analysis. The City shall require noise analysis of proposed development projects as part of the environmental review process and to require mitigation measures to reduce noise impacts to acceptable levels. The acoustical analysis shall:

a. Be the responsibility of the applicant.

b. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.

c. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.

d. Estimate existing and projected (20 years) noise levels in terms of Ldn/CNEL and compare the levels to the adopted policies of the Public Health and Safety Element.

e. Recommend appropriate mitigation to achieve compatibility with the adopted noise policies and standards of this Public Health and Safety Element. Where the noise source in question consists of intermittent single events, the acoustical analysis must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.

f. Estimate noise exposure after the prescribed mitigation measures have been implemented. If the project does not comply with the adopted standards and policies of the Public Health and Safety Element, the analysis must provide acoustical information for a statement of overriding considerations for the project.

g. Describe a post-project assessment program, which could be used to evaluate the effectiveness of the proposed mitigation measures.

Policy HS-2.6 Controlling Truck Traffic Noise. The City shall control noise sources in residential areas and other noise-sensitive areas by restricting truck traffic to designated truck routes.

Policy HS-2.10 Construction Noise. The City shall seek to limit the potential noise impacts of construction activities on surrounding land uses.

Policy HS-2.11 Limiting Construction Activities. The City shall limit construction activities to the hours of 7am to 7pm, Monday through Saturday. No construction shall occur on Sundays or national holidays without a written permit from the City.

Policy HS-2.12 Sound Attenuation Features. The City shall require sound attenuation features such as walls, berming, heavy landscaping between commercial, industrial, and residential uses to reduce noise and vibration impacts.

Policy HS-2.13 Noise Buffering. The City shall require noise buffering or construction treatments (additional insulation, double paned glass, etc.) in new development that includes noise sensitive uses located near major streets, highways, the airport, railroad tracks, or other significant noise sources.

Policy HS-2.14 State Noise Insulation Standards. The City shall enforce the State Noise Insulation Standards (California Administrative Code, Title 24) and Chapter 35 of the Uniform Building Code.

Policy HS-2.15 California Vehicle Code Standards. The City shall actively support enforcement of California Vehicle Code sections relating to vehicle mufflers and modified exhaust systems.

Policy HS-2.17 Commercial Uses. The City shall require that noise produced by commercial uses not exceed 75 dB Ldn/CNEL at the nearest property line.

~~Goal 1: Protect the citizens of the Stockton Planning Area from the harmful and annoying effects of exposure to excessive noise levels.~~

~~2: Protect the economic base of the Stockton Planning Area by preventing incompatible land uses from encroaching upon areas with existing noise-producing uses.~~

~~Policy 6. Noise produced by commercial uses shall not exceed 75 A-weighted decibel (dBA) day-night average sound level (Ldn) or Community Noise Equivalent Level (CNEL) at the nearest property line.~~

~~8. Exceptions to the noise standards for commercial and industrial uses may be granted only if a recorded noise easement is conveyed by the affected property owners.~~

~~9. Enforce the State Noise Insulation Standards (California Administrative Code, Title 24) and Chapter 35 of the Uniform Building Code (UBC).~~

City of Stockton Noise Ordinance

The City of Stockton noise ordinance is codified in Chapter 16, Article III, Division 16-340 of the City's Municipal Code (City of Stockton, 2004). The following sections present prohibited activities and noise standards applicable to the project.

16-340.030 - Activities Deemed Violations of This Division: The following acts are a violation of this Division and are therefore prohibited.

A. **Construction noise.** Operating or causing the operation of tools or equipment on private property used in alteration, construction, demolition, drilling, or repair work between the hours of 10:00 p.m. and 7:00 a.m., so that the sound creates a noise disturbance across a residential property line, except for emergency work of public service utilities.

B. **Loading and unloading operations.** Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects on private property between the hours of 10:00 p.m. and 7:00 a.m. in a manner to cause a noise disturbance.

E. **Refuse Collection Vehicles.**

1. Operating or allowing the operation of the compacting mechanism of any motor vehicle that compacts refuse and that creates, during the compacting cycle, a sound level in excess of 85 dBA when measured at 50 feet from any point of the vehicle.

2. Collecting refuse, or operating or allowing the operation of the compacting mechanism of any motor vehicle that compacts refuse in a residential zoning district between the hours of 5:00 p.m. and 5:00 a.m. the following day.

F. **Sweepers and Associated Equipment.** Operating or allowing the operation of sweepers or associated sweeping equipment (e.g., blowers) on private property between the hours of 10:00 p.m. and 7:00 a.m. the following day in, or adjacent to, a residential zoning district.

16-340.040 – Standards: The following provisions shall apply to all uses and properties, as described below, and shall establish the City's standards concerning acceptable noise levels for both noise-sensitive land uses and for noise-generating land uses and transportation-related sources:

B. **Standards for proposed noise-generating land uses and transportation-related sources.** Excluding noise-generating projects on infill sites, which shall comply with paragraph C, below, the following shall apply

TABLE 4.9-2
MAXIMUM ALLOWABLE NOISE EXPOSURE FOR NOISE-SENSITIVE LAND USES

Part I: Transportation-Related Noise Standards, Maximum Allowable Noise Exposure (Ldn dB)		
Noise-Sensitive Land Use Type	**Outdoor Activity Areas**	**Indoor Spaces**
Residential (all types)	65	45
Child care	—	45
Educational facilities	—	45
Libraries and museums	—	45
Live-work facilities	65	45
Lodging	65	45
Medical services	---	45
Multi-use (with residential)	65	45
Part II: Land Use-Related Noise Standard, Outdoor Activity Areas		
Noise Descriptor	**Daytime (7:00 a.m. to 10:00 p.m.)**	**Nighttime (10:00 p.m. to 7:00 a.m.)**
Hourly Equivalent Sound Level (Leq), dB	55	45
Maximum Sound Level (Lmax), dB	75	65

[1] The noise standard shall be applied at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards shall be applied on the receiving side of noise barriers or other property line noise mitigation measures.
[2] Each of the noise level standards specified shall be increased by 5 for impulse noise, simple tone noise, or noise consisting primarily of speech or music.
Source: City of Stockton, 2004.

2. Commercial, industrial, and other land use-related noise sources (except infill sites).

a. **New and expanded noise sources.** Land use-related projects that will create new noise sources or expand existing noise sources shall be required to mitigate their noise levels so that the resulting noise:

1) Does not adversely impact noise-sensitive land uses; and

2) Does not exceed the standards specified in Table 4.9-2, Part II.

Noise levels shall be measured at the property line of the nearest site which is occupied by, zoned for, and/or designated on the City's General Plan Diagram to allow the development of, noise-sensitive land uses.

b. **Maximum sound level.**

1) Commercial.

a) The Maximum Sound Level (Lmax) produced by commercial land uses or by other permitted noise-generating activities on any retail commercial zoning district (i.e., CO, CN, CG, CD, CL, or CA Districts) shall not exceed 75 dB; and

b) The Hourly Equivalent Sound Level (Leq) from these land uses shall not exceed 65 dB during daytime or nighttime hours as measured at the property line of any other adjoining retail commercial zoning district (CO, CN, CG, CD, CL, or CA Districts).

c. **Adjacent to other uses.** If commercial, industrial, or public facilities land uses are adjacent to any noise-sensitive land uses or vacant residential (RE, RL, RM, or RH) or open space (OS) zoning districts, these uses shall comply with the performance standards contained in Table 4.9-2, Part II.

Sensitive Receptors and Existing Noise Environment

Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, and parks and other outdoor recreation areas generally are more sensitive to noise than are commercial and industrial land uses. Sensitive receptors in the vicinity of the project site include the existing residential communities to the west of the project site (along Sydney Lane, Brittanyann Lane, Riley Ford Lane, Blake Circle, and McDougald Boulevard), the Great Valley Elementary School located at 4223 McDougald Boulevard, Long Park located a half mile from the intersection of French Camp Road and McDougald Boulevard, and an existing residential neighborhood to the north of the project site along William Moss Boulevard. In addition to the existing sensitive receptors, there is a planned residential community, partly constructed, to the west of the project site~~,~~. There are vacant parcels zoned for General Business and Single Family Residential to the east of the project site, and an adjacent vacant parcel ~~zoned for residential uses~~ north of the project site, which has been designated commercial only in the current Stockton General Plan 2035 ~~(City of Stockton, 2006)~~ ~~to the north~~ ~~of the project site~~ (see Figure 4.9-3). The parcel to the north currently retains its Residential, Low Density, zoning, and would be considered a sensitive receptor should such residential uses be developed there.

Existing Noise Environment

The primary existing source of noise at the site is automobile and truck traffic on I-5. Traffic from French Camp Road and construction noise from the residential development north of Henry Long and east of McDougald also contribute to existing ambient noise levels. There are no major stationary or industrial noise sources located in close proximity. The closest airports in the vicinity of the project site are the Stockton Metropolitan Airport (approximately 2 miles from project site) and the Harley Airport (approximately 5 miles from project site). The noise resulting from airport activities is not considered to affect the commercial uses of the project.

In order to characterize ambient noise conditions in the project vicinity, six long-term and six short-term noise measurements were collected. The noise measurement locations are shown on Figure 4.9-3.

Metrosonics Model db308 sound level meters were used to measure current ambient noise levels. The meters were calibrated to ensure the accuracy of the measurements. The meters were programmed to record the maximum (Lmax), average (Leq), L_{10} and L_{90} noise levels. A summary of the noise level measurement results is provided in Table 4.9-3 and graphs of the 24-hour measurements are provided in Figures 4.9-4 through 4.9-9.

Figure 4.9-4 shows how ambient noise levels change throughout the day by displaying a Leq for each hour of the long-term measurement period. It also shows that all four measurement sites experienced their lowest ambient sound levels sometime in the late evening and their highest levels during the early to mid-morning.

TABLE 4.9-3
NOISE LEVELS ASSOCIATED WITH A WAL-MART LOADING DOCK (HAMMER LANE WAL-MART)

Location	Time Period	Leq (dBA)	Noise Sources
Wal-Mart Supercenter Loading Dock. (145 feet from loading/unloading area, closest trucks within 30 feet)	24–hour CNEL measurement: 66 dBA	Hourly Leq's ranged from 51 to 71 dBA	Train horn, TRU idling, forklift operation, falling pallets, honking, backup beepers, construction noise associated with houses, backup beepers and squealing brakes at Stockton Steel, truck air brakes and operation, landscape equipment near meter (peak seen around 4:00 p.m. in Figure 4.9-10), last spike was a partial measurement at the end of the measurement period and is from the handling of the meter.
Wal-Mart Loading Dock. (42 feet to side of idling 18-wheeler truck)	3 minutes	61	Idling truck engine, truck air brake (~72 dBA), driving 18-wheeler (~69 to 73 dBA)
Wal-Mart Loading Dock. (45 feet to side of idling ThermoKing TRU)	3 minutes	63	Idling ThermoKing TRU

SOURCE: Environmental Science Associates, 2005.

SOURCE: BlobeXplorer; and ESA, 2005

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Figure 4.9-3

Short- and Long-Term Noise Measurement Locations

Figure 4.9-4
24-Hours Noise Measurement Summary for
Sites LT-1 to LT-4
Wednesday, July 23, 2003

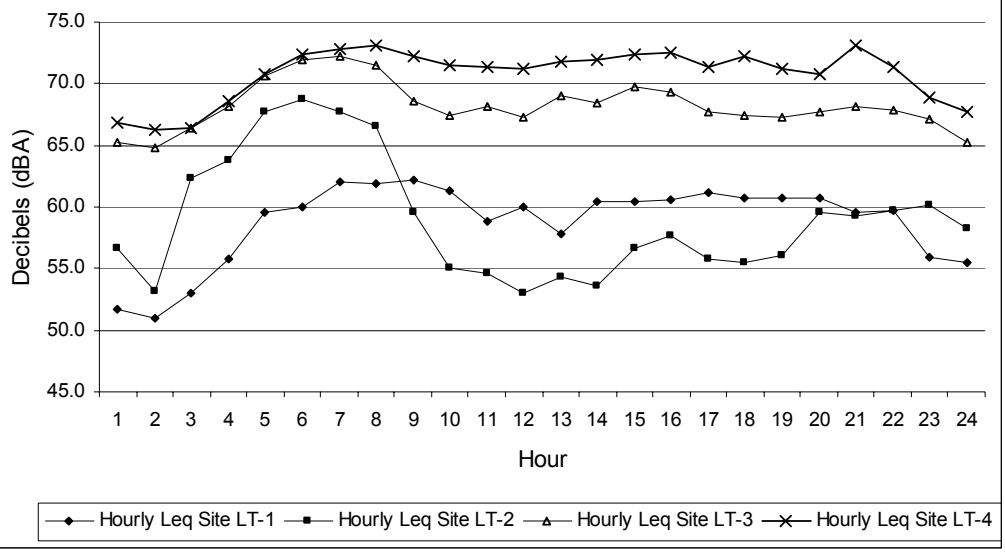


Figure 4.9-5
24-hours Noise Measurement
Location - Site LT-5
Tuesday April 19, 2005

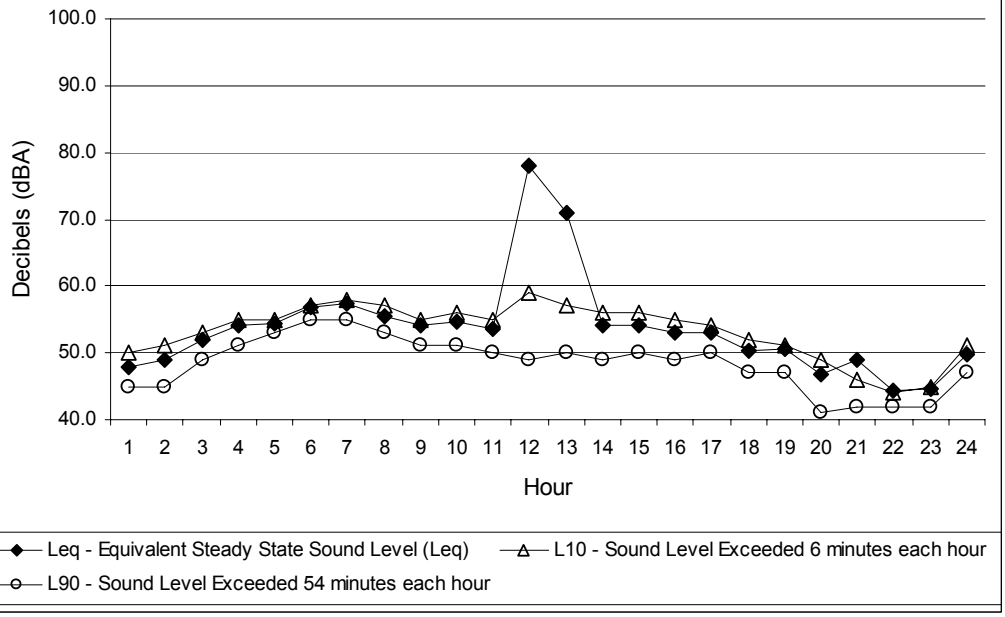


Figure 4.9-6
24-hours Noise Measurement
Location - Site LT-5
Wednesday April 20, 2005

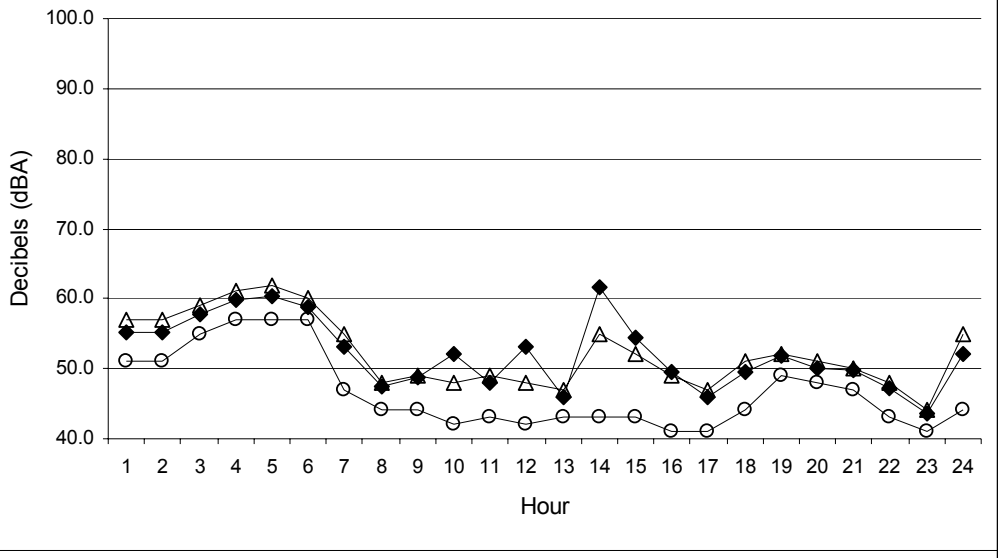


Figure 4.9-7
24-hours Noise Measurement
Location - Site LT-6
Wednesday March 2, 2005

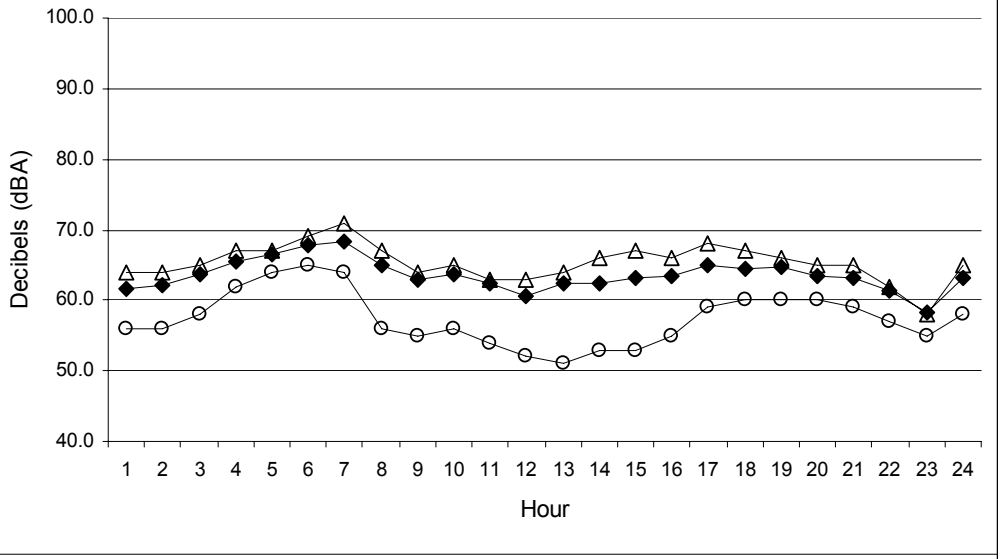


Figure 4.9-8
24-hours Noise Measurement
Location - Site LT-6
Thursday March 3, 2005

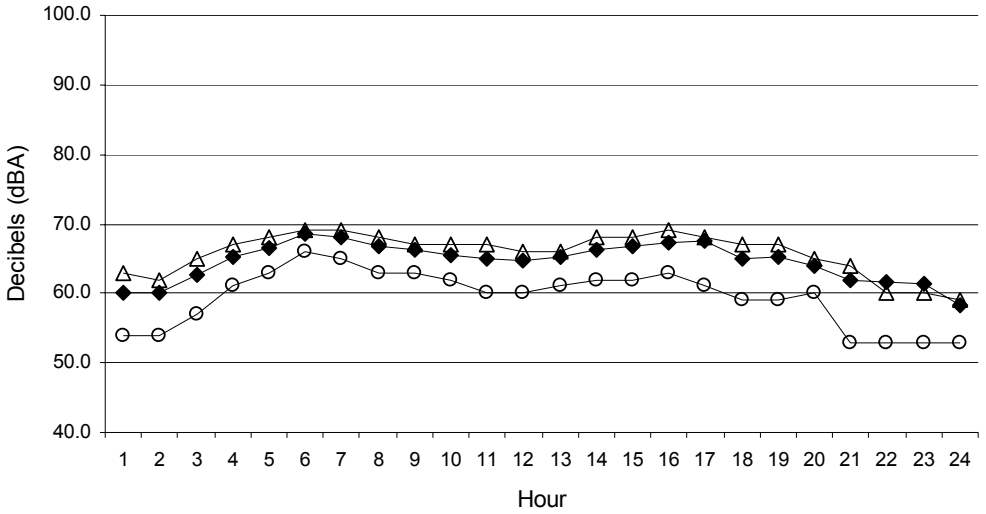


Figure 4.9-9
24-hours Noise Measurement
Location - Site LT-6
Friday March 4, 2005

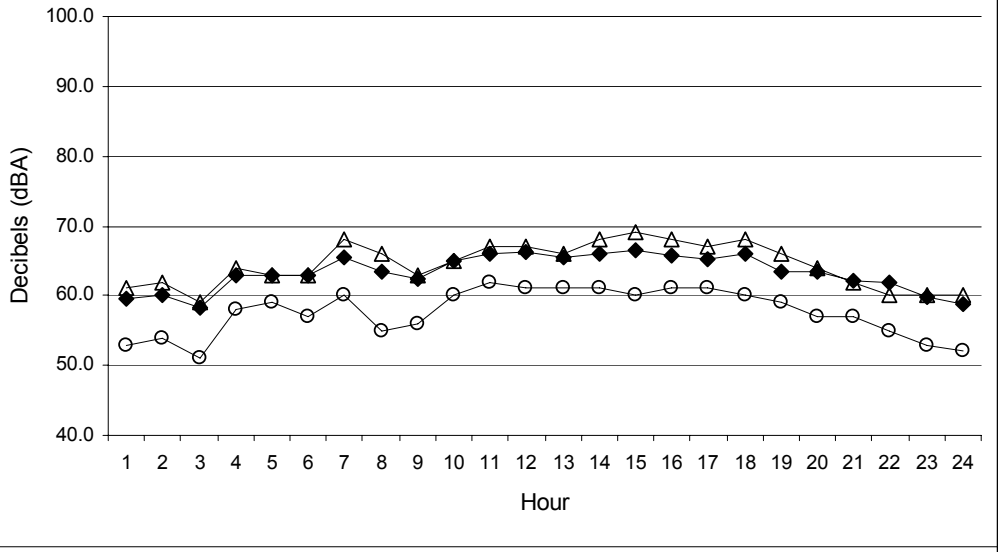
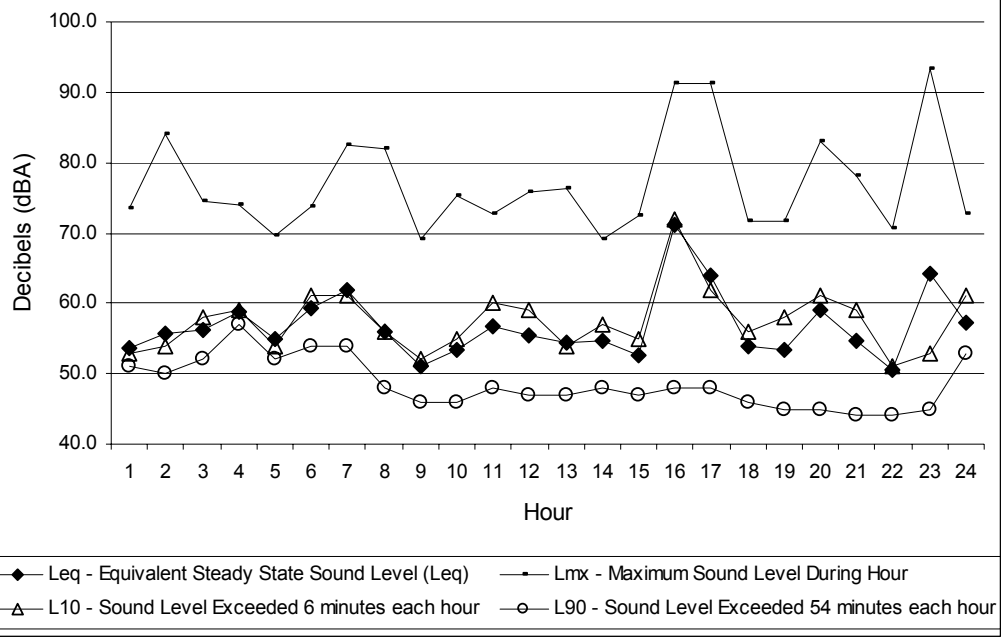


Figure 4.9-10
24-hours Noise Measurement
Location - Walmart Supercenter Loading Dock
Thursday March 3, 2005



REVISED TABLE 4.9-4
SOUND-LEVEL MEASUREMENTS IN THE VICINITY OF THE PROJECT SITE

Location	Time Period	Leq (dBA)	Noise Sources
LT-1. One house south of 4877 McDougald Blvd.	24–hour CNEL measurement: 65 dBA	Hourly Leq's ranged from 51 to 62 dBA	Long term measurements do not identify noise sources
LT-2. Northwest corner of project site; Southwest corner of parcel to Weston Ranch building	24–hour CNEL measurement: 70 dBA	Hourly Leq's ranged from 49 to 69 dBA	Long term measurements do not identify noise sources
LT-3. East side of Manthey Rd. between Henry Long and William Moss Blvds.	24–hour CNEL measurement: 75 dBA	Hourly Leq's ranged from 64 to 73 dBA	Long term measurements do not identify noise sources
LT-4. West side of Manthey Rd, south of Henry Long Blvd.	24–hour CNEL measurement: 76 dBA	Hourly Leq's ranged from 66 to 73 dBA	Long term measurements do not identify noise sources
LT-5. Dirt road off of Henry Long Blvd near new housing development (200 feet from Henry Long centerline and 45 feet from house sound wall)	24–hour CNEL measurements were Tuesday: 66 dBA Wednesday: 63 dBA	Hourly Leq's ranged from 44 to 78 dBA	Long term measurements do not identify noise sources
LT-6. Attached to telephone pole along Henry Long Blvd (25 feet from center of Henry Long and approximately 525 feet to I-5)	24–hour CNEL measurements were: Wednesday: 71 dBA Thursday: 71 dBA Friday: 69 dBA	Hourly Leq's ranged from 58 to 69 dBA	Long term measurements do not identify noise sources

REVISED TABLE 4.9-4
SOUND-LEVEL MEASUREMENTS IN THE VICINITY OF THE PROJECT SITE

Location	Time Period	Leq (dBA)	Noise Sources
ST-1. One house south of 4877 McDougald Blvd. (30 feet from centerline of McDougald Blvd.)	15 minutes	59	Traffic on McDougald Blvd. Traffic on French Camp Rd. Rustling leaves Plane overhead
ST-2. Northwest corner of project site; Southwest corner of parcel to Weston Ranch building. (1,200 feet from edge of Interstate 5)	15 minutes	53	Traffic on Interstate 5 Trees rustling Plane overhead Birds chirping
ST-3. Along Manthey Rd. between Henry Long and William Moss Blvds. (90 feet east of Manthey Rd centerline; 300 feet west of Interstate 5 edge)	10 minutes	61	Traffic on Interstate 5 Traffic on Manthey Rd.
ST-4. South side of French Camp Rd. between Manthey and McDougald Blvds. (50 feet south of French Camp Rd. centerline)	10 minutes	65	Traffic on French Camp Rd Traffic on Interstate 5 Plane overhead Birds chirping
ST-5. Dirt road off of Henry Long Blvd near new housing development (200 feet from Henry Long centerline and 30 feet from house sound wall)	10 minutes	52	Traffic Henry Long Traffic on Interstate 5 Plane overhead Birds chirping
ST-6. Henry Long and Manthey. (36 feet from center of Henry Long Blvd and 150 feet from center of Manthey Rd)	10 minutes	60	Traffic Henry Long Traffic on Interstate 5 Traffic on Manthey Birds chirping

[a] Noise measurements at sites LT-1 through LT-4 and ST-1 through ST-4 were taken in 2003. Measurements at sites LT-5, LT-6, ST-5 and ST-6 were taken in 2005.

SOURCE: Environmental Science Associates, 2003, 2005

Site Activity Noise Sources Measured Loading Dock Noise at Wal-Mart Supercenter

Data from a 24-hour-long-term noise measurement at the Wal-Mart Supercenter in Stockton (3223 East Hammer Lane) and several short-term noise measurements at a Wal-Mart in Sacramento are summarized in Table 4.9-3 and Figure 4.9-10. These measurement were used to estimate potential noise levels resulting from the proposed project at nearby existing and planned residences in the vicinity of the project site.

The proposed Wal-Mart Supercenter loading bays will have approximately 17-foot-tall wing-walls around the truck wells as well as rubberized gaskets at the loading bays to reduce noise. The measured average hourly noise at 145 feet from the Hammer Lane Wal-Mart Supercenter loading dock ranged from 51 to 71 dB Leq, as well as a 24-hour CNEL measured at 66 dBA. However, this data included noise generated by sources other than the Wal-Mart loading dock area. In addition to loading dock activities, the 24-hour noise readings were affected by train horns, construction noise associated with houses, backup beepers and squealing brakes at Stockton Steel, and landscape maintenance equipment near the noise meter. As a result, this data was used in conjunction with the short-term monitoring data reported in Table 4.9-4 and was supplemented with file data collected at other comparable loading dock areas.

4.9.2 Impacts and Mitigation Measures

Significance Criteria

A project would result in a significant noise impact if it would:

- Expose persons to or generate noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies.
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels existing without the project.
- Expose people residing or working in the project area to excessive noise levels if the project is located within an area covered by an airport land use plan, or where such plan has not been adopted, within two miles of a public airport or public use airport.
- Expose people residing or working in the project area to excessive noise levels if the project is located in the vicinity of a private airstrip.
- Expose persons to or generate excessive ground-borne vibration or ground-borne noise levels.

The following analysis discusses the first five criteria; the sixth is not discussed further since project construction would not involve activities that are typically associated with significant ground-borne vibration (i.e. pile driving, blasting, rock drilling).

The significance of project-related noise impacts can be determined by comparing estimated project-related noise levels to existing no-project noise levels. An increase of at least 3 dBA is usually required before most people will perceive a change in noise levels, and an increase of 5 dBA is required before the change will be clearly noticeable. A common practice has been to assume that minimally perceptible to clearly noticeable increases of 3–5 dB represent a significant increase in ambient noise levels. A sliding scale is commonly used to identify the significance of noise increases, allowing greater increases at lower absolute sound levels than at higher sound levels. This approach is based on research that relates changes in noise to the percentage of individuals that would be highly annoyed by the change. The significance criteria for changes in noise from project operations are as follows:

1. A 3 dBA DNL increase in noise as a result of project operations if the existing noise level already exceeds the “normally acceptable range” for the land use (60 dBA DNL or less for residential uses).
2. A 5 dBA DNL increase in noise as a result of project operations if the existing noise level is in the “normally acceptable range” and the resulting level is within the “normally acceptable range” for the land use.
3. A resulting offsite noise level from stationary non-transportation sources that exceeds 55 dBA Leq in the daytime (7:00 a.m. to 10:00 p.m.) or 45 dBA Leq in the nighttime (10:00 pm to 7:00 a.m.) at the property line of ~~the~~ any noise-sensitive receiving ~~land~~

~~use~~zoning district, including residential and open space. These criteria are based on the noise level standards presented in Table 4.9-2, Part II.

4. A resulting offsite noise level from stationary non-transportation sources that exceeds 65 dBA hourly Leq or 75 dBA Lmax during the daytime or nighttime at the property line of any receiving retail commercial zoning district.

5. A resulting noise level from transportation sources that exceeds 65 dBA Ldn at the property line of any receiving residential land uses along the new West Manthey roadway.

6. A resulting noise level from transportation sources that exceeds 75 dBA CNEL at the property line of any receiving commercial and industrial (including office) land uses.

Impact

Impact 4.9.1. Construction and grading activities associated with the development of the project would temporarily and intermittently increase noise levels at nearby sensitive receptor locations. This impact would be potentially significant.

Future noise levels related to construction within and adjacent to the project site would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Construction activities could involve excavation, grading, demolition, drilling, trenching, earth movement, and vehicle travel to and from the project site. The project would include the development of large and small retail stores, restaurants, and two gas stations. No pile driving activities are expected.

Construction-related material haul trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. Table 4.9-5 shows typical noise levels during different construction stages for commercial buildings. Table 4.9-6 provides typical noise levels produced by various types of construction equipment.

TABLE 4.9-5
TYPICAL CONSTRUCTION NOISE LEVELS

Construction Phase	Noise Level (dBA, Leq)[a]
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

[a] Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

SOURCE: Bolt, Baranek, and Newman, Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, 1971.

Construction of the project could generate significant amounts of noise, corresponding to the particular phase of building construction and the noise generating equipment used during construction. The closest sensitive receptors would be those described in the setting section, especially existing residences along Sydney Lane, Brittanyann Lane, and McDougald Boulevard. Other sensitive receptors in the project vicinity would be exposed to construction noise at incrementally lower levels.

Noise from construction activities generally attenuates at a rate of 6 to 7.5 dBA per doubling of distance. Residences to the west of the project site (along Sydney Lane, Brittanyann Lane)

could be as close as ~~50 to~~ 100 feet from project construction. Assuming an attenuation rate of 6 dBA per doubling of distance, the closest residences would experience exterior noise levels of 83 Leq during excavation and finishing activities, the loudest of the non-impact construction phases that would occur within close proximity of residences. Construction noise at these levels would be substantially greater than existing noise levels at nearby sensitive receptor locations. No pile driving will be needed for project construction. Long-term exposure to construction noise by individual residences could be lessened over time due to attenuation of noise by project structures built in the interim.

Construction activities associated with the project would be temporary in nature and related noise impacts would be short term. However, since construction activities could substantially increase ambient noise levels at noise-sensitive locations, construction noise could result in potentially significant, albeit temporary, impacts to sensitive receptors. Construction activities are required to comply with the City's Noise Ordinance. Compliance with the Noise Ordinance and implementation of the following mitigation measure is expected to reduce impacts related to construction noise.

Mitigation Measure 4.9.1a. The applicant shall implement the following measures:

- Construction activities shall be limited to between 7:00 a.m. and 7:00 p.m. Monday through Saturday to avoid noise-sensitive hours of the day. Construction activities shall be prohibited on Sundays and holidays.
- Construction equipment noise shall be minimized during project construction by muffling and shielding intakes and exhaust on construction equipment (per the manufacturer's specifications) and by shrouding or shielding impact tools.
- Construction contractors shall locate fixed construction equipment (such as compressors and generators) and construction staging areas as far as possible from nearby residences.
- Construction contractors shall prohibit material haul trucks from using William Moss Boulevard and the segment of Manthey Road north of William Moss Boulevard to access the project site. Instead, haul trucks shall exit Interstate 5 at French Camp Road and approach the project site via French Camp Road, Henry Long Boulevard, and/or the segment of Manthey Road between French Camp Road and Carolyn Weston Boulevard.

Mitigation Measure 4.9.1b. To further address the nuisance impact of project construction, construction contractors shall implement the following:

- Signs will be posted at the construction site that include permitted construction days and hours, a day and evening contact number for the job site, and a contact number with the City of Stockton in the event of problems.
- An onsite complaint and enforcement manager shall track and respond to noise complaints.

Impact Significance after Mitigation: Given the temporary nature of construction noise impacts and implementation of the above mitigation measures, this impact would be reduced to a less-than-significant level.

Impact 4.9.2. Operational activities (non-transportation) associated with the project could increase ambient noise levels at nearby existing and planned residences. This impact would be potentially significant.

Non-transportation noise generated by the project would include noise from commercial uses such as ~~truck circulation,~~ Heating Ventilation and Air Conditioning (HVAC), trash compactor use, loading/unloading activities in delivery areas, idling trucks, parking lot activities, and power equipment (e.g., leaf blowers and parking lot sweepers). Potential noise levels and impacts from these operational activities are described below.

Loading Docks

To assess loading dock activity noise impacts at the nearest potentially affected noise-sensitive land uses (residences proposed immediately west of the project site), reference noise levels of 80 dB Lmax and 60 dB Leq at a distance of 50 feet were used. These data include noise generated by truck arrivals and departures from the unloading area, trucks backing into the docks (including backup beepers), air brakes, and other related truck unloading noise.

The nearest proposed residential property lines to the truck unloading areas behind the proposed ~~Wal-Mart Supercenter and the major retail store~~Major 6 building would be about ~~80~~ 120 feet. The nearest land use to the Wal-Mart Supercenter would be commercial, located approximately 120 feet north. At this distance, unmitigated loading dock area noise at the property lines would be approximately ~~56~~ 52 dB Leq and ~~76~~ 72 dB Lmax.

~~On-Site Truck Circulation Noise~~

~~According to the project site plans, the onsite truck traffic will likely be routed to the rear (west end) of the Wal-Mart Supercenter store via Manthy and French Camp Roads. While onsite, the trucks behind the store would pass within approximately 50 to 75 feet of the proposed residential property line to the west and north. Trucks accessing the other major retail stores would also likely pass behind the Wal-Mart Supercenter but are projected to be fewer than those generated by the Wal-Mart Supercenter.~~

~~Truck pass-bys en route to the loading dock areas are expected to be relatively brief and are estimated to produce an average Sound Exposure Level (SEL) of approximately 87 dB at a distance of 50 feet. The typical L_{max} level due to a truck pass-by has been measured to be approximately 75 dB at a distance of 50 feet. For this assessment, the nearest residential locations were conservatively assumed to be 50 feet away from the truck passage area.~~

~~The predicted Leq at the nearest residences resulting from truck passages would depend on the number of hourly truck operations. Based on ESA staff observations of loading dock activity~~

~~at the other Hammer Lane Wal-Mart store, it is expected that up to 10 truck pass-bys could occur in any given daytime hour, while not more than 5 per hour are anticipated during nighttime hours behind the Wal-Mart Supercenter. Because there would be fewer trucks behind the other major retail stores, the number of truck passages behind that tstructures in any given daytime hour are would be 53, with not more than 2 in any given nighttime hour.~~

~~Based on these projections, the worst-case hourly Leq was computed at the nearest residential property lines to the north and west assuming a 4.5 dB decrease for each doubling of distance from the source. The results of that analysis are provided below in Table 4.9-7.~~

~~REVISED TABLE 4.9-7~~
~~TRUCK CIRCULATION NOISE GENERATION[A]~~

~~Property Line~~	~~Hourly day/night truck passages[b]~~	~~Predicted Lmax (unmitigated)~~	~~Predicted Daytime Leq(h) (unmitigated)~~	~~Predicted Nighttime Leq(h) (unmitigated)~~
~~West (Residential) and North (Commercial)~~	~~8 / 3~~	~~75 dB~~	~~60 dB~~	~~56 dB~~

~~[a] Noise values based on a distance of 50 feet between the center of the truck circulation route and the property line.~~
~~[b] Truck trips to Major buildings 1 through 6 would take the same route and the arrivals and departures are assumed to occur during the same hour as the worse-case scenario.~~

~~Source: Bollard Acoustical Consultants, Inc., 2006; ESA, 2008.~~

Heating, Ventilating, and Air Conditioning (HVAC) Equipment Noise

The HVAC system for maintaining comfortable shopping temperatures within the proposed ~~Wal-Mart Supercenter store~~Major buildings will consist of packaged rooftop air conditioning systems. Such rooftop HVAC units typically generate noise levels of approximately 55 dB at a reference distance of 100 feet from the operating units during maximum heating or air conditioning operations. At 120 feet from the nearest sensitive residences to the west of Major 6 and 120 feet from the commercial land uses to the north of the Wal-Mart Supercenter, the noise levels from HVAC equipment would be 53 dB L_{eq}.

Noise levels from cold food storage refrigeration units at a Wal-Mart Supercenter facility similar to the one proposed were measured to be 66 dB L_{eq} at 50 feet. The nearest ~~residences~~ property line to the proposed refrigeration equipment will be approximately ~~230~~ 120 feet ~~west~~north (commercial land uses). At this distance, the refrigeration units are expected to produce approximately ~~53~~ 58 dB $L_{eq.}$

Parking Lot Activities

The center of the main parking lots ~~is~~are located approximately 500 feet from the nearest residential uses to the west and commercial uses to the north, which would be shielded from view by the proposed ~~Wal-Mart Supercenter structure~~project store structures. For the purposes of this analysis, this distance will be considered the focal point where parking activity noise is generated.

As a means of determining the noise levels due to parking lot activities noise level data collected at various parking areas was utilized. A typical SEL due to automobile arrivals and departures, including car doors slamming and people conversing is approximately 71 dB, at a distance of 50 feet. Based on information provided by the project transportation consultant, approximately ~~1,500 to 2,000~~2,084 vehicles would arrive and depart during the p.m. peak hour. Assuming 2,~~000~~ 084 parking lot movements, the peak hour Leq noise level can be determined using the following formula:

Peak Hour Leq = 71 + 10 * log(2,~~000~~084) - 35.6, dB where:

71 is the mean sound exposure level (SEL) for an automobile arrival and departure, and 10 * (log 2,~~000~~084) is 10 times the logarithm of the number of automobile arrivals and departures per hour, and 35.6 is 10 times the logarithm of the number of seconds in an hour.

Based upon the equation above, the parking lot would result in a daytime peak hour Leq of approximately ~~68~~ 69 dB, at a distance of 50 feet. At 500 feet, the predicted noise level, at the nearest residential property line would be approximately ~~48~~ 49 dB Leq. However, a significant amount of shielding will be provided by the intervening commercial buildings. Therefore a -10 dB offset may be applied to the parking lot noise levels. Accounting for shielding, the parking lot noise levels at the nearest ~~residential uses~~property lines to the west and north are ~~is~~ predicted to be ~~38~~ 39 dB Leq.

~~Public Address System~~

~~Outdoor garden areas of large commercial stores typically have speakers similar to those inside the store for use in paging store personnel. The noise generation of theses systems is dependent on many variables (e.g., number of speakers, amplifier settings, speaker locations and direction, frequency of use). For this analysis, it was assumed that a desired maximum level of 75 dB at the outdoor shopping area (10 dB over normal conversational levels for speech intelligibility) would be desired, and that the distance between the shoppers and speakers would be approximately 20 to 30 feet. The garden area of the proposed Wal-Mart Supercenter would be about 400 feet from the western project property line and the nearest residences beyond. At that distance, the reference levels would be attenuated to approximately 50 to 55 dB Lmax, without considering the directionality of the speakers or shielding by the commercial structure. After consideration of those effects, maximum noise levels associated with public address system usage in the outdoor garden area are predicted to be well below 50 dB Lmax.~~

Site Maintenance

Maintenance activities associated with project-related parking and landscaped areas could include the use of parking lot sweepers and leaf blowers. Leaf blower noise levels have been measured to be ~~in the range of~~ 69 dBA Leq, ~~to~~ 81 dBA Lmax at a distance of 50 feet from the operator. At 120 feet from the western and northern land use property lines, noise associated with maintenance equipment would attenuate to 61 dBA Leq and 73 dBA Lmax.

Compactor

There is a trash compactor at the Wal-Mart Supercenter that would be located approximately ~~180~~ 150 feet from the nearest planned ~~residential~~ commercial property line. Trash compactor noise

was measured at another Wal-Mart Supercenter[43] and the Leq and Lmax were both 57 dBA at 50 feet. Based on these noise measurements, at approximately ~~180~~ 150 feet the compactor noise levels would attenuate to ~~46~~ 48 dBA Leq and Lmax. There would also be a screen wall enclosure that would block the line of site between the trash compactor and the nearest ~~residence~~ commercial land use to the ~~west~~north and reduce compactor noise ~~below the City of Stockton 45 dBA Leq nighttime noise standard~~further.

~~Auto Center Noise~~

~~The project proposes a Tire and Lube Express (TLE) auto center on the northeast side of the Wal-Mart Supercenter as shown in Figure 3-4. The TLE auto center would operate only during the daytime hours. Potentially significant noise sources associated with auto service operations include air impact wrenches, tire breakers, and air supply compressors. No significant noise producing activities are identified for any auto lubrication or battery changing operations which may occur in this area. The noise generation of each of the components of the tire changing operations is discussed separately below and is based on noise levels measured at similar facilities (Bollard and Brennan, Inc., 2005).~~

~~Impact Wrench Noise Levels:~~

~~A potentially significant noise source at the proposed auto maintenance facility would be the operation of air impact wrenches during tire changes. These wrenches typically produce a maximum noise level of about 88 dBA at a distance of 10 feet. Impact wrenches are used twice for each wheel removal/replacement operation with an average duration of use of 10 – 15 seconds per wheel.~~

~~Because the oil change/lubrication operations do not generate significant noise levels relative to the tire changing operations, the overall facility noise generation is directly related to the number of tires changed per day. Because the number of tires changed in any given day is variable, it was assumed that up to about 400 tire changes per day could occur at the proposed TLE on a very busy day, but typical operations would be expected to be less intense.~~

~~The nearest proposed residential property line to the TLE is located at a distance of approximately 100 feet to the west. At this distance, impact wrench maximum noise levels are predicted to be approximately 68 dBA without mitigation. This maximum noise level does not exceed the City's daytime maximum noise level standards. Therefore, no noise mitigation measures appear to be warranted for this aspect of the proposed TLE.~~

~~Based on an assumed impact wrench usage of about 10 seconds per wheel, and a conservative assumption of 400 tire changes per day (with about 60 in a worst case hour), the predicted average noise level at the nearest residences is predicted to be approximately 50 dBA Leq. Because this level would satisfy the City of Stockton daytime noise level standards, no noise mitigation measures appear to be warranted for this aspect of the proposed TLE.~~

[43] APD Engineering, *Environmental Assessment – Wal-Mart Supercenter and Brierwood Square Development.* Revised August, 2006.

~~Tire Breaker Noise Levels:~~

~~Tire breakers are also a potentially significant noise source due to the rapid release of air pressure through a number of small holes adjacent to the tire sidewall. Noise produced by this type of pneumatic tire breaker reaches a brief maximum level of about 105 dBA at 10 feet. Other types of tire breakers, where the rapid air release has been eliminated and replaced with an air/hydraulic control system, produce noise levels of approximately 74 dBA at a distance of 10 feet. For a worst-case estimate of tire-breaker noise generation, it is assumed that the louder type of tire breaker could be used at the proposed facility. Tire breakers are used twice for each tire removal/replacement operation. The average duration of use is approximately 20 seconds per wheel.~~

~~The noise level at the nearest residential property line to the west of the Wal-Mart TLE during tire breaker operations will depend on the degree by which the tire breaker operations are shielded from view of those residences. If the pneumatic tire breaker were completely unshielded from view of the nearest proposed residences approximately 100 feet away, those areas could be expected to receive a maximum noise level of approximately 85 dBA. In practice, it is highly likely that there would be some degree of shielding of this equipment in the direction of the nearest proposed residences to the west. However, without mitigation, this noise level would exceed the City's daytime maximum noise level standards. See Mitigation Measure 4.9.2a below.~~

~~Air Compressor Noise Levels:~~

~~The noise produced by air supply compressors varies considerably with compressor size, type, and operating conditions. At similar tire maintenance facilities, reference noise levels were measured at 60 dBA at 50 feet for steady-state compressor operation. The compressors typically cycle on and off intermittently during the work day to meet air supply demands. At the nearest proposed residential property line, located approximately 100 feet to the west of the proposed Wal-Mart TLE, the worst-case noise level associated with compressor usage would be 54 dBA Leq assuming it is unshielded. In practice, it is highly likely that there would be some degree of shielding of this equipment in the direction of the nearest proposed residences to the west. Because this level would satisfy the City of Stockton daytime noise level standards, no noise mitigation measures appear to be warranted for this aspect of the proposed TLE.~~

Operational Activity Potential Impacts

Noise levels associated with project operational activities would not exceed 65 dBA Leq or 75 dBA Lmax during the daytime or nighttime hours and would not exceed city standards to the north of the proposed project. In regards to the existing and proposed sensitive residential land uses to the west of the project site, ~~A~~although noise generated by parking lot activities ~~and potential PA system usage within the outdoor garden area~~ are predicted to be below City of Stockton noise level standards during both day and nighttime periods, noise generated by ~~heavy truck passages and~~ loading dock activities behind the ~~Wal-Mart Supercenter and other~~ M~~m~~ajor ~~retailer~~6 store ~~, as well as mechanical equipment associated with food cold storage and the TLE auto center, is~~are predicted to exceed those standards during ~~both day and~~ nighttime periods. Noise generated by rooftop air conditioning systems is predicted to satisfy City noise standards at the nearest residences to the west during daytime hours, but may exceed the City noise standards during nighttime hours. In addition, maintenance activities associated with project-related parking and

landscaped areas could exceed City daytime and nighttime noise standards as well at the nearest residences west of the project site. Overall, noise at the western residential property line associated with project operational activities ~~to the rear of the proposed store~~ are predicted to exceed the City's daytime hourly average exterior noise level standards by ~~3 to 6~~6 dB (maintenance equipment during the day), and the City's nighttime hourly average exterior noise level standards by ~~9 to 13~~ 8 dB (HVAC).

As a result of the predicted exceedance of the City of Stockton Noise Ordinance standards (Table 4.9-2), impacts associated with these on-site operations are considered significant.

Mitigation Measures

Mitigation Measure 4.9.2a. The project applicant shall incorporate the following design features into the final site plans:

- Building equipment (e.g., HVAC units) shall be located away from nearby residences, on building rooftops, and properly shielded by either the rooftop parapet or within an enclosure that effectively blocks the line of sight of the source from the nearest receptors to the west.
- For the proposed ~~Wal-Mart Supercenter and other~~ major retailers that would be located on the western edge of the project site, appropriate wing-walls around the truck wells, rubberized gaskets at the loading bays, and acoustically absorptive materials shall be implemented at the primary loading docks of each facility to reduce noise.
- A ~~13-foot tall~~ sound wall shall be ~~constructed~~ maintained along the entire western edge of the ~~Wal-Mart Supercenter~~ property~~, and 12-foot tall sound walls shall be constructed along the entire western edge of the other major retail site and along the entire northern edge of the project site~~, to reduce noise that would reach the existing and planned residences to the west ~~and north~~ of the project. ~~Please refer to **Figures 4.9-11** and **4.9-12** for illustrations of sound wall mitigation efficacy.~~ Note that a sound wall has been constructed to the west of the project site as part of the residential subdivision.
- Noise levels from operations (including the loading docks) on the northern edge of the property shall not exceed the commercial standards in the 2035 General Plan. The project applicant shall be responsible for landscaping and maintaining their portion of the wall on the re-routed Henry Long Blvd. Landscaping will occur on the south side of the re-routed Henry Long Blvd. and will include a mix of berm and landscaping with trees (at least 15 gallons) and shrubs to be installed for screening purposes.
- Screen or enclose trash compactor.
- Minimize truck idling per Mitigation Measure 4.8.5a.
- Design delivery areas so that loading and unloading occur within the structure.
- Post delivery areas prior to the issuance of a Certificate of Occupancy to inform delivery personnel that noise reduction efforts are in effect at all times.

Mitigation Measure 4.9.2b. The following activities shall be prohibited between the hours of 10:00 p.m. and 7:00 a.m., per section 16-340.030 of the City of Stockton Noise Ordinance:

- Use of loudspeakers or loudspeaker systems.
- Garbage removal activities including trash compaction.

- Use of parking lot sweeping units (e.g., air system sweeping devices, truck-mounted parking lot sweeping devices or other similar devices) and landscape equipment (e.g., leaf blowers).
- Minimize truck idling per Mitigation Measure 4.8.5a.

Impact Significance after Mitigation:

Implementation of mitigation measure 4.9.2b would restrict site maintenance equipment to the daytime hours. Implementation of Mitigation Measure 4.9.2a would result in HVAC noise compliance with the City's daytime and nighttime exterior noise limits. In addition, ~~The~~ the ~~recommended~~existing 7 foot ~~12 and 13-foot~~ sound wall~~s~~ to the west of the project site would reduce all loading dock, ~~truck circulation,~~ and ~~food cold storage and TLE mechanical~~maintenance equipment Leq and Lmax noise levels at existing and future approved residents along the western ~~and northern~~ edge of the project site by approximately 7 dBA ~~by approximately 1011-132 dB~~ thereby achieving compliance with the City's daytime and nighttime exterior noise level limits. Thus, with implementation of the above mitigation measures, the operational (non-transportation) noise impacts of the project would be reduced to less-than-significant levels.

Impact 4.9.3. Traffic associated with operation of the project would result in an increase in ambient noise levels on nearby roadways used to access the shopping center. This impact would be less than significant.

To assess the impact of project traffic on roadside noise levels, noise level projections were made using the Federal Highway Administration's (FHWA) Noise Prediction Model for those road segments that would experience the greatest increase in traffic volume and/or that would pass through residential areas. The model is based on the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site.

The results of the modeling effort are shown in Table 4.9-~~8~~ 7 for the Existing, Near Term, and Near Term Plus Project scenarios. Based on the traffic analysis, the project would generate approximately ~~35,200~~21,900 daily vehicle trips that would enter the shopping center and be distributed over the local street network, thereby affecting roadside noise levels.

For the modeling effort, p.m. peak-hour traffic volumes during weekdays were used. Estimated noise levels shown in Table 4.9-~~8~~ 7 correspond to a distances of 15 meters (49 feet) from the centerline of applicable roadway segments. As indicated in Table 4.9-~~8~~7, noise generated by traffic would not meet the criteria ~~on one roadway segment (but with two varying alignments of the cross-street, Manthey Road) meets the criteria~~ for a significant noise impact. This would be a less-than-significant impact without mitigation.

West Manthey Circulation Noise

According to the project site plans, the onsite truck traffic for the Wal-Mart Supercenter will likely be routed to the rear (west end) of the ~~Wal-Mart Supercenter store~~project site via ~~Manthy and~~ West Manthey and French Camp Road~~s~~. The roadway centerline distance for the trucks and

other cars and the residential property line to the west and the commercial property line to the north would be approximately 50 feet. Trucks accessing the other major retail stores would also ~~likely pass behind the Wal-Mart Supercenter~~take this route but are projected to be fewer than those generated by the Wal-Mart Supercenter.

Truck and car pass-bys on West Manthey are expected to be relatively brief and are estimated to produce an average Sound Exposure Level (SEL) of approximately 87 dB and 71 dBA, respectively, at a distance of 50 feet. The predicted Ldn at the nearest residences resulting from truck and car passages on West Manthey would depend on the number of daily truck and car operations. Based on information contained in the Traffic Report, it was assumed that a total of 95 truck deliveries could occur per day, and that approximately 7,790 cars would traverse West Manthey per day. Based on these projections, the Ldn was computed at the nearest residential property lines to the west, and commercial to the north, assuming a 4.5 dB decrease for each doubling of distance from the source. The results of that analysis show that the noise levels at the nearby property lines would be 63 dBA Ldn. This noise level would be below the City of Stockton standards for residential (65 dBA Ldn) and commercial (75 dBA Ldn) land uses. In addition, the existing 7 foot wall along the western property line would reduce the noise level from trucks and cars on West Manthey to approximately 56 dBA Ldn at the proposed residences to the west of the project site. This would be a less-than-significant impact without mitigation.

Mitigation Measure. No mitigation is required.~~On Roadway Segment 8 (French Camp Road between McDougald Boulevard and Interstate 5), estimated existing, near term, and near term plus project noise levels are exceed the "normally acceptable" (65 dBA CNEL or less) range for residential land uses. Estimated project-related traffic on Roadway Segment 8 would increase noise levels by more than 5 dBA and the resulting exterior noise levels would be greater than 70 dBA CNEL for Roadway Segment 8[44] and would be significant without mitigation.~~

~~**Mitigation Measure 4.9.3.** The project applicant shall provide a fair-share contribution (based on project related traffic noise) to future sound wall construction along French Camp Road between McDougald Boulevard and I-5.~~

~~**Impact Significance after Mitigation:**~~

~~With implementation of the mitigation measure listed above, this impact would be reduced to less-than-significant for the approved residential development that will be located at French Camp Road and McDougald Boulevard in the near term. .~~

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[44] Ldn and CNEL are approximately equal to the Leq peak hour under normal traffic conditions (Caltrans, 1998)

REVISED TABLE 4.9-~~8~~7
EXISTING AND NEAR-TERM PM PEAK-HOUR TRAFFIC NOISE LEVELS ALONG ROADWAYS IN THE PROJECT VICINITY

	PM Peak-Hour Noise Level, dBA, Leq				
Roadway Segment[1]	**Existing**	**Near Term No Project**	**Near Term Plus Project**	**Incremental Increase (Near Term No Project vs. Near Term + Project)**	**Significant? (Yes or No)[2]**
1. Carolyn Weston Blvd (b/t McDougald and Manthey)[3]	68.3	69.6	69.6	0.0	No
2. Carolyn Weston Blvd (b/t Manthey and I-5)[3]	68.8	70.0	70.1	0.1	No
3. McDougald Blvd (b/t Carolyn Weston and Henry Long)[4]	55.7	59.7	59.9	0.2	No
4. Manthey Rd (b/t Carolyn Weston and Henry Long)[5]	66.5	67.0	67.5	0.5	No
5. McDougald Blvd (b/t Henry Long and French Camp)[4]	55.1	58.9	59.2	0.3	No
6. William Moss Blvd (b/t McDougald and Manthey)[4]	59.8	61.5	61.7	0.2	No
7. Henry Long Blvd (b/t McDougald and EWS Woods)[4]	58.4	59.5	59.5	0.0	No
8. French Camp Rd (b/t Project Entrance and I-5)[5, 6]	65.5	68.1	72.7	4.6	No[7]
9. French Camp Rd (b/t McDougald and EWS Woods)[5, 6]	64.5	66.9	67.2	0.3	No
10. French Camp Rd (b/t McDougald and Project Entrance)[5, 6]	65.4	68.1	68.4	0.3	No
11. Manthey Rd (b/t French Camp and Yettner)[5]	65.3	65.2	65.5	0.3	No

1 Road center to receptor distance is 15 meters (approximately 50 feet) for values shown in this table. Noise levels were determined using FHWA Traffic Noise Prediction Model (FHWA RD-77-108). Please see Appendix H for more information.

2 Considered significant if the incremental increase in noise is greater than 5 dBA Leq in a noise environment of 60 dBA CNEL or less or an increase of 3 dBA Leq in a noise environment greater than 60 dBA CNEL. For receiving commercial and industrial land uses, if the Project substantially contributes to a transportation noise level that exceeds 75 dBA CNEL, the impact will be considered significant.

3 Vehicle mix on these road segments is assumed to be 98.9 percent auto, 1 percent medium trucks, and 0.1 percent heavy trucks based on a traffic count on Manthey during the P.M. peak hour. The speed limit for these segments is 40 miles per hour.

4 Vehicle mix on these road segments is assumed to be 98.75 percent auto, 1 percent medium trucks, and 0.3 percent heavy trucks based on a traffic count on McDougald during the P.M. peak hour. The speed limit for these segments is 30 miles per hour.

5 Vehicle mix on these road segments is assumed to be 98.9 percent auto, 1 percent medium trucks, and 0.1 percent heavy trucks based on a traffic count on Manthey during the P.M. peak hour. The speed limit for these segments is 45 miles per hour.

6 The speed limit for French Camp Road was not posted in the study area. The speed limit was assumed to be 45 mph.

~~7 Roadway segments 8a and 8b represent the same segment but with different alignments of Manthey Road.~~

~~8~~7 For the Near Term versus Near Term Plus Project scenario, although the incremental increase is ~~of~~ over 3 dBA, since the land uses south of French Camp Road will be commercial and the noise environment with Project traffic will be less than 75 dBA CNEL, this impact is considered less-than-significant. ~~is considered a significant impact because of development of approved residences located at French Camp Road and McDougald Blvd.~~

SOURCE: ESA, ~~2005~~2008.

Cumulative Impact 4.9.4. Increases in traffic from the project in combination with other development would result in cumulative noise increases. This impact would be less than significant.

A cumulative impact arises when two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant impacts, meaning that the project's incremental effects must be viewed in connection with the effects of past, current, and probable future projects. Notably, any project that would individually have a significant noise impact would also be considered to have a significant cumulative noise impact.

Cumulative Analysis – Years 2025

Based on the traffic analysis prepared for this report, the project would generate approximately ~~35,200~~21,900 daily vehicle trips that would enter the shopping center and would be distributed over the local street network and would affect roadside noise levels.

To assess the cumulative impact of project traffic on roadside noise levels for the year 2025, noise level projections were made using the FHWA Noise Prediction Model and are shown in Table 4.9-~~9~~8. Estimated noise levels shown in Table 4.9-~~9~~ 8 correspond to a distance of approximately 50 feet from the centerline of applicable roadway segments. As depicted in Table 4.9-~~9~~ 8 below, the project would not increase noise levels by 3 dBA or more on any of the roadway segments. Thus, it is also considered to have a **less-than-significant** cumulative impact on noise without mitigation for ~~both~~ the 2025 cumulative analysis year~~s~~.

Mitigation Measure. No mitigation is required.

4.10 Hydrology and Water Quality

On page 4.10-17, following Impact 4.10.4, the following mitigation measure is added. While this mitigation measure is not necessary to reduce a potentially significant project-level impact, it is added for consistency with the General Plan EIR water supply analysis.

Mitigation Measure 4.10.4

The water irrigation system installed for the Project shall be installed such that it may be converted to a non-potable reclaim water system in the future. The applicant shall monitor the City's efforts to develop a reclaimed water system. If the City develops a reclaimed water system that is feasibly accessible to the project site, non-potable water shall be used for Project landscape irrigation.

REVISED TABLE 4.9-~~9~~8
CUMULATIVE PM PEAK-HOUR TRAFFIC NOISE LEVELS ALONG ROADWAYS IN THE PROJECT VICINITY

	PM Peak-Hour Noise Level, dBA, Leq			
Roadway Segment[1]	**Cumulative (Year 2025) No Project**	**Cumulative (Year 2025) Plus Project**	**Incremental Increase for Year 2025 (Cumulative vs. Cumulative + Project)**	**Cumulatively Significant? (Yes or No)[2]**
1. Carolyn Weston Blvd (b/t McDougald and Manthey)[3]	69.7	69.7	0.0	No
2. Carolyn Weston Blvd (b/t Manthey and I-5)[3]	70.9	71.0	0.1	No
3. McDougald Blvd (b/t Carolyn Weston and Henry Long)[4]	63.6	63.7	0.1	No
4. Manthey Rd (b/t Carolyn Weston and Henry Long)[5]	69.4	69.7	0.3	No
5. McDougald Blvd (b/t Henry Long and French Camp)[4]	63.6	63.7	0.1	No
6. William Moss Blvd (b/t McDougald and Manthey)[4]	60.3	60.5	0.2	No
7. Henry Long Blvd (b/t McDougald and EWS Woods)[4]	59.4	59.4	0.0	No
8. French Camp Rd (b/t McDougald and I-5)[5, 6]	71.6	73.7	2.1	No
9. French Camp Rd (b/t McDougald and EWS Woods)[5, 6]	70.7	70.8	0.1	No
10. French Camp Rd (b/t McDougald and Project Entrance)[5, 6]	72.0	72.1	0.1	No
11. Manthey Rd (b/t French Camp and Yettner)[5]	66.8	67.1	0.3	No

1 Road center to receptor distance is 15 meters (approximately 50 feet) for values shown in this table. Noise levels were determined using FHWA Traffic Noise Prediction Model (FHWA RD-77-108).

2 Considered significant if the incremental increase in noise is greater than 5 dBA Leq in a noise environment of 60 dBA CNEL or less or an increase of 3 dBA Leq in a noise environment greater than 60 dBA CNEL. If project is individually significant, then it is also considered to be cumulatively significant. For receiving commercial and industrial land uses, if the Project substantially contributes to a transportation noise level that exceeds 75 dBA CNEL, the impact will be considered significant.

3 Vehicle mix on these road segments is assumed to be 98.9 percent auto, 1 percent medium trucks, and 0.1 percent heavy trucks based on a traffic count on Manthey during the P.M. peak hour. The speed limit for these segments is 40 miles per hour.

4 Vehicle mix on these road segments is assumed to be 98.75 percent auto, 1 percent medium trucks, and 0.3 percent heavy trucks based on a traffic count on McDougald during the P.M. peak hour. The speed limit for these segments is 30 miles per hour.

5 Vehicle mix on these road segments is assumed to be 98.9 percent auto, 1 percent medium trucks, and 0.1 percent heavy trucks based on a traffic count on Manthey during the P.M. peak hour. The speed limit for these segments is 45 miles per hour.

6 The speed limit for French Camp Road was not posted in the study area. The speed limit was assumed to be 45 mph.

~~7 Roadway segments 8a and 8b represent the same segment but with different alignments of Manthey Road.~~

SOURCE: ESA, ~~2005~~200

4.11 Biological Resources

On page 4.11-2 the third paragraph is revised:

The project area is bordered to the south by French Camp Road and active agricultural fields, to the west by fallow agricultural land zoned for residential development, to the northwest by low-density residential uses, ~~high density suburban housing developments,~~ to the North by fallow agricultural fields planned for development, and to the east by Manthey Road and I-5. ~~Two defunct~~ A drainage ditch~~es~~ runs north-south, ~~one unlined just inside~~ outside the eastern boundary ~~and one lined just inside the western boundary~~ of the project site. ~~Neither drains into any other surface body of water.~~

On page 4.11-2 the fifth paragraph is revised:

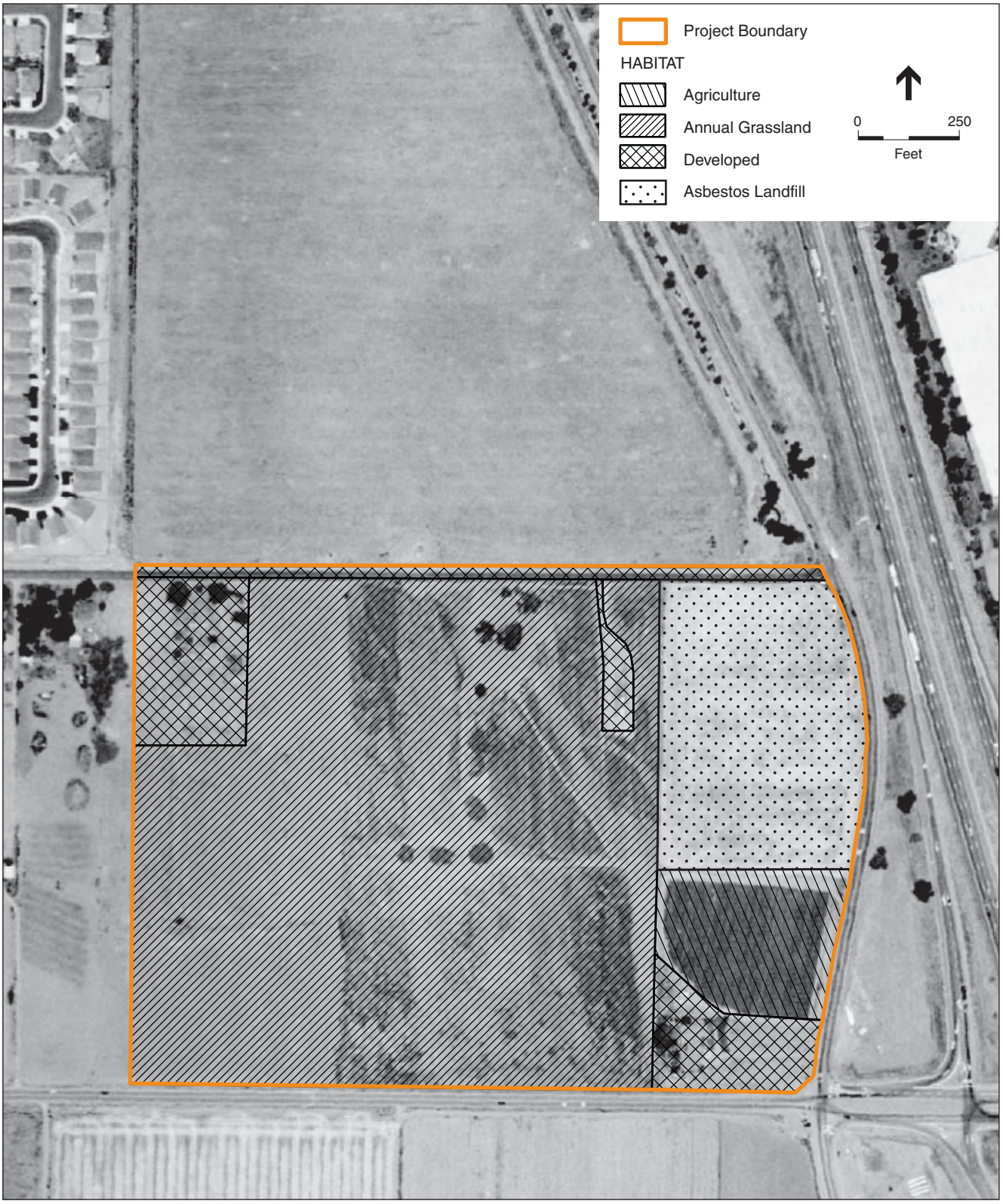
Approximately 29.2 acres of non-native annual grasslands occur in the ~~southern half of the~~ project area where agricultural fields have been left fallow for several years (Revised Figure 4.11-1). These grasslands are ruderal and dominated by exotic species such as orchard grass (*Dactylis glomerata*), Johnson grass (*Sorghum halepense*), Russian thistle (*Salsola tragus*), mustard (*Brassica* spp.), and yellow star thistle (*Centaurea solstitialis*). There are a few scattered native trees, consisting of valley oak (*Quercus lobata*), Fremont cottonwood (*Populus fremontii*), and black walnut (*Juglans hindsii*), in the center of this habitat.

On page 4.11-4 the second paragraph is revised:

Approximately ~~28.5~~ 2.92 acres of fallow agricultural fields occur in the project area, in the southeast corner ~~mainly in the northern half~~ of the project area (Revised Figure 4.11-1). This field has historically been cultivated, but is now barren, except for new growth of grasses and other weedy species. The edges of the field are dominated by weedy plant species such as annual grasses, thistle, and mustard (*Brassica* spp.).

On page 4.11-7 the second paragraph is revised:

There are multiple occurrences of burrowing owls in the project vicinity (CDFG, 2004) (Revised Figure 4.11-2). The nearest occurrence is approximately three-quarter mile to the west of the project area where three active burrows were detected in 1999 (CDFG, 2004). One ground squirrel burrow was detected along the eastern boundary of the project area during the reconnaissance survey in 2004. There is potential habitat for this species in the agricultural fields in the southeast corner ~~northern half~~ of the project area. ~~The eastern boundary of this area appears to have not been regularly disked and cultivated, and, therefore,~~ This area may support burrowing owl. The annual grassland in the southern half of the project area is covered in 3- to 4-foot-tall weedy species such as thistle and does not represent suitable habitat for this species.



SOURCE: GlobeExplorer, 2004; and ESA, 2008

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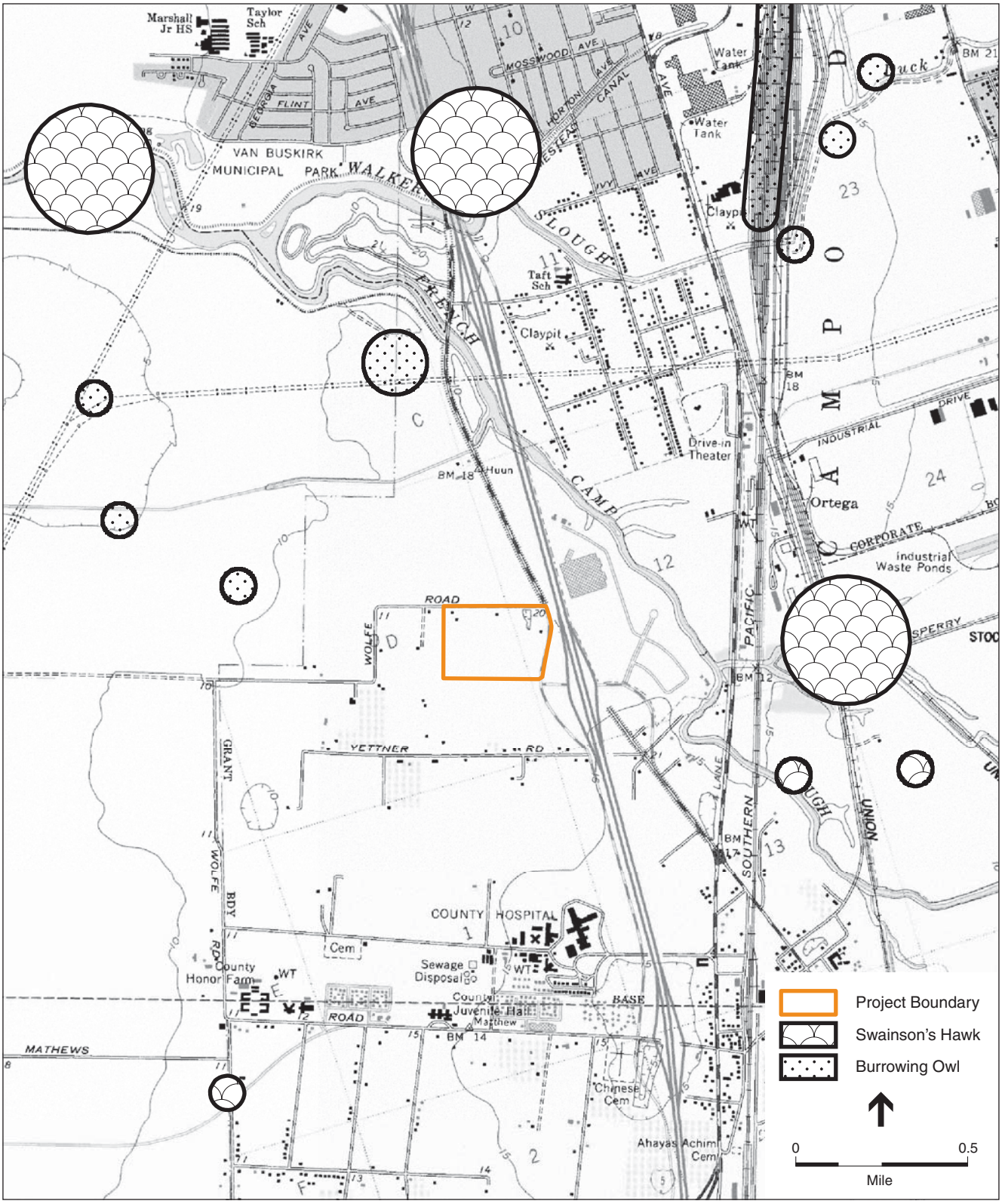
Revised Figure 4.11-1

Wildlife Habitat in the Project Area



SOURCE: USGS 7.5' Topographic Quadrangle (Stockton West); CNDDB, 2004; and ESA, 2006

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Revised Figure 4.11-2

Known Occurrences of Special Status Plants and Animals within the Project Area

On page 4.11-11 the sixth paragraph is revised:

A definition of heritage trees is provided below in the Regulatory Setting Section. ~~One valley oak near the center of~~ No trees on the project site qualify~~ies~~ as ~~a~~ heritage trees according to the City of Stockton Municipal Code. There are ~~also~~ several non-heritage ~~other lar~~ge and small trees present on the project site. Just to the east of the project site (across Manthey Road) are a number of valley oaks and other trees, at least one of which is a heritage tree (Table 4.11-2).

On page 4.11-20 the last paragraph is revised:

Additionally, the Open Space element of the City of Stockton General Plan calls for the preservation of all oak trees, including those which do not qualify as heritage trees. One non-heritage oak exists directly adjacent to ~~on~~the project site, on the northwest corner of the present intersection of Manthey Road and Henry Long Boulevard. The diameter of the tree is seven inches. Approximately five more non-heritage oak trees lie just east of the project site, with a total of ten stems ranging from 6 inches to 12 inches in diameter.

4.13 Hazards and Hazardous Materials

On page 4.13-2 the fourth paragraph is revised:

A natural gas well is located at the northwest corner of Manthey Road and Henry Long Boulevard that has not been in use for 15 to 20 years. (Twining, 2003). This well is adjacent to the reduced project site, but not within the site boundaries.

On page 4.13-5 the first paragraph is deleted:

~~The Wal Mart Supercenter would include a Tire & Lube Express. The Tire & Lube Express would handle hazardous materials and would have the potential to generate hazardous wastes and hazardous materials that would be recycled. The handling of such wastes is controlled through requirements for hazardous waste generators and requirements for the preparation of Hazardous Materials Business Plans, which would cover all the hazardous materials at the Wal Mart Supercenter.~~

On page 4.13-14, Mitigation Measure 4.13.1a is revised:

Mitigation Measure 4.13.1~~a~~. All onsite water supply wells and sewage disposal systems shall be properly destroyed by the project applicant in accordance with applicable ~~under~~ permit and inspection by the San Joaquin County Environmental Health Department.

On page 4.13-16, Mitigation Measure 4.13.4 is revised:

Mitigation Measure 4.13.4. The natural gas well shall be properly abandoned by the project applicant in consultation with and in accordance with the regulations of the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources and the San Joaquin County Environmental Health Department. As the applicant does not control the well property, should abandonment prove infeasible, the applicant shall comply with all state and local building setback requirements.

4.14 Energy

On pages 4.14-8 and 4.14-9, the Mitigation section under Impact 4.14.1 is deleted (the impact is less than significant).

On page 4.14-9 the second paragraph (Impact 4.14.2) is revised:

The proposed project would lead to the generation of approximately ~~35,200~~ 11,140 net new vehicular trips per day. Using default average trip length and the default fleet mix data for 2008 (both derived from ~~URBEMIS2002~~ URBEMIS2007, version ~~8.7~~ 9.2.2), upon buildout, the project would result in an estimated fuel consumption of approximately ~~1.214 million~~ 3,738 gallons of gasoline and ~~110,750~~ 682 gallons of diesel per day. **Table 4.14-1** shows the estimated vehicular fuel consumption due to the project and the equivalent energy use in ~~billion~~ million British Thermal Units (Btu). The fuel consumption estimates take into account total fleet average fuel economy rate of ~~20.748~~ 20.782 mpg for gasoline vehicles and ~~7.598~~ 7.608 mpg for diesel vehicles in ~~2008~~ 2009 (California Department of Transportation, 2000).

TABLE 4.14-1
VEHICLE ENERGY CONSUMPTION

2008	Daily Vehicle Fuel Use (gallons/day)	Daily Vehicle Energy Use (in ~~billion~~ million Btu/day)
Diesel Use	~~110,750~~ 682	~~14.4~~ 95.48
Gasoline Use	~~1.214 million~~ 3,738	~~138.36~~ 523.32

Notes:
2% of the total trips generated were assumed to be commute trips based on URBEMIS ~~2002~~ 2007 default settings for San Joaquin Valley. Trips lengths used were also derived from URBEMIS ~~2002~~ 2007: 9.5 miles per trip for commute trips and ~~7.35~~ 7.4 miles per trip for non-commute trips. Based on the default vehicle fleet mix for San Joaquin Valley in ~~2008~~ 2009, ~~96.77~~ 93.71% of the trips generated and miles traveled were assumed to be made by gasoline fueled vehicles and the remaining ~~3.23~~ 6.29 percent is assumed to be made by diesel dueled vehicles.

On page 4.14-10 the third paragraph (Impact 4.14.2) is revised:

Projected electricity and natural gas energy use were estimated using PG&E forecasting methodology factors; gasoline consumption from vehicular operation was estimated using Caltrans transportation system factors. The project would involve construction of a mixed-use regional shopping center not to exceed 481,000-square-feet of building area. ~~710,000 square foot, mixed use regional shopping center.~~ Using PG&E's Planning Area Forecast factor of 17 kWh per square feet of commercial space, in 2008, the project would result in an electricity demand of approximately ~~12.1~~ 8.2 million kilowatt hours per year (CEC, 2005c). Using a natural gas usage factor of 2.9 cubic feet per square foot per month for retail/shopping space, the project would generate a natural gas demand of approximately ~~24.7~~ 16.7 million cubic feet of natural gas per year. The natural gas usage factor was derived from the URBEMIS2002 User's Guide (Jones & Stokes, 2005).

On page 4.14-10 the paragraph under the heading *Mitigation Measures* (for Impact 4.14.2) is revised:

Mitigation Measures

The air quality mitigation measure 4.8.3a provides measures to reduce the number of trips generated by the project and reduce trip length that would also serve to reduce transportation energy used by the project. Measure 4.8.3a also addresses energy conservation in project buildings. See revised section 4.8 (Chapter 4 of the FEIR) for the full text of this measure.

~~**Mitigation Measure 4.8.3a**: To reduce the operational impacts of the project, feasible mitigation measures from the following list shall be implemented as required by the City~~**:**

~~1. Transit service infrastructure shall be approved by the City prior to development of each phase of the project.~~

~~**Rideshare Measures:** Implement carpool/vanpool program (e.g., carpool, ride matching for employees, assistance with vanpool formation, provision of vanpool vehicles, etc.).~~

~~**Transit Measures:** Construct transit facilities such as bus turnouts/bus bulbs, benches, transit shelters, and, route signs and displays.~~

~~The project applicant would provide transit enhancing infrastructure that includes transit shelters, benches, street lighting, etc. at the project site.~~

~~Contribute to regional transit systems (e.g., right-of-way, capital improvements, and park-and-ride lots)~~

~~**Bicycle and Pedestrian Measures:** Provide direct, safe, attractive pedestrian and bicycle access to transit stops and adjacent development.~~

~~Provide bicycle lanes and/or paths, connected to community-wide network.~~

~~Provide street lighting~~

~~Improve or construct onsite and offsite pedestrian facilities (e.g., overpasses, wide sidewalks, and building access for pedestrians)~~

~~Provide pedestrian safety designs/infrastructure at crossings~~

~~2. Implement feasible energy-conserving features from the list provided by the SJVAPCD (SJVAPCD, 2005). Prior to the implementation of the project, the applicant will present for City approval an energy-conservation plan that includes consideration of each of the following potential measures. The City, in consultation with the SJVAPCD, will require implementation of clearly feasible measures from this list.~~

- ~~Increased energy efficiency (meet or exceed California Title 24 Requirements)~~

- ~~Increased wall and ceiling insulation (meet or exceed California Title 24 Requirements)~~
- ~~Energy efficient windows (double pane and/or Low-EE)~~
- ~~High-albedo (reflecting) roofing material, or similar~~
- ~~Cool paving~~
- ~~Radiant heat barrier~~
- ~~Energy efficient lighting, appliances, and heating and cooling systems~~
- ~~Solar water-heating systems~~
- ~~Photovoltaic cells~~
- ~~Programmable thermostats for all heating and cooling systems~~
- ~~Awnings or other shading mechanism for windows~~
- ~~Porch, patio, and walkway overhangs~~
- ~~Ceiling fans and whole house fans~~
- ~~Orient the units to maximize passive solar cooling and heating when practicable~~
- ~~Use passive solar cooling and heating designs~~
- ~~Use day lighting (natural lighting) systems such as skylights, light shelves, interior transom windows, etc.~~
- ~~Electrical outlets around the exterior of the units to encourage use of electric landscape maintenance equipment~~
- ~~Bicycle parking facilities for patrons, employees, and/or students in a covered secure area~~
- ~~Employee shower and locker areas for bicycle and pedestrian commuters~~
- ~~On-site employee cafeterias or eating areas~~
- ~~Low or non-polluting landscape maintenance equipment (e.g., electric lawn movers, reel mowers, leaf vacuums, electric trimmers, and edgers, etc.)~~
- ~~Exits to adjoining streets should be designed to reduce time to re-enter traffic from the project site.~~
- ~~The project will include an information center for residents to coordinate carpooling and vanpooling.~~

On page 4.14-11 the seventh bullet is revised:

- Energy efficient lighting <u>(e.g., fluorescent or solar powered lighting)</u>, appliances, and heating and cooling systems

On page 4.14-12 and 4.14-13, the Cumulative Impacts section is revised:

Cumulative Impacts

Impact 4.14.3 ~~H.3~~: The project would incrementally contribute to cumulative energy consumption. (Potentially Significant)

The project, together with other regional growth and development, would incrementally increase regional energy consumption. As discussed above, the project would require up to 12.1 million kilowatt hours (kWh) per year at buildout (post-construction). Current annual electricity consumption in California for the commercial sector is 101,393 million kWh (CEC 2006). This demand is expected to grow at a rate of 1.8% per year. California is expected to require additional supplies to meet demand through 2025 (CEC 2004).

The project's contribution to planned cumulative energy demand in combination with other projects' contributions to this demand would be considered cumulatively significant because it would contribute to future demand, which is predicted to exceed current and planned supply.

The consumption of energy by the project, including transportation, operation (including water usage and solid waste generation) is directly related to the emission of greenhouse gases. Greenhouse gas emissions, and their relationship to global climate change, are discussed in detail in Master Response 1 (Chapter 3).

Mitigation Measure 4.14.3: The owners, developers and/or successors-in-interest (ODS) shall implement the following measures:

1. GCC-1. All commercial buildings (over 5,000 square feet) within the project site will comply with LEED-Certified standards in effect at the time of construction. The ODS will not be required to participate in the formal LEED inspection and certification process, but will be required to demonstrate to the City the ability to be certified to LEED standards.

2. GCC-2. The ODS shall address the impacts from project-related emissions through implementation of the following measures:
    a. Implement Mitigation Measure 4.8.3b (Rule 9510 Indirect Source Rule)
    b. Implement Mitigation Measure 4.8.5a (Impose idling time restrictions for delivery vehicles)

3. GCC-3. The following measures shall be used in combination to accomplish an overall reduction in energy consumption relative to the requirements of Title 24 (California Code of Regulations):
    a. Contractors shall minimize and recycle construction-related waste.
    b. Implement Mitigation Measure 4.8.3a (energy-saving features)

4. GCC-4: The ODS is required to prepare a water conservation plan for the proposed project to the satisfaction of the Director of Municipal Utilities. The plan shall address the following, as appropriate:

a. Water-efficient landscapes shall be provided for all public landscaped areas, including roadway medians and roadside landscaping.
b. Water-efficient irrigation systems and devices shall be required in all landscaped areas.

5. GCC-5. The ODS is required to implement the following to reduce the solid waste impacts from the proposed project.
    a. Implement Mitigation Measure GGC-3.a.
    b. Provide interior and exterior storage areas for recyclables and green waste and adequate recycling containers located in public areas.

6. GCC-6. Implement the bicycle, pedestrian, and transit improvements described in Mitigation Measure 4.8.3a.

Impact Significance After Mitigation:

Implementation of the measures listed above would help reduce the project's energy demand to a level that would not be considered excessive and wasteful. By implementing feasible conservation measures (as described in Mitigation measure 4.8.3a), the project's contribution to energy usage would be less than cumulatively considerable.

CHAPTER 5
Report Preparers

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CHAPTER 6
References

In addition to the references in Chapter 9 of the DEIR, the following references were used in the preparation of this Final EIR.

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Appendix A
Revised Traffic Study

ESA

FEHR & PEERS
TRANSPORTATION CONSULTANTS

DRAFT MEMORANDUM

Date: May 12, 2008

To: Brian Grattidge, ESA

From: Kathrin Tellez

Subject: ***Weston Ranch Towne Center Reduced Project Alternative Evaluation***
WC07-2506

Fehr & Peers conducted an assessment the off-site impacts and on-site circulation of the Reduced Project Alternative for the proposed Weston Ranch Towne Center, located on French Camp Road at Manthey Road in Stockton. The Draft Environmental Impact Report (DEIR) contained an impact analysis for a larger project, including a 250,000-square foot Wal-Mart, 175,000-square foot Sam's Club, and 285,000 square feet of shopping center uses for the Near-term, and Cumulative (2025 and 2035) conditions. The Reduced Project Alternative proposes a 99,585-square foot Wal-Mart, 378,015 square feet of general retail space, and a 12-pump gas station. As part of the Reduced Project Alternative, Manthey Road would be realigned west of its current location. No development is proposed north Henry Long Boulevard with the Reduced Project Alternative.

This assessment evaluates the impacts of the Reduced Project Alternative on the intersections and freeway segments that were evaluated in the DEIR for the Near-term, and Cumulative (2025 and 2035) conditions. The study intersection locations are shown on Figure 1. (All figures are provided at the end of this memorandum.) The assumptions and results of the assessment are presented in the following four sections: trip generation and trip assignment, off-site impacts, off-site mitigation and on-site circulation.

PROJECT TRIP GENERATION AND ASSIGNMENT

The Reduced Project Alternative contains a 99,585-square foot Wal-Mart, 378,015 square feet of general retail space, and a 12-pump gas station. The project site is bound by French Camp Road to the south, Manthey Road to the east, Henry Long Boulevard to the north, and a residential subdivision to the west. Manthey Road would be relocated to the western edge of the site with development of the Reduced Project Alternative, as shown on Figure 2.

Trip generation for the Reduced Project Alternative was calculated using the same rates and methods as presented in the DEIR, as presented in Table 1. For the gas station, a pass-by rate of 50 percent was used, consistent with information in the Institute of Transportation Engineers publication *Trip Generation Handbook*. As presented in Table 1, development the Reduced Project Alternative would generate approximately 11,140 daily trips, 395 AM peak hour, and 1,174 PM peak hour trips. This equates to approximately 6,460 fewer daily trips, 140 fewer AM, and 550 fewer PM peak hour trips than the project analyzed in the DEIR.

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FEHR & PEERS
TRANSPORTATION CONSULTANTS

TABLE 1
WESTON RANCH TOWNE CENTER
REDUCED PROJECT ALTERNATIVE TRIP GENERATION

Land Use	Daily Trips	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Shopping Center (378,015 square feet)[a]	16,100	237	152	389	723	783	1,506
Wal-Mart (99,585 square feet)[b]	5,800	140	135	275	301	277	578
Gas station (12 pump)[c]	1,950	61	60	121	81	80	161
Total Driveway Volumes	*23,850*	*438*	*347*	*785*	*1,105*	*1,140*	*2,245*
Pass-by Trips (10% - Retail uses)	-2,000	-33	-33	-66	-104	-104	-208
Pass-by Trips (50% - gas station)	-980	-30	-30	-60	-40	-40	-80
Diverted Linked Trips from I-5 (40 %)	-8,760	-132	-132	-264	-392	-392	-784
Net New Reduced Project Alternative Trips[d]	***11,140***	***243***	***152***	***395***	***569***	***604***	***1,173***
Buildout Driveway Volumes from Proposed Project in DEIR	35,200	601	481	1,082	1,725	1,717	3,442
Difference between DEIR Project and Reduced Project Alternative	-11,350	-163	-134	-297	-620	-577	-1,197
Buildout Net New Trips from Proposed Project in DEIR	17,600	329	209	538	864	856	1,720
Difference between DEIR Project and Reduced Project Alternative	-6,460	-86	-57	-143	-295	-252	-547

(a) Trip generation determined from fitted curve equations presented for Shopping Center (Land Use 820) in the Institute of Transportation Engineers' *Trip Generation* (7th Edition), as presented below.
Daily Equation: Ln(T) = 0.65 Ln(X) + 5.83
AM Rate: T = 1.03 (X) (inbound = 61 percent, outbound = 39 percent)
PM Equation: Ln (T) = 0.66 Ln(X) + 3.40 (inbound = 48 percent, outbound = 52 percent)
Where T = Trip ends, Ln = Natural Log, and X = building size in 1,000 square feet.

(b) Trip generation for Wal-Mart based on trip generation rates presented in *Proposed Super Wal-Mart in Spanos Park West – Stockton California* Letter to William D. Kopper from Neal K Liddicoat, P.E. (April 7, 2004), based on rates documented in an unpublished study (VRPA Technologies, Inc. *Trip Generation Characteristics of Free-Standing Discount Superstores*, March 2004).
Daily Rate: T = 58 (X)
AM Rate: T = 2.76 (X) (inbound = 51 percent, outbound = 49 percent)
PM Rate: T = 5.8 (inbound = 52 percent, outbound = 48 percent)
Where T = Trip ends, and X = building size in 1,000 square feet.

(c) Trip generation determined from average rate for Gas Station with Convenience Market (Land Use 945) in the Institute of Transportation Engineers' *Trip Generation* (7th Edition), as presented below.
Daily Rate: T = 162.78 (P)
AM Rate: T = 10.06 (P) (inbound = 50 percent, outbound = 50 percent)
PM Rate: T = 13.38 (P) (inbound = 50 percent, outbound = 50 percent)
Where T = Trip ends, and p = number of fueling positions.

(d) Although this table displays the net new trips, all project trips were assigned to the roadway system and accounted for in the analysis.

Source: ITE, Fehr & Peers, 2008.

Trips from the Reduced Project Alternative were assigned to the roadway network using the same trip distribution and assignment presented in the DEIR. The resulting peak hour project trip assignments are presented on Figures 3, 4 and 5 for the Near-term, Cumulative 2025, and Cumulative 2035 scenarios.

OFF-SITE IMPACTS

Off-site impacts for intersections and freeway segments were evaluated for the Near-term, Cumulative 2025, and Cumulative 2035 conditions with Project buildout in the DEIR. These locations were reanalyzed with the Reduced Project Alternative. The without project conditions for the Near-term, Cumulative 2025, and Cumulative 2035 conditions have changed from what was presented in the DEIR. The applicable changes for each scenario are discussed below.

Potential impacts of the Reduced Project Alternative were assessed using the same significance criteria presented in the DEIR.

Near-Term Conditions

Near-Term Roadway Network

Several roadway improvements have been constructed in the vicinity of the Project Site since preparation of the DEIR analysis. These improvements include:

- Construction of a westbound right-turn only lane at the French Camp Road/ McDougald Boulevard intersection
- Closure of Henry Long Boulevard as a through street west of Manthey Road[1]
- Signalization of the French Camp Road/I-5 Northbound and Southbound Ramp intersections
- Improvements to the Mathews Road intersections with Manthey Road, I-5 Southbound Ramps and I-5 Northbound Ramps

The resulting Near-term intersection lane configurations in the study area are presented on Figure 6.

Near-Term Without Project Traffic

The near-term forecasts contained in the DEIR include existing traffic volumes, traffic from the build-out of parcels that could be further developed without future entitlements from the City, and traffic from those developments that are approved and/or under construction within the study area. Therefore, these conditions represent the traffic levels that could occur in the next several years. As discussed above, several roadway network changes have occurred in the vicinity of the project site since the preparation of the DIER analysis, one which affects background traffic volumes. Henry Long Boulevard has been closed to through traffic at Manthey Road in conjunction with development of a subdivision to the east of McDougald

[1] Henry Long Boulevard has been reconfigured as a cul-de-sac with access from McDougald Boulevard.

Road. Near-term without Project traffic forecasts were adjusted to account for the local traffic shifts, and are presented on Figure 7.

Near-Term with Reduced Project Alternative Traffic

The peak hour traffic volumes (Figure 3) were added to the near-term without project volumes to determine future traffic volumes with the Reduced Project Alternative. Resulting near-term peak hour traffic volumes are shown on Figure 8. These volumes take into account traffic shifts that would result with the realignment of Manthey Road through the project site. Near-term lane configurations and traffic control presented on Figure 6 include roadway improvements on the project frontage that would be constructed as part of the project, including widening French Camp Road to four lanes along the project frontage, connecting to the existing four lane cross-section at the I-5 under-crossing.

Analysis of Near-Term Conditions

Intersection Analysis

The near-term conditions analysis results are shown in Table 2. All tables are presented at the end of this section. The analysis results from the DEIR are also shown for comparison purposes. The results indicate that without the project, five study intersections are projected operate at overall deficient service levels (i.e., LOS E or F) during one or both peak hours.

- French Camp Turnpike/Downing Avenue
- Manthey Road/French Camp Road
- French Camp Road/Val Dervin Parkway
- Mathews Road/Manthey Road
- Mathews Road/I-5 Northbound Ramps

The French Camp Road/I-5 Northbound Ramp intersection was projected to operate deficiently in the DEIR near-term without project analysis. However, with the installation of traffic signals, the intersection is projected to operate at an acceptable service level.

The DEIR analysis identified off-site impacts at seven intersections. As shown in Table 2, development of the Reduced Project Alternative would result in significant impacts at the following intersections:

- Manthey Road/French Camp Road
- French Camp Road/Val Dervin Parkway
- Mathews Road/I-5 Northbound Ramps

Although the French Camp Road/I-5 Northbound Ramp intersection is projected to operate at an acceptable service level with the recent signalization and the addition of traffic from the Reduced Project Alternative, the eastbound left-turn vehicle queue at the northbound ramp intersection is projected to exceed the available storage length, potentially impeding through traffic on French Camp Road. Vehicle queues on the off-ramps are expected to be contained within the available ramp storage area. Vehicle queues at the Downing Avenue interchange are expected to be maintained within the available storage area.

Mitigation measures are discussed in the Mitigation Measure section.

Signal Warrants

The Peak Hour Volume Warrant (Warrant 3) of the MUTCD is used in this study as a supplemental analysis tool to assess operations at the unsignalized intersections and to access the need for signalization[2]. The results of the traffic signal warrant analysis are shown in Table 3. Several intersections would meet the peak hour warrant. It would not be satisfied at the French Camp Road/McDougald Boulevard intersection with the Reduced Project Alternative, although it was satisfied with the project analyzed in the DEIR.

Freeway Analysis

The I-5 freeway mainline segments from north of Downing Avenue to south of Mathews Road were analyzed based on the peak hour volumes shown in Table 4. The analysis results indicate that I-5 in the study area would continue to operate at LOS D or better during both peak hours with the addition of traffic from the Reduced Project Alternative in the near-term scenario. A freeway impact was identified on I-5 northbound, north of Downing Avenue with the Proposed Project. The Reduced Project Alternative would reduce the impact to a less-than-significant level.

2025 Cumulative Conditions

2025 Cumulative Roadway Network

The planned roadway network for the 2025 Cumulative Without Project analysis is the same as presented in the DEIR, except for the improvements on Mathews Road at Manthey Road and the I-5 ramps, which have recently been installed. For the analysis With the Reduced Project Alternative conditions, Manthey Road north of French Camp Road was assumed to be aligned along the western boundary of the project site, creating an off-set Manthey Road intersection at French Camp Road. The 2025 Cumulative Lane configurations in the study area are presented on Figure 9.

2025 Cumulative Without Project Traffic

Future 2025 intersection traffic forecasts were developed using the *1990 General Plan* traffic model, which reflects the build-out scenario envisioned in the *1990 General Plan.* The forecasting method is consistent with the method used in the Revised Final Traffic Analysis Report for the *Sperry Road Extension Project Report/Environmental Document, Fehr & Peers, July 2005.* Modifications were made to the 2025 Cumulative Without Project forecasts presented in the DEIR to include development of the parcel north of Henry Long Boulevard that was previous included as part of the Proposed project. Based on the zoning contained in the *1990 General Plan,* development of 164 single family homes and 94,525 square feet of retail uses was assumed for this site. The 2025 Cumulative Without Project forecasts are shown on Figure 10.

[2] Unsignalized intersection warrant analysis is intended to examine the general correlation between existing conditions and the need to install new traffic signals and is intended as a preliminary screening tool. Existing peak-hour volumes are compared against a subset of the standard traffic signal warrants recommended in the MUTCD and associated State guidelines. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. Furthermore, the decision to install a signal should not be based solely on the warrants because the installation of signals can lead to certain types of collisions. The responsible state or local agency should undertake regular monitoring of actual traffic conditions and accident data and conduct a timely re-evaluation of the full set of warrants in order to prioritize and program intersections for signalization.

2025 Cumulative with Reduced Project Alternative Traffic

The 2025 Reduced Project Alternative peak hour traffic volumes (Figure 4) were added to the 2025 Cumulative Without project volumes. The results are shown on Figure 11. These volumes take into account traffic shifts that would result with the realignment of Manthey Road to the western edge of the project site.

Analysis of 2025 Cumulative Conditions

Intersection Analysis

The 2025 conditions intersection analysis results are shown in Table 5. The analysis results from the DEIR are also shown for comparison purposes. The results indicate that without the project, no study intersection are projected operate at overall deficient service levels (i.e., LOS E or F) during peak hours.

A queuing analysis was also conducted for the intersections on French Camp Road between Manthey Road and Val Dervin Parkway. Results of this analysis show that vehicle queues through the I-5 interchange area are expected to be contained within the proposed vehicle storage. Vehicle queues at the Downing Avenue interchange are expected to be maintained within the available storage area.

The DEIR analysis identified off-site impacts at one intersection: Manthey Road/Mathews Road. Considering the improvements recently installed at this location, the Reduced Project Alternative would not result in a significant impact at this location.

Signal Warrants

The Peak Hour Volume Warrant (Warrant 3) of the MUTCD is used in this study as a supplemental analysis tool to assess operations at the unsignalized intersections and to access the need for signalization. The results of the traffic signal warrant analysis are shown in Table 6. The results show that the peak hour warrant would not be satisfied at any additional unsignalized intersections with development of the Reduced Project Alternative. Additionally, with improvements recently installed at the Manthey Road/Mathews Road intersection, the peak hour signal warrants would no longer be satisfied in the 2025 Cumulative Condition, either without or with the Reduced Project Alternative.

Freeway Analysis

The I-5 freeway mainline segments from north of Downing Avenue to south of Mathews Road were analyzed based on the peak hour volumes shown in Table 7. The analysis results indicate that I-5 in the study area would continue to operate at LOS D or better during both peak hours with the addition of traffic from the Reduced Project Alternative in the 2025 Cumulative scenario.

2035 Cumulative Conditions

2035 Cumulative Roadway Network

The planned roadway network for the 2035 Cumulative Without Project analysis is the same as presented in the DEIR. For the analysis With Reduced Project Alternative conditions, Manthey Road north of French Camp Road was assumed to be aligned along the western

boundary of the project site, creating an off-set Manthey Road intersection at French Camp Road. The 2035 Cumulative lane configurations in the study area are presented on Figure 12.

2035 Cumulative Without Project Traffic

Future 2035 intersection traffic forecasts were developed using the *2035 General Plan* traffic model, which reflects the build-out scenario envisioned in the *2035 General Plan*. The *2035 General Plan Update* includes citywide population of over 600,000 (210,000 residential units), while the 2025 scenario from the *1990 General Plan* included total population of approximately 430,000 (160,000 residential units). In the *2035 General Plan Update*, substantial new development activity is anticipated in the areas west of I-5 and south of French Camp Road, as well as the areas east of I-5 and south of Sperry Road. The additional growth in these areas will contribute higher traffic volumes to study area roadways than was projected in the Future 2025 scenario based on the *1990 General Plan*. In addition, the *2035 General Plan Update* accounts for continued growth outside of Stockton to the year 2035.

Modifications were made to the 2035 Cumulative Without Project forecasts presented in the DEIR to include development of the parcel north of Henry Long Boulevard that was previously included as part of the Proposed project. Based on the zoning contained in the *2035 General Plan,* development of 381,150 square feet of retail uses was assumed for this site. The 2035 Cumulative Without Project forecasts are shown on Figure 13.

2035 Cumulative with Reduced Project Alternative Traffic

The 2035 Reduced Project Alternative peak hour traffic volumes (Figure 5) were added to the 2035 Cumulative Without project volumes. The results are shown on Figure 14. These volumes take into account traffic shifts that would result with the realignment of Manthey Road to the western edge of the project site.

Analysis of 2035 Cumulative Conditions

Intersection Analysis

The 2035 conditions intersection analysis results are shown in Table 8. The analysis results from the DEIR are also shown for comparison purposes. The results indicate that without the project, all study intersections are projected operate at overall acceptable service levels (i.e., LOS D or better) during both peak hours, except French Camp Turnpike/Downing Avenue intersection.

A detailed queuing analysis was also performed for the French Camp Road corridor between the proposed Sperry Road extension and Manthey Road, including the I-5 interchange under 2035 condition. The results are shown on Table 9. Results of this analysis show that vehicle queues could periodically spillback through the I-5 interchange area. Vehicle queues at the Downing Avenue interchange are expected to be maintained within the available storage area through 2035.

Signal Warrants

The Peak Hour Volume Warrant (Warrant 3) of the MUTCD is used in this study as a supplemental analysis tool to assess operations at the unsignalized intersections and to

access the need for signalization. The results of the traffic signal warrant analysis are shown in Table 10. The results show that the peak hour warrant would not be satisfied at any additional unsignalized intersection with the development

Freeway Analysis

The I-5 freeway mainline segments from north of Downing Avenue to south of Mathews Road were analyzed based on the peak hour volumes shown in Table 11, assuming that I-5 was widened to ten lanes through the study area by 2035. The analysis results indicate that most sections of I-5 in the study area would operate at LOS D or better during both peak hours with or without project traffic in the Future 2035 scenarios, with a few exceptions:

- I-5 northbound north of Downing Avenue would operate at LOS E during the PM peak hour without project traffic. This segment would degrade to LOS F with the addition of traffic from the Reduce Project Alternative, although the increase in traffic volumes would be less than 5 percent. Therefore, the project impact is considered less than significant.

- I-5 southbound north of Downing Avenue would operate at LOS E during both the AM and PM peak hours, both without and with the proposed project. The Reduce Project Alternative would increase traffic volumes on this segment by less than 5 percent; therefore, the project impact is considered less than significant.

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TABLE 2
NEAR-TERM PEAK HOUR INTERSECTION OPERATIONS

Intersection		Control	Peak Hour	DEIR Analysis				Reduced Project Alternative Analysis			
				Near-Term Without Project		Near-Term With Project		Near-Term Without Project		Near-Term With Project	
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1.	McDougald Boulevard/ Carolyn Weston Boulevard	Signal	AM PM	24 28	C C	25 29	C C	24 28	C C	25 28	C C
2.	Manthey Road/ Carolyn Weston Boulevard	Signal	AM PM	21 36	C D	23 39	C D	21 36	C D	22 37	C D
3.	I-5 Southbound Ramps/ Downing Avenue	Signal	AM PM	16 17	B B	16 19	B B	16 17	B B	16 17	B B
4.	I-5 Northbound Ramps/ Downing Avenue	Signal	AM PM	20 21	B C	21 26	C C	20 21	B C	20 22	B C
5.	French Camp Turnpike/Downing Avenue	SSSC	AM PM	31 **(> 50)** **> 50 (> 50)**	D **(F)** **F (F)**	31 **(> 50)** **> 50 (> 50)**	D **(F)** **F (F)**	31 **(> 50)** **> 50 (> 50)**	D **(F)** **F (F)**	31 **(> 50)** **> 50 (> 50)**	D **(F)** **F (F)**
6.	McDougald Boulevard/ William Moss Boulevard	Signal	AM PM	21 21	C C	21 21	C C	21 21	C C	21 21	C C
7.	Manthey Road/ William Moss Boulevard	Signal	AM PM	14 15	B B	15 15	B B	15 17	B B	15 17	B B
8.	McDougald Boulevard/ Henry Long Boulevard	AWSC	AM PM	10 16	A C	11 19	B C	9 10	A A	9 10	A A
9.	Manthey Road/ Henry Long Boulevard	SSSC/ AWSC	AM PM	5 (11) 6 (14)	A (B) A (B)	8 12	A B	N/A N/A	N/A N/A	8 9	A A
10.	Wolfe Road/EWS Woods Boulevard/French Camp Road	Signal	AM PM	34 37	C D	36 43	D D	24 36	C D	24 38	C D
11.	McDougald Boulevard/ French Camp Road	SSSC	AM PM	3 (19) 4 (17)	A (C) A (C)	11 ***(46)*** ***43 (> 50)***	B ***(E)*** ***E (F)***	5 (26) 5 (30)	A (D) A (D)	5 (28) 6 (38)	A (D) A (E)
12a.	Manthey Road/French Camp Road	AWSC	AM PM	**> 50** **> 50**	**F** **F**	***> 50*** ***> 50***	***F*** ***F***	**> 50** **> 50**	**F** **F**	***> 50*** ***> 50***	***F*** ***F***
12b.	Primary Project Driveway/ French Camp Road	Signal	AM PM	N/A N/A	N/A N/A	18 37	B D	N/A N/A	N/A N/A	6 12	A B

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TABLE 2
NEAR-TERM PEAK HOUR INTERSECTION OPERATIONS

	Intersection	Control	Peak Hour	DEIR Analysis				Reduced Project Alternative Analysis			
				Near-Term Without Project		Near-Term With Project		Near-Term Without Project		Near-Term With Project	
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
13.	I-5 Southbound Ramps/ French Camp Road	SSSC	AM PM	14 **(36)** 27 **(> 50)**	C **(E)** D **(F)**	***> 50 (> 50)*** ***> 50 (> 50)***	***F (F)*** ***F (F)***	19 17	B B	19 29	B C
14.	I-5 Northbound Ramps/ French Camp Road	SSSC	AM PM	14 **(> 50)** **> 50 (> 50)**	B **(F)** **F (F)**	***> 50 (> 50)*** ***> 50 (> 50)***	***F (F)*** ***F (F)***	13 19	B B	16 48	B D
15.	French Camp Road/ Val Dervin Parkway	SSSC	AM PM	**> 50 (> 50)** 21 **(> 50)**	**F (F)** C **(F)**	***> 50 (> 50)*** ***> 50 (> 50)***	***F (F)*** ***F (F)***	**> 50 (> 50)** 21 **(> 50)**	**F (F)** C **(F)**	***> 50 (> 50)*** ***38 (> 50)***	***F (F)*** ***E (F)***
16.	Manthey Road/Yettner Road	SSSC	AM PM	1 (11) 1 (11)	A (B) A (B)	1 (12) 1 (11)	A (B) A (B)	1 (11) 1 (11)	A (B) A (B)	1 (12) 1 (11)	A (B) A (B)
17.	Manthey Road/Mathews Road	AWSC	AM PM	**> 50** **36**	**F** **E**	***> 50*** ***45***	***F*** ***E***	15 13	B B	15 14	B B
18.	I-5 Southbound Ramps/ Mathews Road	SSSC	AM PM	11 (24) 5 (21)	B (C) A (C)	12 (26) 5 (24)	B (D) A (C)	11 (24) 3 (14)	B (C) A (B)	11 (24) 3 (14)	B (C) A (B)
19.	I-5 Northbound Ramps/ Mathews Road	SSSC	AM PM	**> 50 (> 50)** **> 50 (> 50)**	**F (F)** **F (F)**	**> 50 (> 50)** ***> 50 (> 50)***	**F (F)** ***F (F)***	**> 50 (> 50)** **> 50 (> 50)**	**F (F)** **F (F)**	**> 50 (> 50)** ***> 50 (> 50)***	**F (F)** ***F (F)***
20.	Wolfe Road/Howard Road	SSSC	AM PM	6 (14) 11 (**38**)	A (B) B (**E**)	6 (14) 11 (**41**)	A (B) B (**E**)	6 (14) 11 (**38**)	A (B) B (**E**)	6 (14) 11 (**40**)	A (B) B (**E**)
21.	Secondary Driveway/French Camp Road/Manthey Road	Signal	AM PM	N/A N/A	N/A N/A	11 13	B B	N/A N/A	N/A N/A	14 17	B B

Notes:

Signal = signalized intersection; SSSC = side street stop-controlled intersection; AWSC = all-way stop-controlled intersection
Delay for intersection average (worst movement) at SSSC intersections.
N/A = Not Applicable, these driveways only exist with the proposed project
Bold = deficient operations; Bold/italics = significant impact

Source: Fehr & Peers, 2008.

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TABLE 3
NEAR-TERM CONDITION PEAK HOUR SIGNAL WARRANT ANALYSIS

Intersection		Peak Hour Warrant Met?			
		DEIR Analysis		Reduced Project Alternative	
		Near-Term Without Project	Near-Term With Project	Near-Term Without Project	Near-Term With Project
5.	French Camp Turnpike/Downing Avenue	Met	Met	Met	Met
8.	Henry Long Boulevard/McDougald Boulevard	Not Met	Not Met	Not Met	Not Met
9.	Henry Long Boulevard/Manthey Road	Not Met	Not Met	Not Met	Not Met
11.	McDougald Boulevard/French Camp Road	Not Met	Met	Not Met	Not Met
12.	Manthey Road/French Camp Road	Met	Met	Met	Met
13.	I-5 Southbound Ramps/French Camp Road	Met	Met	Traffic Signals have been constructed at this location.	
14.	I-5 Northbound Ramps/French Camp Road	Met	Met		
15.	French Camp Road/Val Dervin Parkway	Met	Met	Met	Met
16.	Manthey Road/Yettner Road	Not Met	Not Met	Not Met	Not Met
17.	Manthey Road/Mathews Road	Not Met	Not Met	Not Met	Not Met
18.	I-5 Southbound Ramps/Mathews Road	Met	Met	Met	Met
19.	I-5 Northbound Ramps/Mathews Road	Met	Met	Met	Met
20.	Wolfe Road/Howard Road	Not Met	Not Met	Not Met	Not Met

Source: Fehr & Peers, 2008.

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TABLE 4
NEAR-TERM PEAK HOUR FREEWAY ANALYSIS

Segment	Direction of Travel	Peak Hour	DEIR Analysis							With Reduced Project Alternative			
			Without Project			With Project							
			Volume	Density	LOS	Volume	Density	LOS	% Increase	Volume	Density	LOS	% Increase
North of Downing Avenue	North	AM	3,840	21	C	3,913	21	C	1.9	3,893	21	C	1.4
		PM	5,450	33	D	5,750	***36***	***E***	***5.5***	5,661	35	D	3.9
North of Downing Avenue	South	AM	5,230	30	D	5,345	32	D	2.2	5,315	32	D	1.6
		PM	4,780	27	D	5,082	29	D	6.3	4,979	29	D	4.2
North of French Camp Road	North	AM	2,950	16	B	3,000	16	B	1.7	2,998	16	B	1.6
		PM	4,830	27	D	5,037	29	D	4.3	5,020	29	D	3.9
North of French Camp Road	South	AM	4,640	26	C	4,719	26	D	1.7	4,717	26	D	1.7
		PM	3,790	21	C	3,997	22	C	5.5	3,969	22	C	4.7
South of French Camp Road	North	AM	2,680	15	B	2,778	15	B	4.0	2,763	15	B	3.1
		PM	4,460	25	C	4,744	27	D	6.4	4,655	27	D	4.4
South of French Camp Road	South	AM	4,370	24	C	4,439	24	C	1.6	4,422	24	C	1.2
		PM	3,440	19	C	3,722	20	C	8.2	3,647	20	C	6.0
South of Mathews Road	North	AM	3,600	20	C	3,715	20	C	3.2	3,685	20	C	2.4
		PM	3,770	20	C	4,072	22	C	8.0	3,969	22	C	5.3
South of Mathews Road	South	AM	3,920	21	C	3,993	22	C	1.9	3,973	22	C	1.4
		PM	3,310	18	B	3,610	20	C	9.1	3,521	20	C	6.4

Notes:

Density measured in passenger cars per mile per lane.
Mainline segment level of service based on vehicle density, according to the Highway Capacity Manual (Transportation Research Board, 2000).
Bold = deficient operations; Bold/italics = significant impact

Source: Fehr & Peers, 2008.

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TABLE 5
2025 CUMULATIVE PEAK HOUR INTERSECTION OPERATIONS

Intersection		Control	Peak Hour	DEIR Analysis				Reduced Project Alternative Analysis			
				2025 Without Project		2025 With Project		2025 Without Project		2025 With Project	
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1.	McDougald Boulevard/ Carolyn Weston Boulevard	Signal	AM	28	C	28	C	28	C	28	C
			PM	23	C	23	C	23	C	23	C
2.	Manthey Road/ Carolyn Weston Boulevard	Signal	AM	33	C	35	C	34	C	35	C
			PM	42	D	49	D	44	D	46	D
3.	I-5 Southbound Ramps/ Downing Avenue	Signal	AM	13	B	13	B	12	B	13	B
			PM	15	B	16	B	16	B	16	B
4.	I-5 Northbound Ramps/ Downing Avenue	Signal	AM	11	B	11	B	11	B	11	B
			PM	15	B	15	B	16	B	16	B
5.	French Camp Turnpike/Downing Avenue	SSSC	AM	5 (26)	A (D)	5 (26)	A (D)	5 (27)	A (D)	5 (27)	A (D)
			PM	7 (31)	A (D)	7 (31)	A (D)	7 (31)	A (D)	7 (31)	A (D)
6.	McDougald Boulevard/ William Moss Boulevard	Signal	AM	20	B	20	B	20	B	20	B
			PM	21	C	21	C	21	C	21	C
7.	Manthey Road/ William Moss Boulevard	Signal	AM	18	B	18	B	25	C	25	C
			PM	16	B	16	B	27	C	35	C
8.	McDougald Boulevard/ Henry Long Boulevard	AWSC	AM	12	B	12	B	17	C	17	C
			PM	15	C	16	C	22	C	23	C
10.	Wolfe Road/EWS Woods Boulevard/French Camp Road	Signal	AM	27	C	27	C	27	C	27	C
			PM	31	C	32	C	32	C	33	C
11.	McDougald Boulevard/ French Camp Road	Signal	AM	25	C	25	C	25	C	25	C
			PM	17	B	18	B	17	B	18	B
12.	Manthey Road/French Camp Road	Signal	AM	19	B	23	C	20	B	20	B
			PM	18	B	45	D	22	C	24	C
13.	I-5 Southbound Ramps/ French Camp Road	Signal	AM	27	C	27	C	26	C	26	C
			PM	25	B	32	C	25	B	26	C
14.	I-5 Northbound Ramps/ French Camp Road	Signal	AM	7	A	9	A	7	A	7	A
			PM	9	A	16	B	10	A	14	B

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TABLE 5
2025 CUMULATIVE PEAK HOUR INTERSECTION OPERATIONS

Intersection		Control	Peak Hour	DEIR Analysis				Reduced Project Alternative Analysis			
				2025 Without Project		2025 With Project		2025 Without Project		2025 With Project	
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
15.	French Camp Road/ Val Dervin Parkway	Signal	AM PM	22 45	C D	22 55	C D	23 40	C D	23 45	C D
16.	Manthey Road/Yettner Road	SSSC	AM PM	2 (16) 2 (16)	A (C) A (C)	2 (17) 2 (18)	A (C) A (C)	2 (16) 2 (16)	A (C) A (C)	2 (17) 2 (17)	A (C) A (C)
17.	Manthey Road/Mathews Road	AWSC	AM PM	18 **> 50**	C **F**	19 ***> 50***	C ***F***	14 17	B C	14 17	B C
18.	I-5 Southbound Ramps/ Mathews Road	SSSC	AM PM	22 (37) 5 (21)	C (E) A (C)	24 (42) 5 (25)	C (E) A (C)	14 (24) 3 (14)	B (C) A (B)	14 (25) 3 (14)	B (C) A (B)
19.	I-5 Northbound Ramps/ Mathews Road	SSSC	AM PM	8 (44) 9 (> 50)	A (E) A (F)	10 (> 50) 26 (> 50)	A (F) A (F)	9 (45) 11 (> 50)	A (E) A (F)	9 (47) 14 (> 50)	A (E) A (F)
20.	Wolfe Road/Howard Road	SSSC	AM PM	2 (13) 3 (19)	A (B) A (C)	2 (13) 3 (19)	A (B) A (C)	2 (13) 3 (19)	A (B) A (C)	2 (13) 3 (20)	A (B) A (C)
21.	Secondary Driveway/French Camp Road	Signal	AM PM	N/A	N/A	8 12	A B	N/A	N/A	18 28	B C

Notes:

Signal = signalized intersection; SSSC = side street stop-controlled intersection; AWSC = all-way stop-controlled intersection
Delay for intersection average (worst movement) at SSSC intersections.
N/A = Not Applicable, these driveways only exist with the proposed project
Bold = deficient operations; Bold/italics = significant impact

Source: Fehr & Peers, 2008.

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TABLE 6
2025 CUMULATIVE
PEAK HOUR SIGNAL WARRANT ANALYSIS

Intersection		Peak Hour Warrant Met?			
		DEIR Analysis		Reduced Project Alternative	
		2025 Cumulative Without Project	2025 Cumulative With Project	2025 Cumulative Without Project	2025 Cumulative With Project
5.	French Camp Turnpike/Downing Avenue	Not Met	Not Met	Not Met	Not Met
8.	McDougald Boulevard/Henry Long Boulevard	Not Met	Not Met	Not Met	Not Met
9.	Manthey Road/Henry Long Boulevard	Not Met	Not Met	Not Met	Not Met
16.	Manthey Road/Yettner Road	Not Met	Not Met	Not Met	Not Met
17.	Manthey Road/Mathews Road	Met	Met	Not Met	Not Met
18.	I-5 Southbound Ramps/Mathews Road	Met	Met	Met	Met
19.	I-5 Northbound Ramps/Mathews Road	Not Met	Not Met	Not Met	Not Met
20.	Wolfe Road/Howard Road	Not Met	Not Met	Not Met	Not Met

Source: Fehr & Peers, 2008.

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TABLE 7
2025 CUMULATIVE PEAK HOUR FREEWAY ANALYSIS

Segment	Direction of Travel	Peak Hour	DEIR Analysis							Reduced Project Alternative Analysis						
			Without Project			With Project				Without Project			With Project			
			Volume	Density	LOS	Volume	Density	LOS	% Increase	Volume	Density	LOS	Volume	Density	LOS	% Increase
North of Downing Avenue	North	AM	4,300	17	B	4,373	17	B	1.7	4,330	17	B	4,383	17	B	1.2
		PM	6,670	27	D	6,970	28	D	4.5	6,760	27	D	6,971	28	D	3.1
North of Downing Avenue	South	AM	6,570	26	D	6,685	27	D	1.8	6,590	26	D	6,675	27	D	1.3
		PM	4,690	18	C	4,992	19	C	6.4	4,780	18	C	4,979	19	C	4.2
North of French Camp Road	North	AM	3,960	15	B	4,010	16	B	1.3	3,960	15	B	4,008	16	B	1.2
		PM	6,130	24	C	6,337	25	C	3.4	6,140	24	C	6,330	25	C	3.1
North of French Camp Road	South	AM	6,030	24	C	6,109	24	C	1.3	6,030	24	C	6,107	24	C	1.3
		PM	4,310	17	B	4,519	17	B	4.8	4,320	17	B	4,499	17	B	4.1
South of French Camp Road	North	AM	3,320	17	B	3,428	18	B	3.3	3,340	17	B	3,423	18	B	2.5
		PM	5,140	28	D	5,424	30	D	5.5	5,200	28	D	5,395	30	D	3.8
South of French Camp Road	South	AM	5,050	27	D	5,119	27	D	1.4	5,060	27	D	5,112	27	D	1.0
		PM	3,610	19	C	3,892	20	C	7.8	3,680	19	C	3,887	20	C	5.6
South of Mathews Road	North	AM	3,230	17	B	3,345	17	B	3.6	3,250	17	B	3,335	17	B	2.6
		PM	5,000	27	D	5,302	29	D	6.0	5,070	27	D	5,269	29	D	3.9
South of Mathews Road	South	AM	4,910	26	C	4,983	26	C	1.5	4,930	26	C	4,983	26	C	1.1
		PM	3,510	18	C	3,810	20	C	8.5	3,580	18	C	3,791	20	C	5.9

Notes:

Density measured in passenger cars per mile per lane.
Mainline segment level of service based on vehicle density, according to the Highway Capacity Manual (Transportation Research Board, 2000).
Bold = deficient operations; Bold/italics = significant impact

Source: Fehr & Peers, 2008.

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TABLE 8
2035 CUMULATIVE PEAK HOUR INTERSECTION OPERATIONS

Intersection		Control	Peak Hour	DEIR Analysis				Reduced Project Alternative Analysis			
				2035 Without Project		2035 With Project		2035 Without Project		2035 With Project	
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1.	McDougald Boulevard/ Carolyn Weston Boulevard	Signal	AM PM	41 41	D D	42 42	D D	41 41	D D	41 42	D D
2.	Manthey Road/ Carolyn Weston Boulevard	Signal	AM PM	31 41	C D	33 45	C D	32 43	C D	32 45	C D
3.	I-5 Southbound Ramps/ Downing Avenue	Signal	AM PM	21 21	C C	22 24	C C	21 22	C C	21 23	C C
4.	I-5 Northbound Ramps/ Downing Avenue	Signal	AM PM	16 29	B C	16 43	B D	16 36	B D	16 40	B D
5.	French Camp Turnpike/ Downing Avenue	SSSC	AM PM	> 50 (> 50) > 50 (>50)	F (F) F (F)	> 50 (> 50) > 50 (>50)	F (F) F (F)	> 50 (> 50) > 50 (>50)	F (F) F (F)	> 50 (> 50) > 50 (>50)	F (F) F (F)
6.	McDougald Boulevard/ William Moss Boulevard	Signal	AM PM	25 23	C C	25 23	C C	25 23	C C	25 23	C C
7.	Manthey Road/ William Moss Boulevard	Signal	AM PM	13 16	B B	13 16	B B	22 20	B B	25 24	C C
8.	McDougald Boulevard/ Henry Long Boulevard	AWSC	AM PM	10 12	A B	10 12	A B	11 13	B B	11 14	B B
10.	Wolfe Road/EWS Woods Boulevard/French Camp Road	Signal	AM PM	33 30	C C	34 32	C C	33 30	C C	34 31	C C
11.	McDougald Boulevard/ French Camp Road	Signal	AM PM	26 16	C B	26 16	C B	26 16	C B	26 16	C B
12.	Primary Project Driveway/ French Camp Road/Manthey Road (east)	Signal	AM PM	30 31	C C	33 39	C D	26 27	C C	23 40	C D
13.	I-5 Southbound Ramps/ French Camp Road	Signal	AM PM	24 29	C C	26 42	C D	24 27	C C	24 28	C C
14.	I-5 Northbound Ramps/ French Camp Road	Signal	AM PM	26 18	C B	28 29	C C	16 9	B A	16 16	B B

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TABLE 8
2035 CUMULATIVE PEAK HOUR INTERSECTION OPERATIONS

Intersection		Control	Peak Hour	DEIR Analysis				Reduced Project Alternative Analysis			
				2035 Without Project		2035 With Project		2035 Without Project		2035 With Project	
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
15.	French Camp Road/ Val Dervin Parkway	Signal	AM PM	35 38	C D	39 49	D D	33 38	C D	53 41	D D
16.	Manthey Road/Yettner Road	Signal	AM PM	20 27	B C	20 30	B C	20 27	B C	20 29	B C
17.	Manthey Road/Mathews Road	Signal	AM PM	24 24	C C	23 26	C C	24 24	C C	24 25	C C
18.	I-5 Southbound Ramps/ Mathews Road	Signal	AM PM	15 24	B C	15 24	B C	15 24	B C	15 24	B C
19.	I-5 Northbound Ramps/ Mathews Road	Signal	AM PM	44 13	D B	44 17	D B	45 13	D B	45 16	D B
20.	Wolfe Road/Howard Road	Signal	AM PM	44 47	D D	44 47	D D	44 47	D D	44 47	D D
21.	Secondary Driveway/French Camp Road/Manthey Road (west)	Signal	AM PM	N/A	N/A	12 19	B B	N/A	N/A	15 22	B C

Notes:

Signal = signalized intersection; SSSC = side street stop-controlled intersection; AWSC = all-way stop-controlled intersection
Delay for intersection average (worst movement) at SSSC intersections.
N/A = Not Applicable, these driveways only exist with the proposed project
Bold = deficient operations; Bold/italics = significant impact

Source: Fehr & Peers, 2008.

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TABLE 9
2035 PEAK HOUR QUEUING ANALYSIS

Intersection	Movement	Storage Length[1]	DEIR Analysis				Reduced Project Alternative Analysis			
			Without Project		With Project		Without Project		With Project	
			AM	PM	AM	PM	AM	PM	AM	PM
French Camp Road/ Main Entrance/ Manthey Road	Westbound Left	400	200	350	225	350	200	225	250	375
	Westbound Through	800	225	475	250	550	175	250	250	675
	Westbound Right	400	50	50	75	200	50	125	50	150
	Southbound Left	250	250	150	325	450	175	150	100	225
French Camp Road/ I-5 Southbound Ramps	Southbound Left	500	350	425	350	***525***	350	425	425	450
	Southbound Right	500	250	400	300	***575***	250	375	350	425
	Eastbound Through	800	350	400	450	725	350	200	450	500
	Eastbound Right	600	350	75	450	250	275	75	250	150
	Westbound Through	900	575	675	700	***1,100***	575	725	375	475
French Camp Road/ I-5 Northbound Ramps	Northbound Left	300	**525**	325	***600***	***575***	125	325	200	***400***
	Eastbound Through	900	700	400	750	450	675	400	250	200
	Westbound Through	600	600	475	600	***625***	525	475	450	550

Notes:
95th percentile vehicle queues calculated using CORSIM.
Bold = deficient operations; Bold/italics = significant impact
Source: Fehr & Peers, 2008.

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TABLE 10
2035 CUMULATIVE CONDITION
PEAK HOUR SIGNAL WARRANT ANALYSIS

Intersection		Peak Hour Warrant Met?			
		DEIR Analysis		Reduced Project Alternative	
		2035 Cumulative Without Project	2035 Cumulative With Project	2035 Cumulative Without Project	2035 Cumulative With Project
5.	French Camp Turnpike/Downing Avenue	Met	Met	Met	Met
8.	McDougald Boulevard/Henry Long Boulevard	Not Met	Not Met	Not Met	Not Met

Source: Fehr & Peers, 2008.

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TABLE 11
2035 CUMULATIVE PEAK HOUR FREEWAY ANALYSIS

Segment	Direction of Travel	Peak Hour	DEIR Analysis							Reduced Project Alternative Analysis						
			Without Project			With Project				Without Project			With Project			
			Volume	Density	LOS	Volume	Density	LOS	% Increase	Volume	Density	LOS	Volume	Density	LOS	% Increase
North of Downing Avenue	North	AM	9,778	34	D	9,830	34	D	0.5	9,800	34	D	9,838	34	D	0.4
		PM	10,926	**43**	**E**	11,140	**> 45**	**F**	1.9	11,050	**43**	**E**	11,210	**> 45**	**F**	1.4
North of Downing Avenue	South	AM	10,838	**42**	**E**	10,920	**43**	**E**	0.8	10,880	**43**	**E**	10,941	**43**	**E**	0.6
		PM	10,824	**42**	**E**	11,040	**44**	**E**	2.0	10,930	**43**	**E**	11,072	**45**	**E**	1.3
North of French Camp Road	North	AM	8,664	28	D	8,700	28	D	0.4	8,670	28	D	8,704	28	D	0.4
		PM	9,542	32	D	9,690	33	D	1.5	9,550	33	D	9,686	33	D	1.4
North of French Camp Road	South	AM	9,493	32	D	9,550	33	D	0.6	9,500	32	D	9,555	33	D	0.6
		PM	9,741	34	D	9,890	35	D	1.5	9,750	34	D	9,878	35	D	1.3
South of French Camp Road	North	AM	7,663	24	C	7,740	24	C	1.0	7,700	24	C	7,760	24	C	0.8
		PM	8,557	28	D	8,760	28	D	2.3	8,650	28	D	8,789	29	D	1.6
South of French Camp Road	South	AM	9,521	32	C	9,570	33	D	0.5	9,540	32	C	9,577	33	D	0.4
		PM	8,349	27	D	8,550	27	D	2.4	8,460	27	D	8,608	28	D	1.7
South of Mathews Road	North	AM	7,528	24	C	7,610	24	C	1.1	7,570	24	C	7,631	24	C	0.8
		PM	8,504	27	D	8,720	28	D	2.5	8,610	28	D	8,752	28	D	1.6
South of Mathews Road	South	AM	9,478	32	D	9,530	32	D	0.5	9,500	32	D	9,538	32	D	0.4
		PM	7,056	22	C	7,270	23	C	2.9	7,180	22	C	7,331	23	C	2.1

Notes:

Density measured in passenger cars per mile per lane.
Mainline segment level of service based on vehicle density, according to the Highway Capacity Manual (Transportation Research Board, 2000).
Bold = deficient operations; Bold/italics = significant impact

Source: Fehr & Peers, 2008.

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OFF-SITE MITIGATION MEASURES

Off-site impacts for the Reduced Project Alterative were assessed based on the significance criteria presented in the DEIR for the near-term, 2025 and 2035 Cumulative scenarios. It should be noted that the Project Applicant will be required to pay all local and regional traffic impact fees.

Near-Term Conditions

The following presents the off-site impacts and mitigation measures for the near-term condition. It should be noted that the Reduced Project Alternative would reduce several impacts previously identified for the proposed project in the DIER: French Camp Road/McDougald Boulevard, Mathews Road/Manthey Road, and I-5 Northbound north of Downing Avenue.

Impact 1. The **French Camp Turnpike/Downing Avenue** intersection is projected to operate at a deficient LOS F in the Near-Term condition during the PM peak hour prior to the addition of project traffic. The proposed project is not projected to increase traffic through this intersection in the near-term condition. Therefore, this impact is less than significant.

Mitigation Measures

Mitigation Measure 1. No mitigation is required.

Impact 2. The **French Camp Road/Manthey Road (east)** intersection is projected to operate at a deficient LOS F in the Near-Term condition during both peak hours prior to the addition of project traffic. Average delay would increase through this intersection by more than 5 seconds with the addition of traffic from the Reduced Project Alternative during the PM peak hour. This impact is considered significant.

French Camp Road/Manthey Road. The addition of project traffic would worsen LOS F conditions during both the AM and PM peak hour.

Mitigation Measures

Mitigation Measure 2. The planned interchange improvements at the French Camp Road/I-5 interchange are needed to mitigate the project's impact at this intersection. Therefore, the project applicant shall contribute its fair share towards the planned interchange improvements through the payment of city and regional traffic impact fees. With construction of the French Camp Road interchange improvement project, the southern leg of Manthey Road intersection would be relocated approximately 800 feet from the I-5 Southbound Ramps/French Camp Road intersection and incorporated into the Weston Ranch Towne Center project driveway (it was assumed that as part of the project, the northern leg of the intersection would be realigned to the western edge of the project site and that French Camp Road would be widened to provide two lanes in each direction along the project frontage). With implementation of these planned improvements, this intersection would operate at an acceptable service level.

Should construction of the planned interchange improvements be scheduled for completion subsequent to project completion, the project applicant shall make the following interim improvements:

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- Signalize the French Camp Road/Manthey Road (east) intersection and provide a westbound left-turn pocket.
- Interconnect and coordinate the traffic signals at the following intersections along French Camp Road: Secondary Project Driveway, Manthey Road (east), I-5 southbound ramps and I-5 northbound ramps.

Synchro 6.0/SimTraffic analyses indicate that as an interconnected system, these intersections would operate acceptably, as shown on Table 11.

Impact Significance after Mitigation: With implementation of interim improvements, this impact would be reduced to a ***less-than-significant*** level, as shown in Table 11.

Impact 3. The **French Camp Road/I-5 Northbound Ramps** intersection is projected to operate at an acceptable level in the near-term without project condition and would continue to do so with the addition of project traffic. However, the addition of traffic from the Reduced Project Alternative could result in a queuing impact.

French Camp Road/I-5 Northbound Ramps. This intersection would continue to operate at acceptable levels with development of the Reduced Project Alternative and completion of the signalization project currently under construction. However, the eastbound left-turn movement queue could spillback to the through lanes on French Camp Road. This is considered significant.

Mitigation Measures

Mitigation Measure 3. The project applicant shall contribute its fair share towards the planned interchange improvements at the French Camp Road/I-5 interchange through the payment of traffic impact fees.

Should construction of the planned interchange improvements be scheduled for completion subsequent to project completion, the project applicant shall modify the eastbound approach to extend the eastbound left-turn storage to Manthey Road (east intersection). This improvement can be implemented within the existing right-of-way. With this improvement, the intersection would operate at an overall acceptable service level and although vehicle queue spillback would periodically occur, these queues would clear within one to two signal cycles.

Impact Significance after Mitigation: With implementation of interim improvements, this impact would be reduced to a ***less-than-significant*** level.

Impact 4. The **French Camp Road/Val Dervin Parkway** intersection is projected to operate at a deficient LOS F in the Near-Term condition during the AM peak hour prior to the addition of project traffic. Average delay would increase through this intersection by more than 5 seconds with the addition of project traffic during the AM peak hour. The addition of project traffic would also result in overall LOS E conditions during the PM peak hour. This impact is considered significant.

French Camp Road/Val Dervin Parkway. The addition of project traffic would worsen LOS F conditions during the AM and result in LOS E conditions during the PM peak hour.

Mitigation Measures

Mitigation Measure 4. The project applicant shall contribute its fair share towards the planned interchange improvements at the French Camp Road/I-5 interchange through the payment of traffic impact fees. With planned improvements at this interchange, Val Dervin Parkway would be closed at French Camp Road, and a new roadway constructed connecting the business park at the new French Camp Road/Sperry Road intersection.

Should construction of the planned interchange improvements be scheduled for completion subsequent to project completion, the project applicant shall install a traffic signal at this intersection. This signal shall be interconnected and coordinated with the adjacent traffic signals on French Camp Road.

Impact Significance after Mitigation: With implementation of interim improvements, this impact would be reduced to a ***less-than-significant*** level, as shown in Table 11.

Impact 5. The **Mathews Road/I-5 Northbound Ramps** intersection is projected to operate at a deficient LOS F in the Near-Term condition during both the AM and PM peak hour. Average delay would increase through this intersection by more than 5 seconds with the addition of project traffic during the PM peak hour. This impact is considered significant.

Mathews Road/I-5 Northbound Ramps. The addition of project traffic would worsen LOS F conditions during the PM peak hour. Peak hour traffic signal warrants would be satisfied prior to the addition of project traffic.

Mitigation Measures

Mitigation Measure 5. The project applicant shall install a traffic signal at this intersection. Signal installation would result in LOS D conditions during the AM and PM peak hours.

Impact Significance after Mitigation: With traffic signal installation, this impact would be reduced to a ***less-than-significant*** level, as shown in Table 11. However, this intersection is currently in San Joaquin County and under the jurisdiction of Caltrans. Therefore, implementation of this measure cannot be assured by the City of Stockton and this impact would remain ***significant and unavoidable***.

TABLE 11
NEAR-TERM PLUS MITIGATION PEAK HOUR INTERSECTION OPERATIONS

Intersection		Peak Hour	Near-Term Without Project		Near-Term With Reduced Project Alternative		Near-Term With Reduced Project Alternative Plus Mitigation	
			Delay	LOS	Delay	LOS	Delay	LOS
12a.	Manthey Road/ French Camp Road	AM PM	**> 50** **> 50**	**F** **F**	***> 50*** ***> 50***	***F*** ***F***	12 29	B C
13.	I-5 Southbound Ramps/ French Camp Road	AM PM	19 17	B B	19 29	B C	18 40	B C
14.	I-5 Northbound Ramps/ French Camp Road	AM PM	13 19	B B	16 48	B D	15 34[1]	B C
15.	French Camp Road/ Val Dervin Parkway	AM PM	**> 50 (> 50)** 21 (**> 50**)	**F (F)** C **(F)**	***> 50 (> 50)*** ***38 (> 50)***	***F (F)*** ***E (F)***	22 29	C C
19.	I-5 Northbound Ramps/ Mathews Road	AM PM	**> 50 (> 50)** **> 50 (> 50)**	**F (F)** **F (F)**	**> 50 (> 50)** ***> 50 (> 50)***	**F (F)** ***F (F)***	41 37	D D

Notes:
Delay for worst movement (average intersection delay) at SSSC intersections.
N/A = Not Applicable, this driveway only exists with the proposed project
Bold = deficient operations; Bold/italics = significant impact
1. Maximum eastbound left-turn queue projected to be 725 feet, average queue is expected to be 350 feet.

Source: Fehr & Peers, 2008.

2025 Cumulative Conditions

No significant impacts were identified for the Cumulative 2025 scenario with the Reduced Project Alternative, considering improvements already installed at the Mathews Road/Manthey Road intersection, where a significant impact was identified in the DEIR.

2035 Cumulative Conditions

The following describes the impacts and mitigation measures for the proposed project under the 2035 Cumulative With Reduced Project Alterative condition. Impacts of the Reduced Project Alternative are consistent with those for the DEIR project.

Impact 6. The addition of project traffic would result in vehicle queue spillback at the French Camp Road/I-5 interchange. This impact is considered significant.

The addition of project traffic would worsen the 95th percentile vehicle queues through the interchange area, resulting in vehicle queues exceeding the proposed vehicle storage including westbound French Camp Road through the interchange and the northbound and southbound off-ramps.

Mitigation Measures

Mitigation Measure 6. Monitoring of the traffic signals to ensure arterial progression through the interchange area could reduce the amount of queue spillback in the area. It should be noted that all intersections in the French Camp Road/I-5 interchange area are projected to operate at acceptable service levels during the morning and evening peak hours in 2035.

Impact Significance after Mitigation: Although monitoring of the traffic signals to ensure minimize vehicle queues through the I-5/French Camp Road interchange area may minimize queue spillover, implementation of this measure can not be ensured. Therefore, the impact would remain ***significant and unavoidable***.

ON-SITE ANALYSIS

This section presents the results of a site access and internal circulation analysis. This analysis is based on a site plan dated January 2008, shown on Figure 2. This analysis is considers the near-term and 2035 conditions on the public roadways adjacent to the site. Recommendations to improve project site access and circulation are shown on Figure 15.

Vehicle Access

The project would have ten vehicle access points from French Camp Road, realigned Manthey Road, and the vacated Henry Long Boulevard, as depicted on Figure 2.

1. Unsignalized right-in/right-out driveway on French Camp Road west of I-5 Southbound Ramps to MCD Property
2. Unsignalized right-in/right-out driveway on French Camp Road between Shop 1 and Shop 2
3. Signalized intersection on French Camp Road at Manthey Road (east) and Main Driveway
4. Unsignalized right-in/right-out driveway on French Camp Road between Major 7 and Pad B
5. Signalized intersection on French Camp Road at Manthey Road (west)
6. Unsignalized full access driveway on Manthey Road between Shop 5 and Shop 6
7. Unsignalized full access driveway on Manthey Road at Major 6
8. Unsignalized right-turn in only driveway on Manthey Road behind Major 6 (delivery access only)
9. Unsignalized Henry Long Boulevard/Service Entrance
10. Unsignalized Henry Long Boulevard/Secondary Driveway

PM peak hour operations of the main access locations (Intersections 1 through 7 above) were analyzed based on the projected traffic volumes on the surrounding street work in the near-term and 2035 conditions. An AM peak hour analysis was not performed because AM peak hour trip generation for this proposed retail development is relatively low in comparison to the PM peak hour trip generation (at approximately 31 percent of PM peak hour trip generation). Detailed level of service analysis was not performed for Intersections 8, 9 and 10, as the volumes at these driveways are expected to be low. Intersections 8 and 9 were evaluated to ensure that large delivery vehicles can navigate the Project truck routes. Additionally, access to the proposed gas

station for large vehicles was also evaluated. Results of the level of service analysis are presented in Table 12. Recommendations for each location are discussed below.

TABLE 12
PM PEAK HOUR SITE ACCESS OPERATIONS

Intersection		Traffic Control	Near-Term With Reduced Project Alternative		2035 With Reduced Project Alternative	
			Delay	LOS	Delay	LOS
1.	Right-in/right-out driveway on French Camp Road west of I-5 Southbound Ramps to MCD Property	SSSC	0 (17)	A (C)	0 (20)	A (C)
2.	Right-in/right-out driveway on French Camp Road between Shop 1 and Shop 2	SSSC	0 (16)	A (C)	0 (20)	A (C)
3.	French Camp Road at Manthey Road (east)	Signal	12	B	40	D
4.	Right-in/right-out driveway on French Camp Road between Major 7 and Pad B	SSSC	0 (10)	A (A)	0 (16)	A (C)
5.	French Camp Road at Manthey Road (west)	Signal	17	B	22	C
6.	Full access driveway on Manthey Road between Shop 5 and Shop 6	SSSC	7 (29)	A (D)	13 (>80)	B (F)
7.	Full access driveway on Manthey Road at Major 6	SSSC	6 (17)	A (C)	9 (>80)	A (F)
10.	Full access driveway on Manthey (Old Henry Long) at Major 1	SSSC	2 (10)	A (A)	1 (15)	A (B)

Note: Delay for intersection average (worst movement) at SSSC intersections.
Source: Fehr & Peers, 2008.

1. **Unsignalized right-in/right-out driveway on French Camp Road west of I-5 Southbound Ramps to MCD Property (Driveway 1) –** This driveway is proposed as a right-in/right-out driveway, with a right-turn pocket on French Camp Road. The right-turn pocked is expected to be approximately 150 feet long, including the taper, and would be part of a continuous right-turn pocket along the project frontage to the realigned Manthey Road (west) intersection. This intersection is expected to operate acceptably through 2035 with the proposed configuration. The proposed driveway throat is adequate to accommodate projected vehicle queues exiting the site and is not expected to affect operations of the drive-through exit from Shop 2.

2. **Right-in/right-out driveway on French Camp Road between Shop 1 and Shop 2 (Driveway 2)** – This driveway is proposed as a right-in/right-out driveway, with a right-turn pocket on French Camp Road extending back to Driveway 1. This

intersection is expected to operate acceptably through 2035 with the proposed configuration. The proposed driveway throat is adequate to accommodate projected vehicle queues exiting the site and is not expected to affect operations of the internal drive aisles.

3. **French Camp Road at Manthey Road (east) and Main Driveway –** This driveway would serve as the main entrance to the site and provide signalized access to French Camp Road. With construction of the interchange project, the southern leg of Manthey Road would be realigned opposite this driveway. In the near-term and Cumulative 2035 condition, the southbound vehicle queue is expected to be less than 200 feet, which would be accommodated by the proposed storage length of approximately 225 feet. Operations this intersection would not affect operations of the main internal intersection. The eastbound left-turn into the site should provide 100 to 150 feet to vehicle storage.

4. **Right-in/right-out driveway on French Camp Road between Major 7 and Pad B (Driveway 3) –** This driveway is proposed as a right-in/right-out driveway, with a right-turn pocket on French Camp Road, which would extend back to the main driveway intersection. This intersection is expected to operate acceptably through 2035 with the proposed configuration. The proposed driveway throat is adequate to accommodate projected vehicle queues exiting the site and is not expected to affect operations of the internal drive aisles.

5. **French Camp Road at Manthey Road (west)** – This driveway is located approximately 600 feet from the signalized French Camp Road/Main Entrance intersection. This intersection is projected to operate acceptably through 2035 with the proposed lane configuration and traffic control. Vehicle queues for the southbound movement are not expected to spillback to the Manthey Road entry between Shop 5 and 6. The eastbound left-turn into the site should provide 100 to 150 feet to vehicle storage in the near-term condition and approximately 225 feet of vehicle storage for the 2035 condition. The southbound left-turn pockets should provide approximately 175 feet of vehicle storage in the near-term condition and 250 feet of vehicle storage in the 2035 condition.

6. **Full access driveway on Manthey Road between Shop 5 and Shop 6 (Driveway 4) –** This driveway is located approximately 430 feet north of the French Camp Road intersection, and is proposed to provide full access with side-street stop-control. This intersection would serve as a major access to the site as well as accommodate through traffic on Manthey Road. This intersection is expected to operate acceptably in the near-term as it is currently proposed. However, as traffic volumes increase on Manthey Road, delay is expected to increase for vehicles exiting the site, potentially spilling back past the internal drive aisles. The 95th percentile vehicle queue is estimated to be 10 vehicles in 2035. Providing separate left and right-turn lanes would reduce the 95th percentile vehicle queue to 7 vehicles. (The southbound left-turn pocket would accommodate projected vehicle queues). Therefore, it is recommended that the intersection provide separate left and right-turn lanes out of the site.

7. **Full access driveway on Manthey Road at Major 6 (Driveway 5) –** This driveway is proposed to provide full access. The intersection is projected to operate at an

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overall acceptable service level through 2035. The 95th percentile vehicle queue for the westbound movement out of the site is expected to be 7 to 8 vehicles, which can be accommodated within the proposed driveway throat.

8. **Manthey Road/Right-in only Service Driveway –** This driveway is proposed to serve as a right-in only driveway to the service area behind Major 6. Modifications would be needed at this driveway to accommodate the turning radii of large trucks, as shown on Figure 16.

9. **Henry Long Boulevard/Service Driveway 1** – This driveway is proposed to serve as a full access driveway for large delivery trucks. It is anticipated that most trucks would enter the site making a right-turn and exit the site making a left-turn to access I-5. This driveway has been designed to accommodate the turning radii of large trucks, as shown on Figure 16. Henry Long Boulevard is expected to operate acceptably through 2035 as a two-lane roadway.

10. **Henry Long Boulevard/Secondary Driveway** – This driveway is proposed to serve as a full access driveway. This driveway is not expected to be heavily used and would operate acceptably as proposed. Henry Long Boulevard is expected to operate acceptably through 2035 as a two-lane roadway.

Pedestrian, Bicycle, and Transit Access

The project would include improvements to Manthey Road and French Camp Road, including roadway paving and construction of sidewalks, curbs, and gutters along the southern and western property lines. Based on the *City of Stockton Existing and Future Bikeway Plan* (<www.stocktongov.com/parks/pdf/bikepath.pdf>) dated April 26, 2002, a Class I bicycle path would be constructed on French Camp Road along the project frontage and would be located within an 8-foot meandering sidewalk/path on the north and south sides of French Camp Road. Manthey Road is designated as a Class III bicycle route. These improvements would enhance bicycle and pedestrian access to the site and throughout the area.

The San Joaquin Regional Transit District has requested that the project applicant provide appropriate transit features, including bus pull-outs on both Manthey Road and French Camp Road, with development of the project. Provision of bus pull-outs with appropriate transit amenities, such as bus shelters, would improve transit accommodation in the area. The location of the proposed bus-pullouts on French Camp Road and Manthey Road should be identified on the project site plan and pedestrian connections from the site building entrances to bus facilities should also be provided.

Emergency Access

Factors such as number of access points, roadway widths, and proximity to fire stations determine whether a project provides sufficient emergency access. The project provides multiple points of entry from two major roadways. If one of these roadways or entrances is blocked or obstructed, an emergency vehicle could use the other roadway or an alternate entrance to access the site. The internal project roadways have minimum lane widths of 25 feet (with adjacent parking provided), which is adequate for emergency vehicle access. A fire station is located on Manthey Road, south of Carolyn Weston Boulevard, less than one mile from the project site, which would allow for timely emergency response to the project site. The applicant should

consult with the City of Stockton Fire Department to ensure that the site plan provides adequate emergency access.

Other On-Site Circulation Considerations

On-site circulation was reviewed with respect to the following: internal intersection operations, drive aisles, throat depth, dead-end drive aisles, vehicle/pedestrian conflicts, delivery vehicles, and parking stall dimensions. Due to the limited detail of the site plan provided, only a general discussion of these elements is included. The City of Stockton Municipal Code is the basis for this analysis.

Internal Intersection Operations

Operation of the main internal intersection was evaluated, as it is the intersection of a main east-west internal drive aisle, and the main entryway. It is recommended that this intersection be stop sign controlled for the southbound, eastbound and westbound movements, to allow vehicles from French Camp Road unobstructed access into the site. The intersection is projected to operate at an overall acceptable service level with the proposed configuration. Additionally, the southbound vehicle queue at the signalized entry intersection on French Camp Road is not expected to spillback through the entry intersection.

Drive Aisles

The surface parking area provides major and minor circulation roadways. It appears that all aisles are at least 25 feet wide, with some of the major aisles proposed at 30 feet. This width is sufficient to accommodate vehicle circulation.

In the western portion of the site, the east/west main aisle way, that starts at Manthey Road between Shops 5 and 6, curves as it approaches Major 7. The parking aisles from this main aisle way are aligned such that vehicles parked at the end of the aisle could potentially back-out in the main aisle way, creating the potential for vehicle conflicts. Additionally, there is a large area on the northern portion of Major 7 where the roadway is undefined. The southern edge of the drive aisle should be marked so that vehicles remain in the appropriate travel way.

Dead-End Drive Aisles

Dead-end drive aisles are parking aisles that are obstructed at one end, thereby increasing difficulty navigating through the site. One dead-end drive aisle is shown on the MCD Property site, in the southeastern portion of the site. Fewer than 20 parking stalls are provided in this area and there appears to be sufficient space provided for a vehicle turn around in the loading/garbage area. Garbage trucks may have difficulty navigating this area if there are parked vehicles.

Throat-Depth

Throat depth refers to the length of continuous curb extending from a project driveway into the project site before a curb break is provided. The continuous curb prevents vehicle queues at the driveway from obstructing internal site circulation. Generally, sufficient throat depth is provided at all driveways.

Vehicle/Pedestrian Conflicts

Pedestrian paths are proposed throughout the site. Pedestrian paths are proposed across the major drive aisles. However, there are some locations where the pedestrian path should be relocated, such as the one connecting Shops 5 and 6. This path is located at a mid-block location, approximately 100 feet from an intersection with Manthey Road. The pedestrian crossing should be relocated to the entry intersection, as vehicles may not expect a pedestrian crossing at the mid-block location. Additional pedestrian connections are recommended at Major 1.

Delivery Vehicles

Given the nature of the project, deliveries in large semi-trucks would be expected on a regular basis in addition to smaller delivery vehicles. Any large semi-truck deliveries should be scheduled for off-peak periods to minimize conflicts between delivery trucks and passenger vehicles. Recommendations to improve truck circulation and turning templates of large delivery vehicles through the site are shown on Figure 16. This assessment shows that fuel delivery trucks will be able to access the proposed gas station, although the turning radius at the truck access intersections on Manthey Road and Henry Long Boulevard would have to be modified to provide for STAA trucks.

Truck counts at an existing Wal-Mart store show that the Wal-Mart portion of the project could expect to have approximately 20 deliveries per day, with approximately 50 percent heavy duty trucks, 40 percent medium duty trucks, and 10 percent light duty trucks. Although Wal-Mart retailers tend to have higher delivery truck volumes than other retailers, the other portions of the project were anticipated to have truck deliveries at the same ratio of deliveries to square footage as the Wal-Mart store for the purposes of this analysis, to present a worst-case estimate of truck traffic. This equates to approximately 75 non Wal-Mart deliveries per day, for a total of 95 delivery truck trips to the site. This level of truck trip generation was accounted for in the off-site analysis. Truck deliveries for buildings not served by the major loading area should be made by smaller delivery vehicles.

Trash Enclosures

The proposed location of the trash enclosures was also reviewed. It appears that most trash enclosures are accessible from multiple locations, except for one on the southeastern portion of the site on the MCD property. Here, the trash enclosure is located at the end of a dead-end drive aisle. The sanitation department should be consulted to verify if trash vehicles can access the area.

Parking Stall Dimensions

The City of Stockton requires that 90-degree-angle parking stalls be at least 19 feet long and 9 feet wide with 25-foot-wide drive aisles. A maximum of 25 percent of the site's parking can be designated "compact" spaces, with dimensions of 9 feet wide and 15 feet long. Parking stalls throughout the site appear to meet these design criteria.

Parking

The proposed on-site parking supply was compared to both City Code parking requirements and ITE parking demand rates.

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City Code

City Code parking requirements were reviewed to ensure that the project would provide sufficient parking. City of Stockton requires:

- 1 space per 250 square feet of retail space
- 1 space per 200 square feet of sit-down restaurant space
- 1 space per 100 square feet of fast-food restaurant space

Although the off-site analysis was based on a total building square footage of 481,000 square feet, the current site plan shows 333,548 square feet of retail uses, including 33,603 square feet of sit-down restaurants, 9,945 square feet of fast-food restaurants, and 289,999 square feet of retail space. Based on 333,548 square feet of retail uses, the project is required to provide 1,427 parking spaces, as shown in Table 13.

TABLE 13
CITY CODE AUTOMOBILE PARKING REQUIREMENTS

Land Use Type	Size	Parking Code Requirement	Parking Spaces Required
Retail	289,999 square feet	1 space per 250 square feet	1,160
Fast-food Restaurant	9,945 square feet	1 space per 100 square feet	99
Sit-down Restaurant	33,603 square feet	1 space per 200 square feet	168
		Total requirement	1,427

Source: City of Stockton Municipal Code 16-345.040

The site plan shows 1,513 parking stalls, which satisfies City Code parking requirements.

Parking Demand

Parking demand rates, as presented in ITE's *Parking Generation* (3rd Edition), were used to estimate peak parking demands for the project. Weekday and Saturday parking demand rates were reviewed and are presented in Table 15. Rates are based on data collected on Fridays and Saturdays during December in order to present a worst-case scenario, as well as for a typical weekday and Saturday. The peak parking demand rates were applied to the proposed square footage of the Weston Ranch Towne Center.

As shown in Table 14, it is expected that peak weekday parking demand during December would be approximately 1,338 spaces, while peak Saturday parking demand would be 1,581. During non-December months, peak weekday parking demand would be approximately 1,007 spaces and peak Saturday demand would be approximately 991 spaces. The project generally provides 10 to 15 percent more spaces than typical peak parking demand, which provides for a circulation

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efficiency factor. This allows patrons to find a parking space close to their ultimate destinations within the center and minimizes excessive circulation. Parking shortages could occur on weekends during the peak December shopping periods. During these times, it is recommended that employees be encouraged to carpool, use transit or park off site.

TABLE 14
PARKING DEMAND ANALYSIS

Land Use	Area (Square Feet)	Average Peak Weekday Parking Demand Rate (Per 1,000 Square Feet)	Average Peak Weekday Parking Demand	Average Peak Saturday Parking Demand Rate (Per 1,000 Square Feet)	Average Peak Saturday Parking Demand
Shopping Center	333,548	4.01[a] (December)	1,338	4.74[b] (December)	1,581
		3.02[c] (Non-December)	1,007	2.97[d] (Non-December)	991

Notes:
(a) Average parking demand rate for suburban shopping centers on Fridays during December.
(b) Average parking demand rate for suburban shopping centers on Saturdays during December.
(c) Average parking demand rate for suburban shopping centers on Fridays Non-December.
(d) Average parking demand rate for suburban shopping centers on Saturdays Non-December.
SOURCE: Institute of Transportation Engineers, 2004.

Bicycle Parking

No bicycle parking facilities are shown on the site plan. Based on City of Stockton Municipal Code 16-345.100, a minimum of one employee bicycle parking space for each 7,500 square feet of gross floor area (45 spaces) plus one bicycle parking space for each 40 parking spaces (36 spaces based on the city code vehicle parking requirements) is required. Therefore, based on a development of 333,548 square feet approximately 81 bicycle parking spaces should be provided throughout the site. The development standards for bicycle parking outlined in the City Municipal Code should be met.

Handicap Accessible Parking

The site plan was reviewed to determine the number of handicap accessible parking spaces required for the site and its location. Based on City Code requirements, the project must provide at least 32 handicap accessible stalls. The site plan shows at least this many accessible stalls. The stalls are well dispersed through the site adjacent to major building entries.

Park and Ride

The proposed project is located adjacent to the regional roadway network. As such, opportunities exist for an expansion of Park and Ride facilities within the City of Stockton. It is recommended that parking spaces be reserved for park and ride usage, Mondays through Fridays, excluding holidays. These spaces should be located adjacent to transit facilities proposed on French Camp Road.

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CONCLUSIONS

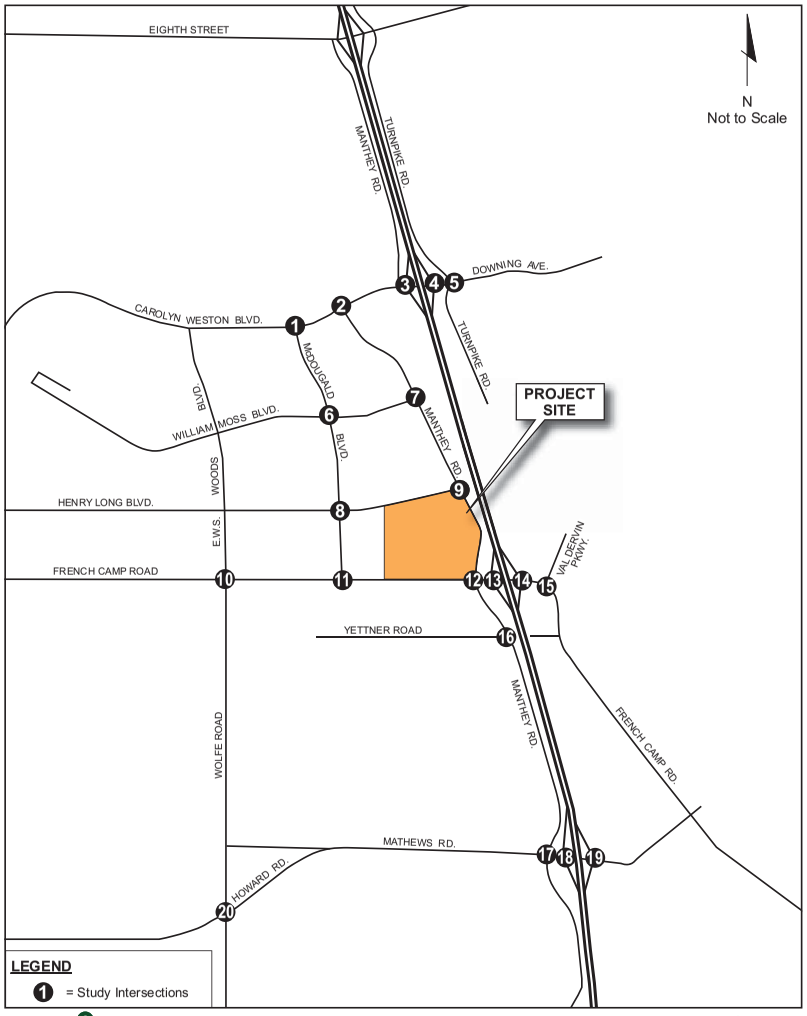
Results of the assessment of the Reduced Project Alternative impacts of the Weston Ranch Towne Center indicate that development of the Reduced Project Alternative would generate significantly fewer trips than the project analyzed in the DEIR. However, the impacts of the Reduced Project Alternative development would be similar to those at project buildout, although the Project's fair share contribution to improvements would be reduced. This completes our assessment of the Reduced Project Alternative for the Weston Ranch Towne Center in Stockton. Please call if you have any questions.

Figures:

Figure 1 Site Vicinity Map and Study Intersection Locations
Figure 2 Reduced Project Alternative Conceptual Project Site Plan
Figure 3 Near-team Peak Hour Project Trip Assignment
Figure 4 2025 Cumulative Peak Hour Project Trip Assignment
Figure 5 2035 Cumulative Peak Hour Project Trip Assignment
Figure 6 Near-term Intersection Lane Configurations and Traffic Control
Figure 7 Near-term Without Project Peak Hour Intersection Turning Movement Volumes
Figure 8 Near-term With Reduced Project Alternative Peak Hour Intersection Turning Movement Volumes
Figure 9 2025 Cumulative Intersection Lane Configurations and Traffic Control
Figure 10 2025 Cumulative Without Project Peak Hour Intersection Turning Movement Volumes
Figure 11 2025 Cumulative With Reduced Project Alternative Peak Hour Intersection Turning Movement Volumes
Figure 12 2035 Cumulative Intersection Lane Configurations and Traffic Control
Figure 13 2035 Cumulative Without Project Peak Hour Intersection Turning Movement Volumes
Figure 14 2035 Cumulative With Reduced Project Alternative Peak Hour Intersection Turning Movement Volumes
Figure 15 Consultant Site Plan Recommendations
Figure 16a Recommendations to Improve Truck Circulation
Figure 16b Truck Turning Template

Attachments:

Without Project Levels of Service
Without Project Signal Warrant Worksheets
With Project Levels of Service
With Project Signal Warrant Worksheets
Without Project Freeway Levels of Service
With Project Freeway Levels of Service
Site Access Analysis Worksheets



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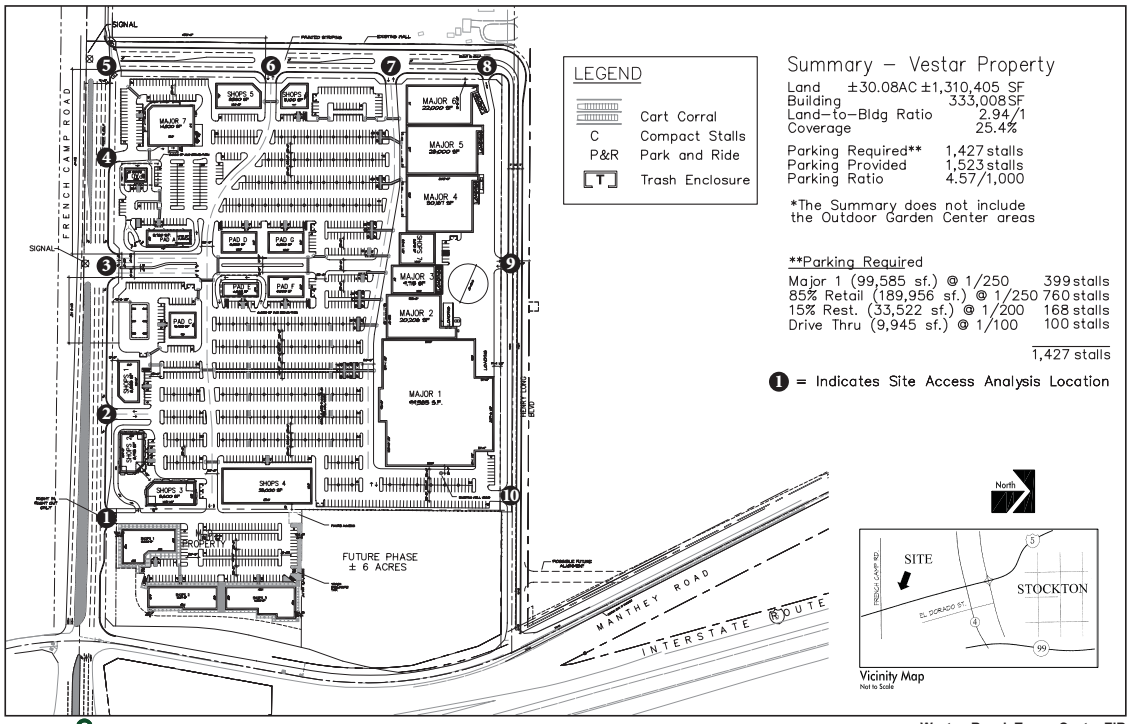
SITE VICINITY MAP AND STUDY INTERSECTION LOCATIONS

FIGURE 1



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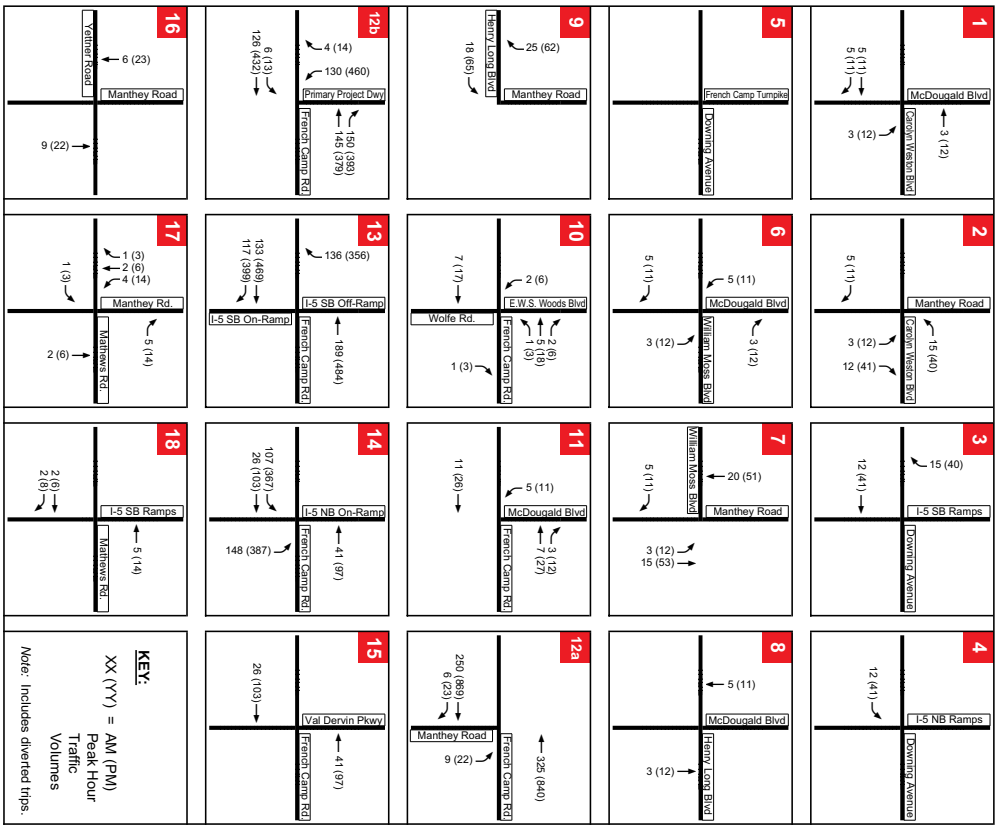
REDUCED PROJECT ALTERNATIVE CONCEPTUAL PROJECT SITE PLAN
FIGURE 2



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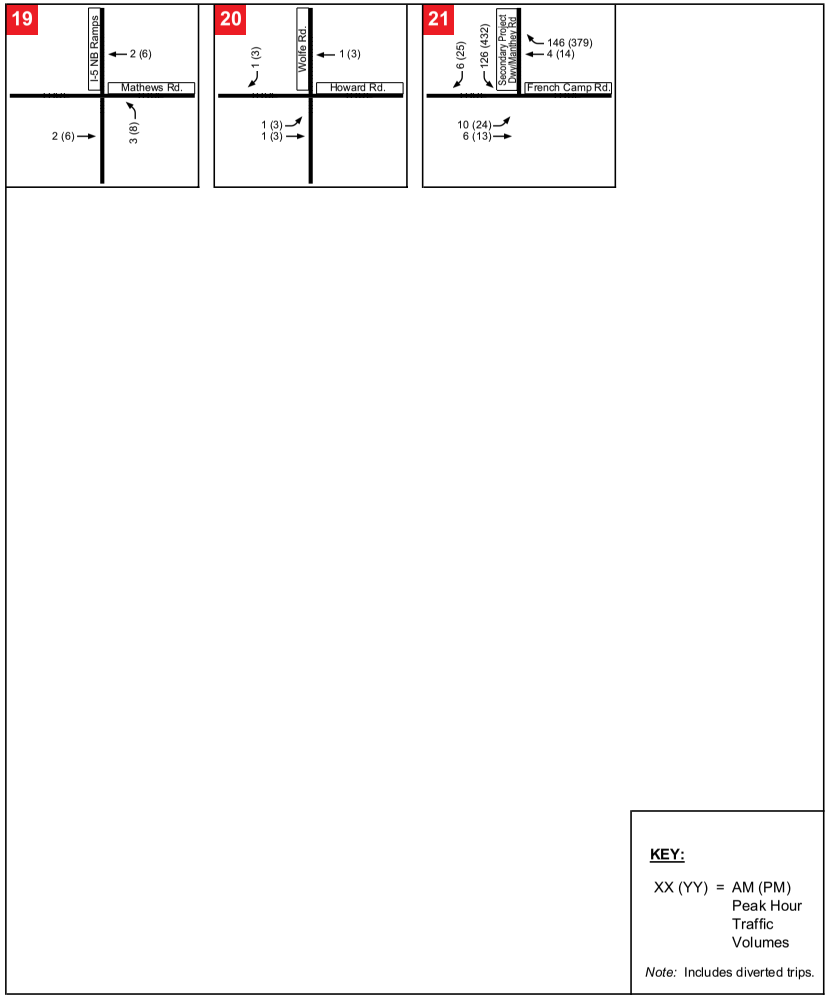
NEAR-TERM PEAK HOUR PROJECT TRIP ASSIGNMENT
AM AND PM PEAK HOUR
FIGURE 3A



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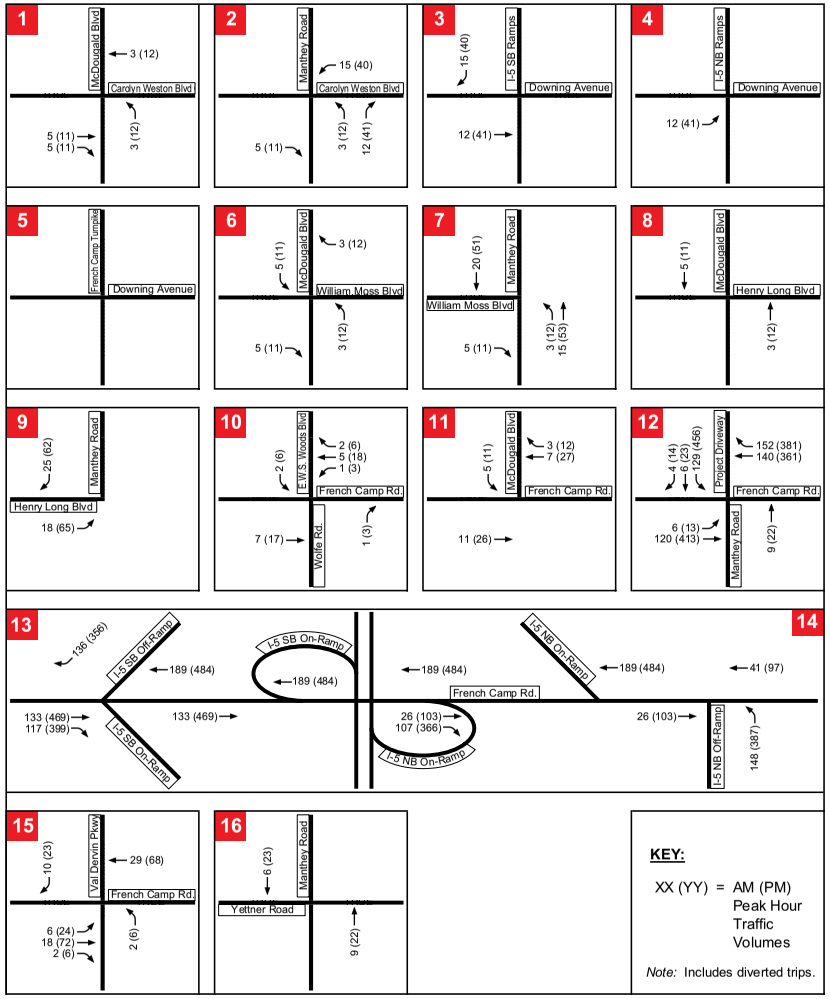
NEAR-TERM PEAK HOUR PROJECT TRIP ASSIGNMENT
AM AND PM PEAK HOUR
FIGURE 3B



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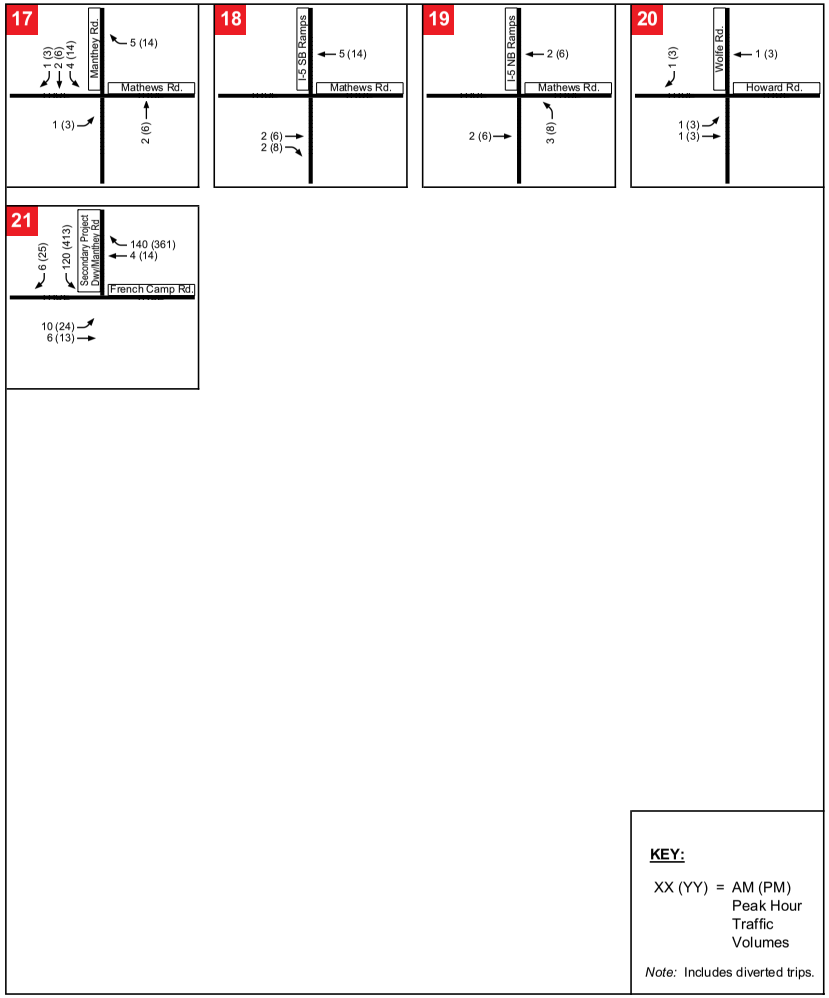
2025 CUMULATIVE PEAK HOUR PROJECT TRIP ASSIGNMENT
AM AND PM PEAK HOUR
FIGURE 4A



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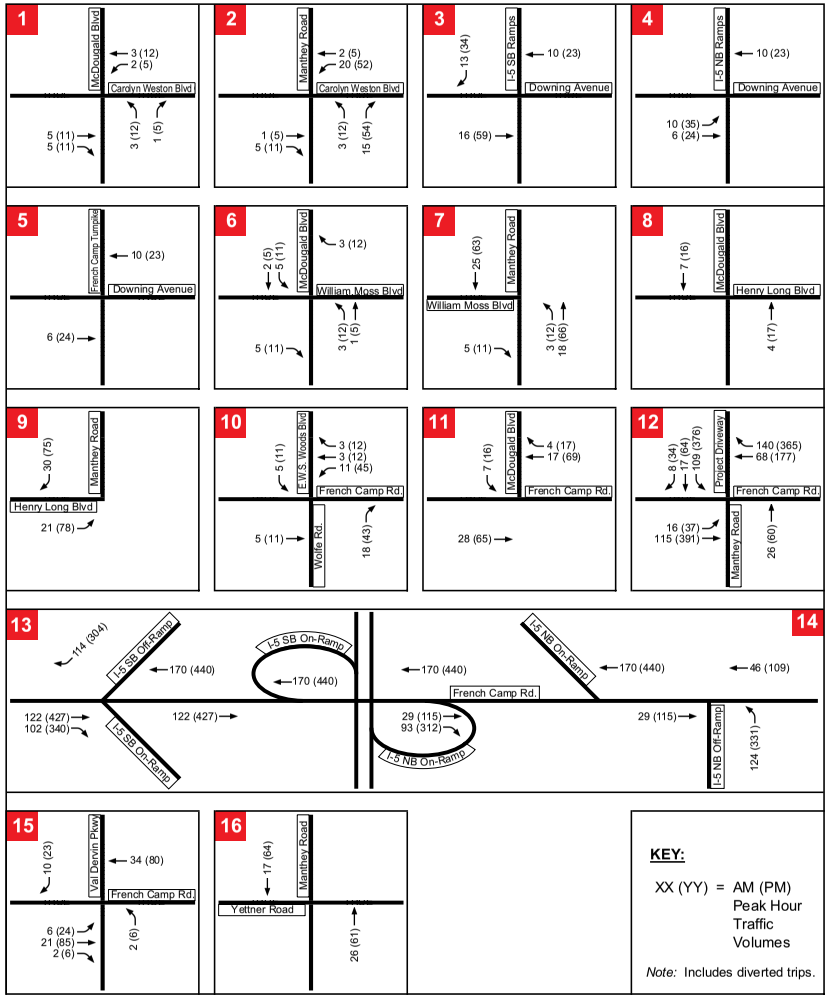
2025 CUMULATIVE PEAK HOUR PROJECT TRIP ASSIGNMENT AM AND PM PEAK HOUR

FIGURE 4B



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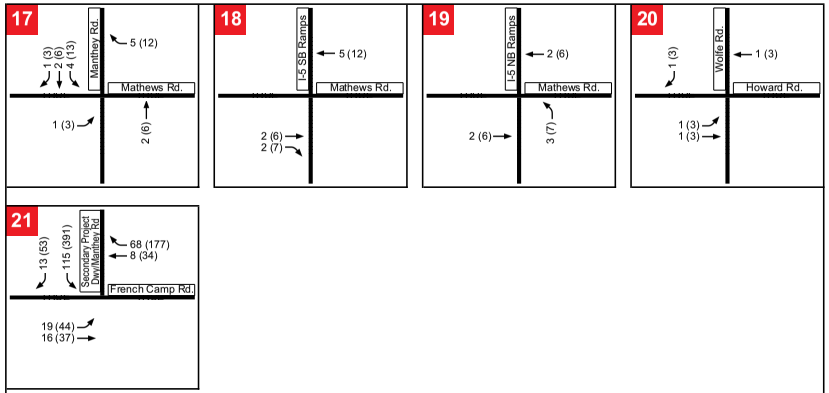
2035 CUMULATIVE PROJECT TRIP ASSIGNMENT AM AND PM PEAK HOUR

FIGURE 5A



KEY:

XX (YY) = AM (PM) Peak Hour Traffic Volumes

Note: Includes diverted trips.

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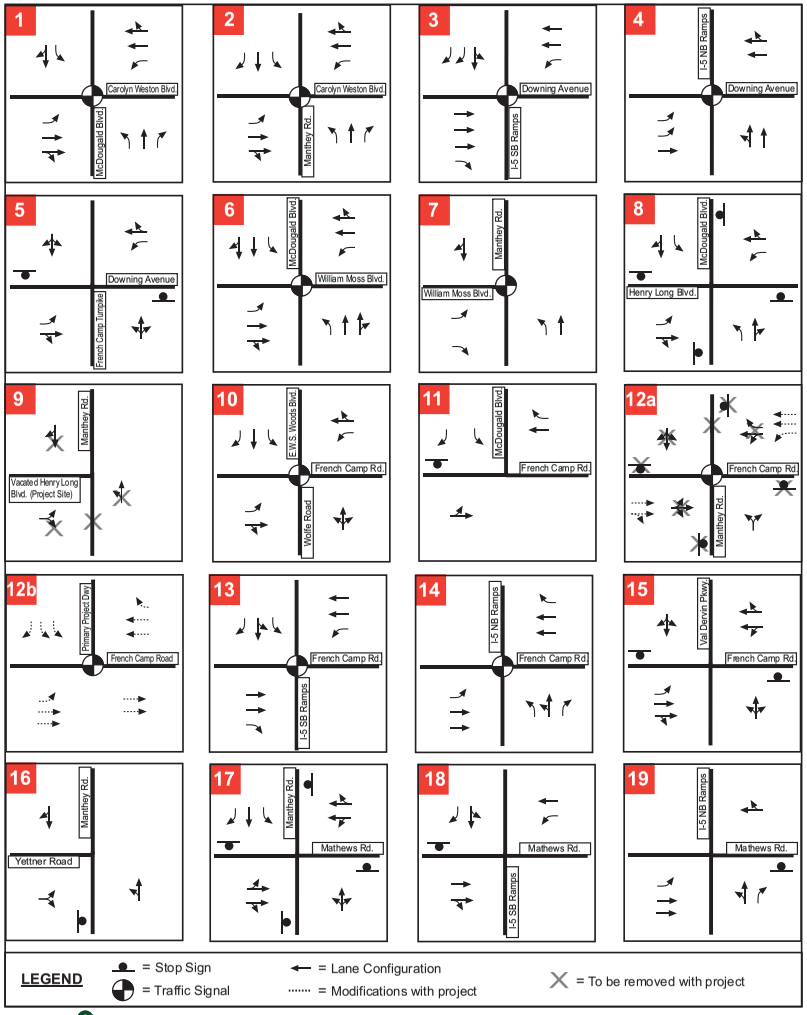
2035 CUMULATIVE PROJECT TRIP ASSIGNMENT AM AND PM PEAK HOUR

FIGURE 5B



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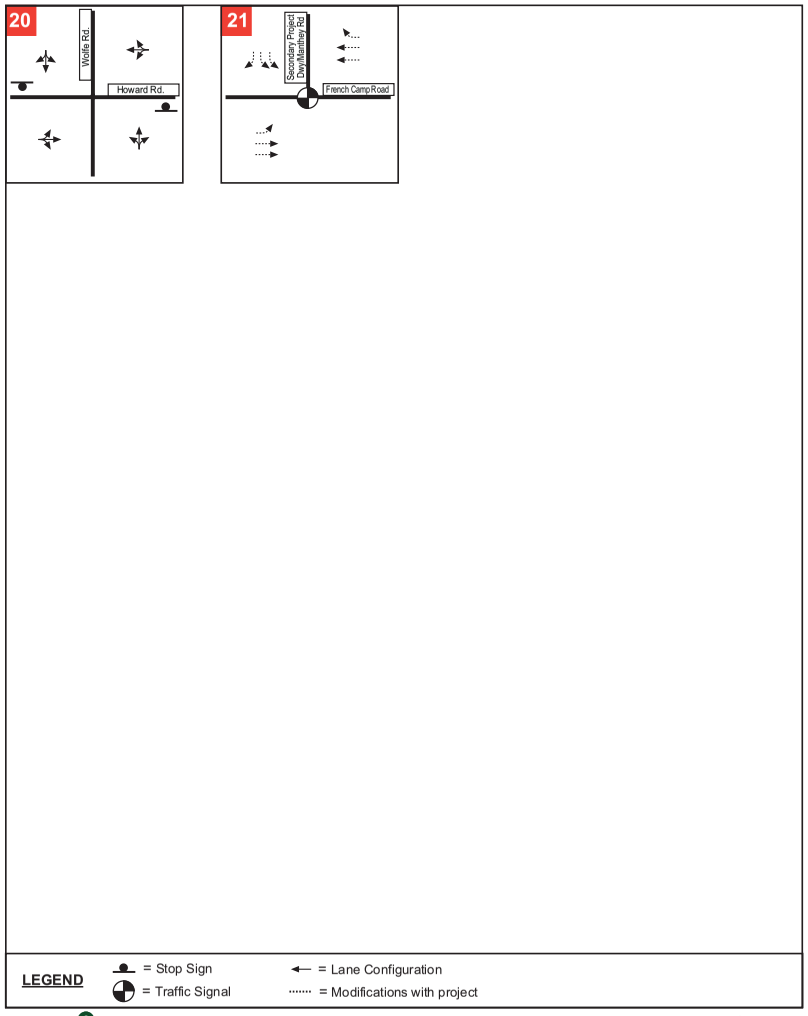
NEAR-TERM LANE CONFIGURATIONS AND TRAFFIC CONTROL

FIGURE 6A



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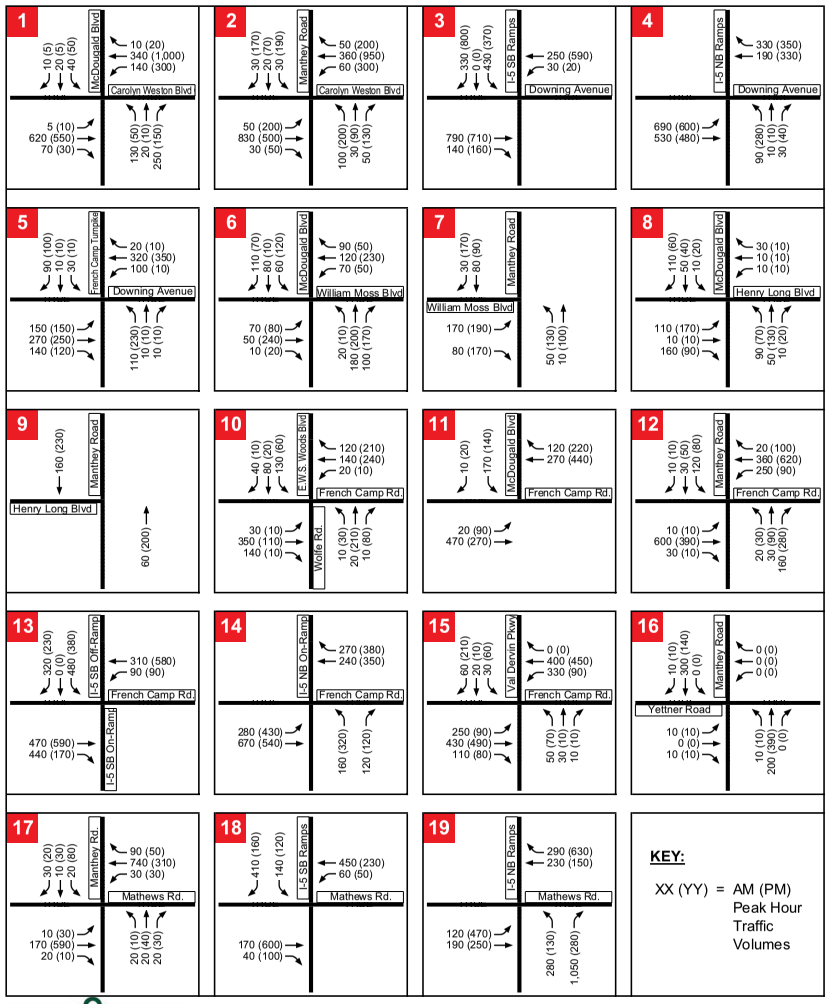
NEAR-TERM LANE CONFIGURATIONS AND TRAFFIC CONTROL

FIGURE 6B



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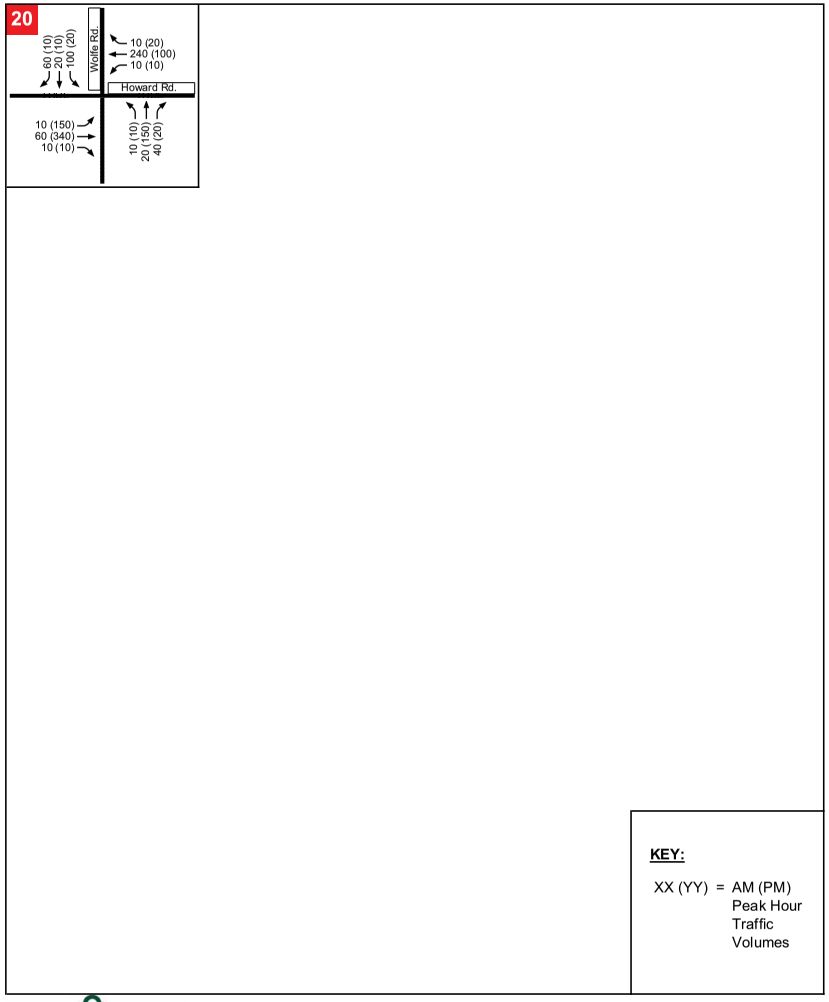
NEAR TERM WITHOUT PROJECT PEAK HOUR INTERSECTION TURNING MOVEMENT VOLUMES

FIGURE 7A



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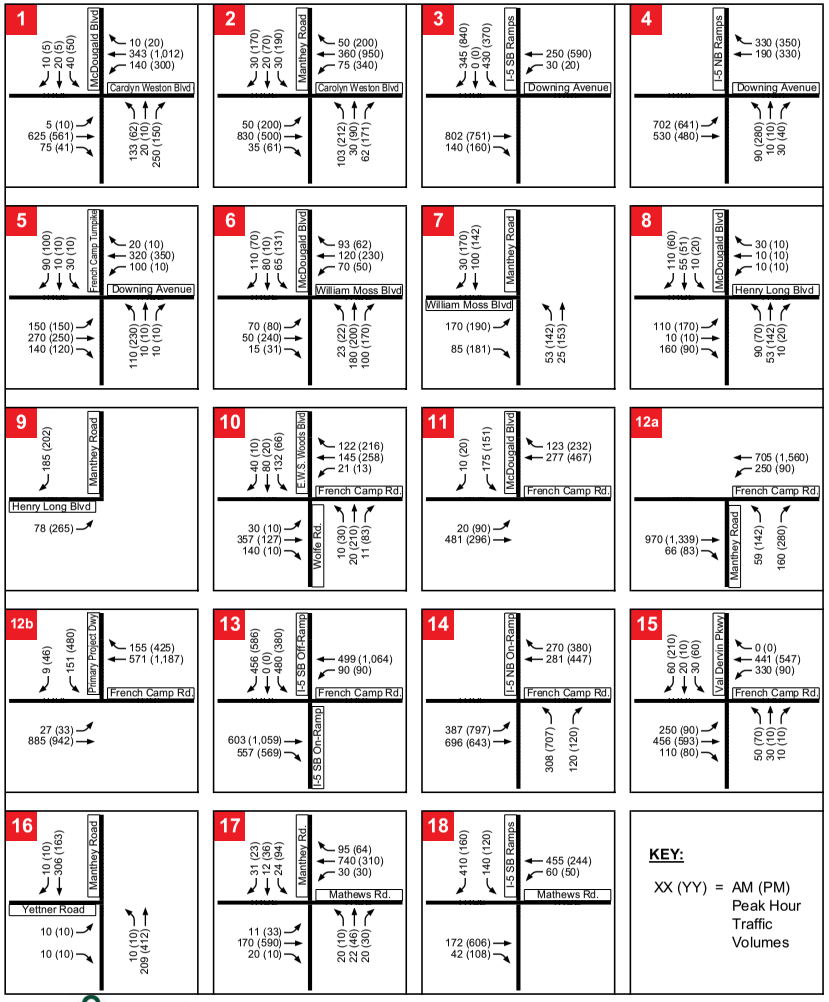
Weston Ranch Towne Center EIR

NEAR TERM WITHOUT PROJECT
PEAK HOUR INTERSECTION TURNING MOVMENT VOLUMES

FIGURE 7B



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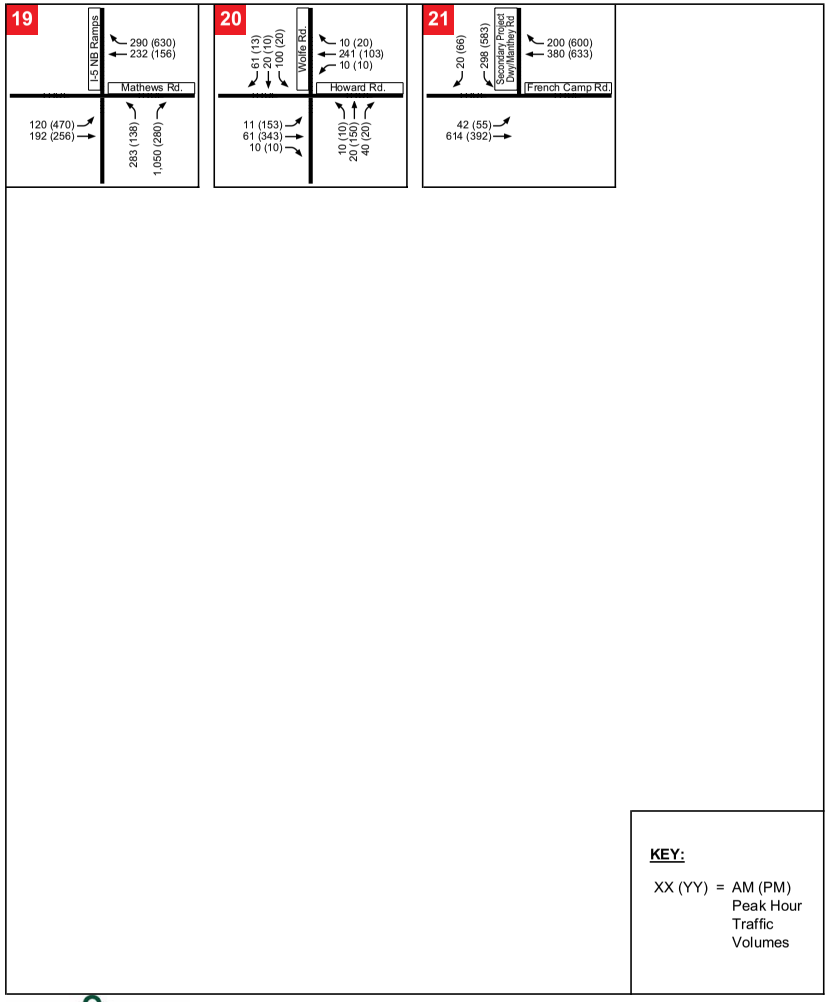
NEAR TERM WITH REDUCED PROJECT ALTERNATIVE
PEAK HOUR INTERSECTION TURNING MOVMENT VOLUMES

FIGURE 8A



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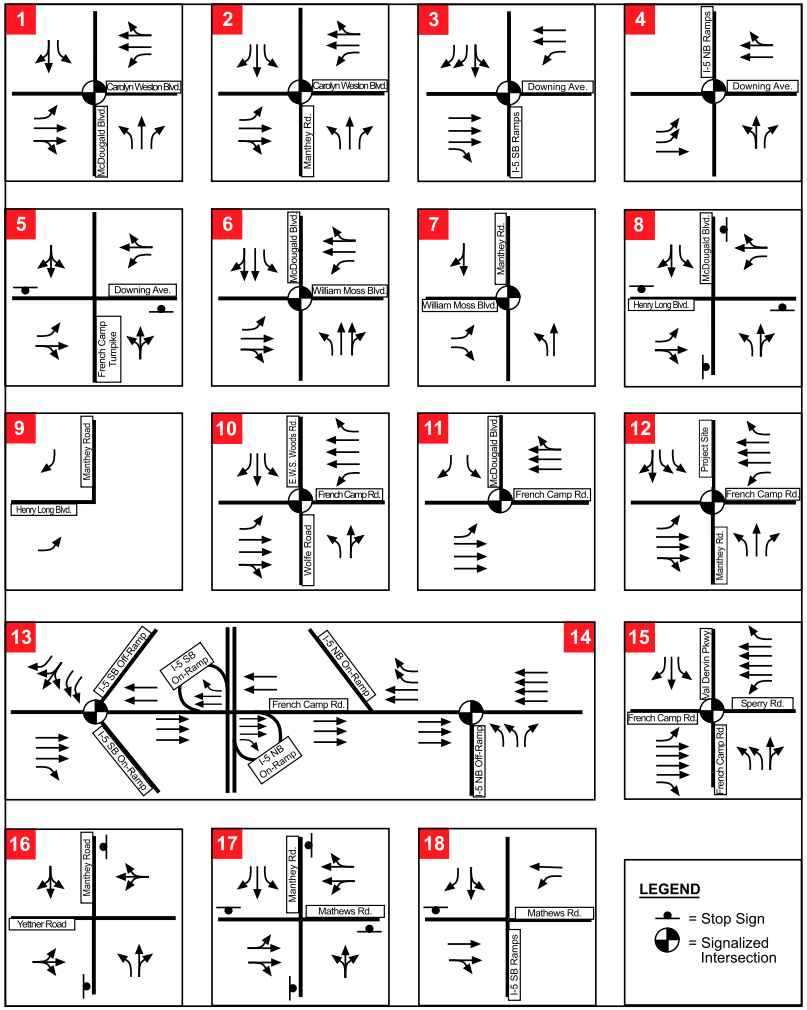
NEAR TERM WITH REDUCED PROJECT ALTERNATIVE PEAK HOUR INTERSECTION TURNING MOVMENT VOLUMES

FIGURE 8B



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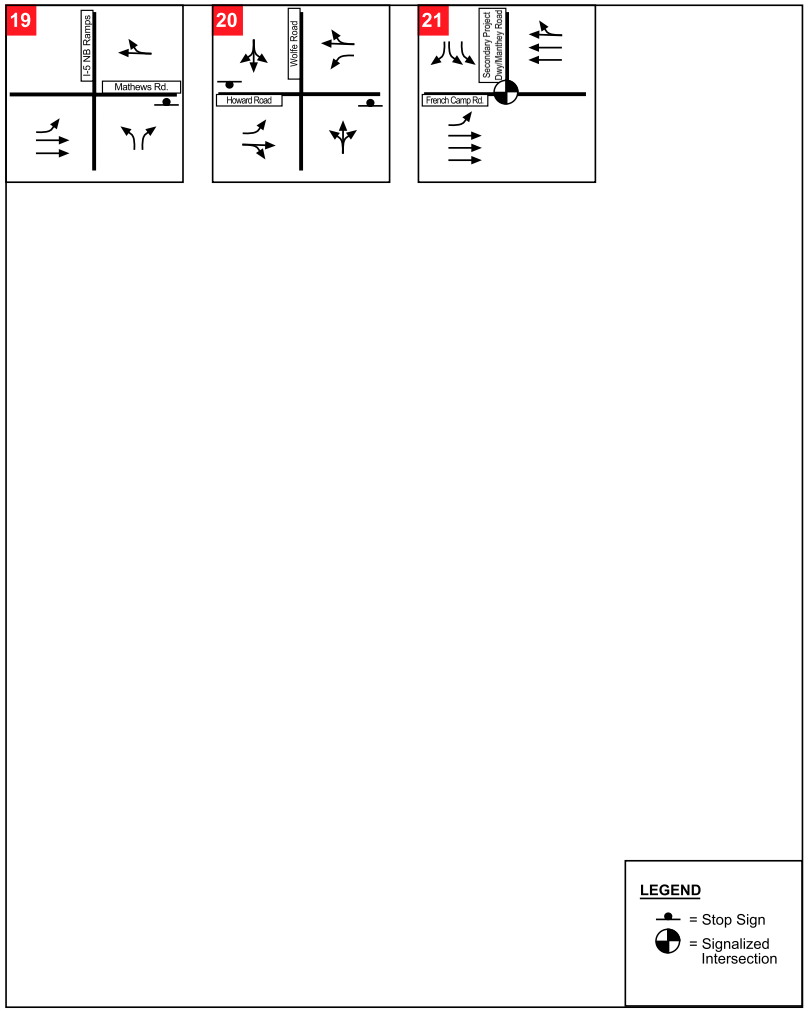
2025 CUMULATIVE LANE CONFIGURATIONS AND TRAFFIC CONTROL

FIGURE 9A



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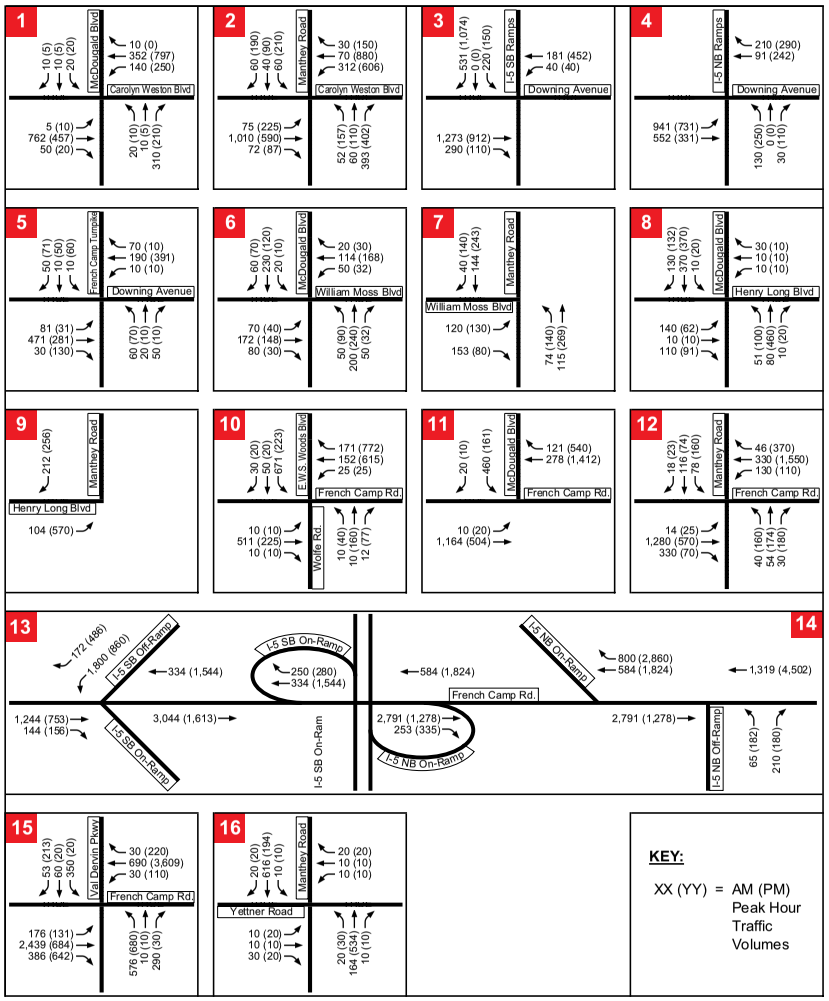
2025 CUMULATIVE LANE CONFIGURATIONS AND TRAFFIC CONTROL

FIGURE 9B



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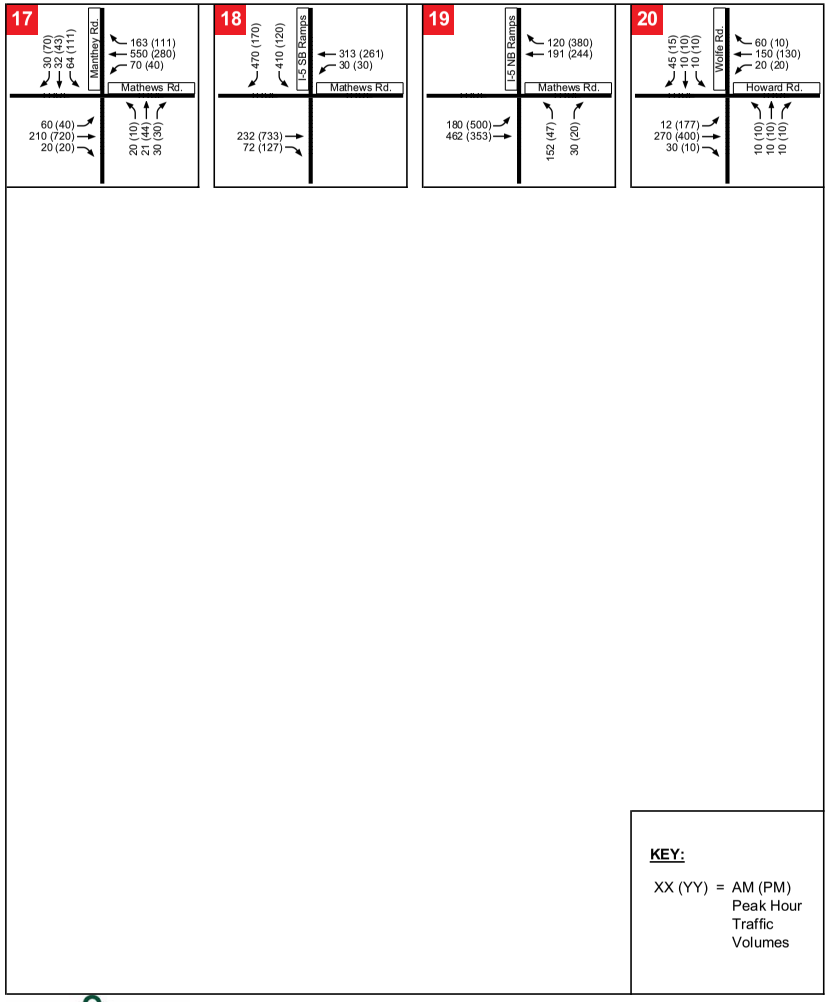
2025 CUMULATIVE WITHOUT PROJECT PEAK HOUR INTERSECTION TURNING MOVEMENT VOLUMES

FIGURE 10A



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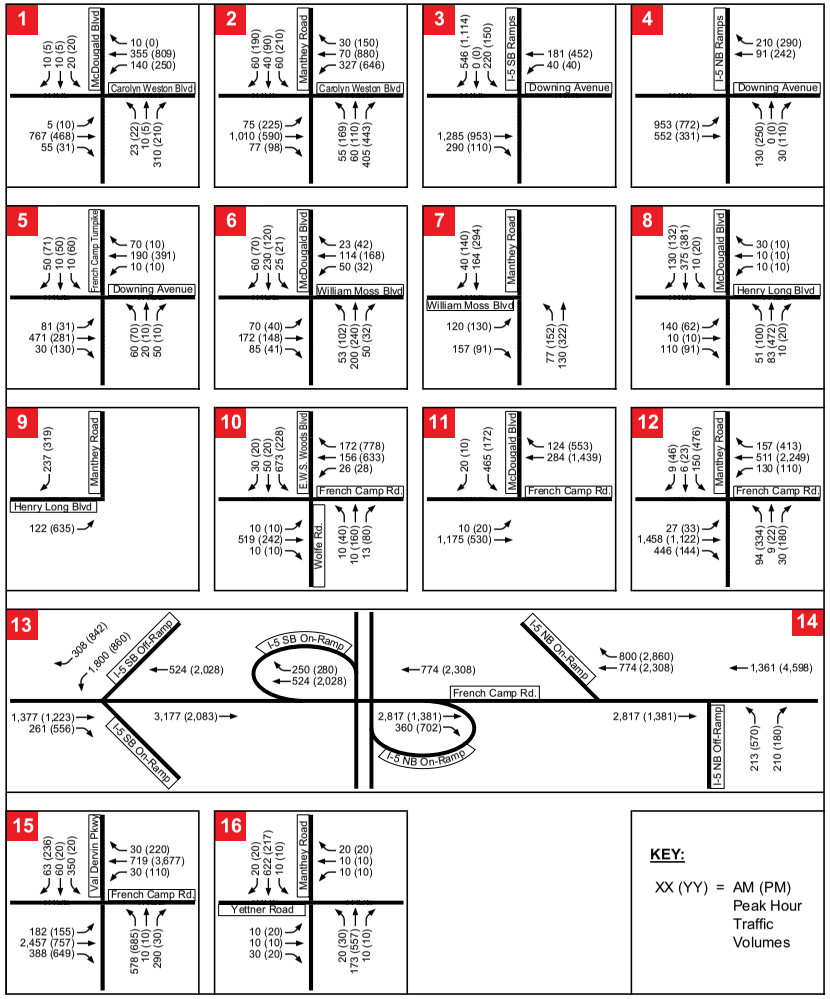
2025 CUMULATIVE WITHOUT PROJECT
PEAK HOUR INTERSECTION TURNING MOVMENT VOLUMES
FIGURE 10B



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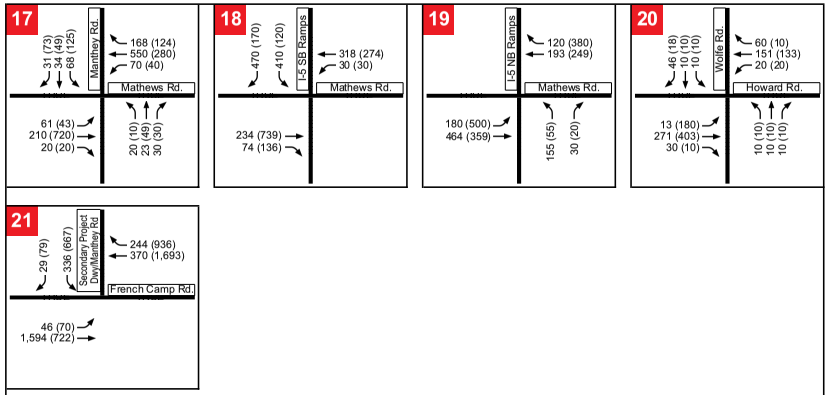
2025 CUMULATIVE WITH REDUCED PROJECT ALTERNATIVE
PEAK HOUR INTERSECTION TURNING MOVEMENT VOLUMES
FIGURE 11A



KEY:

XX (YY) = AM (PM) Peak Hour Traffic Volumes

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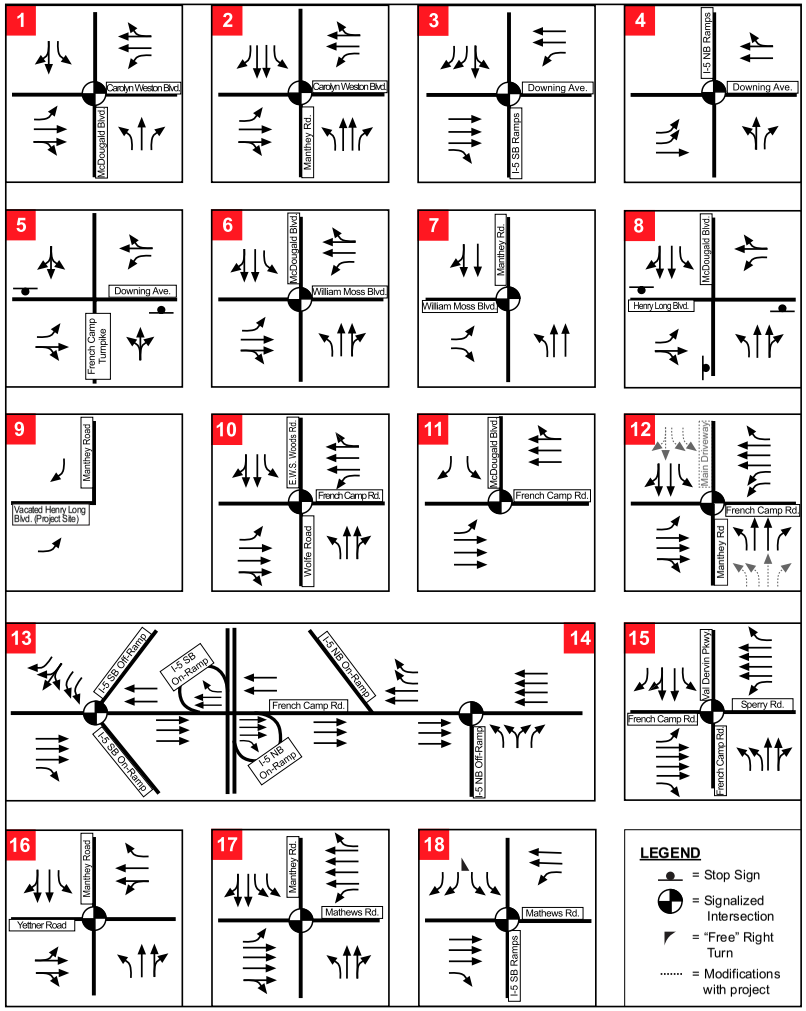
2025 CUMULATIVE WITH REDUCED PROJECT ALTERNATIVE PEAK HOUR INTERSECTION TURNING MOVMENT VOLUMES

FIGURE 11B



Weston Ranch Alternatives Analysis

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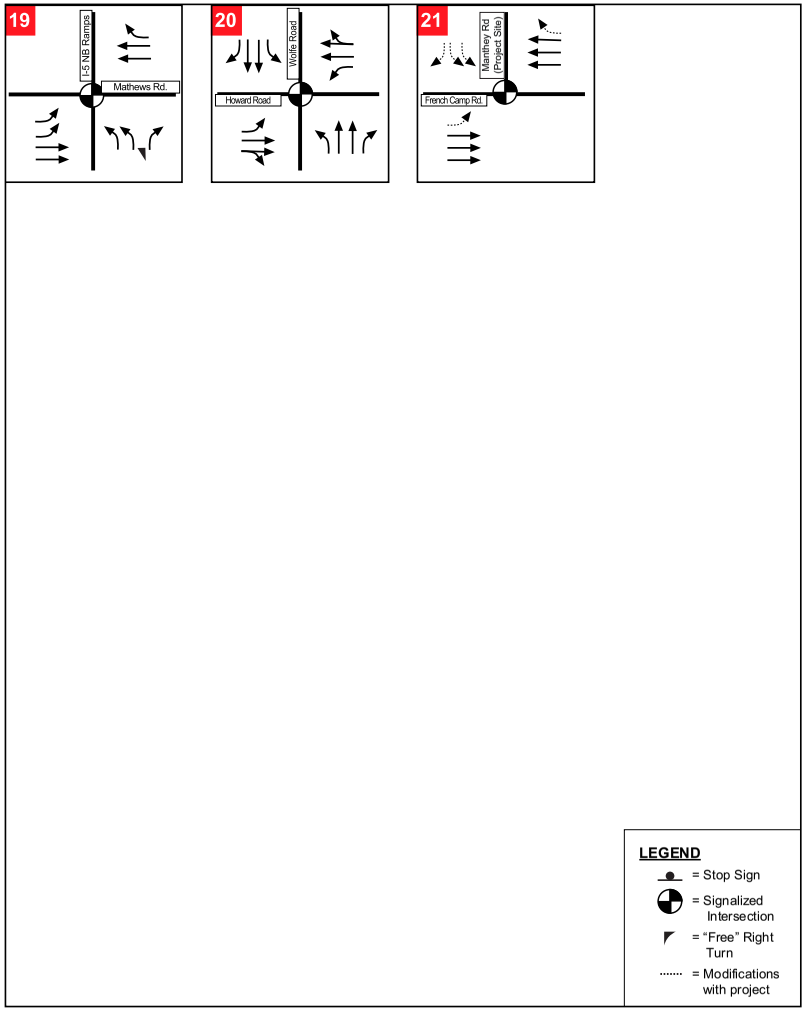
2035 CUMULATIVE LANE CONFIGURATIONS AND TRAFFIC CONTROL

FIGURE 12A



Weston Ranch Alternatives Analysis

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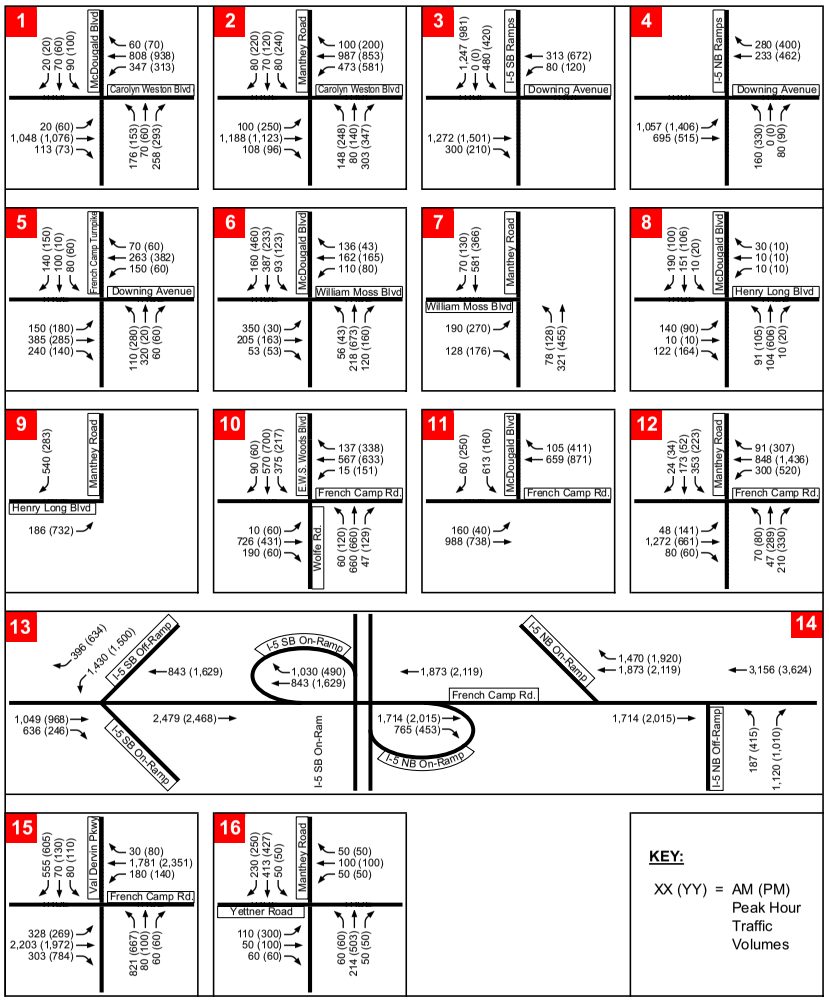
2035 CUMULATIVE LANE CONFIGURATIONS AND TRAFFIC CONTROL
FIGURE 12B



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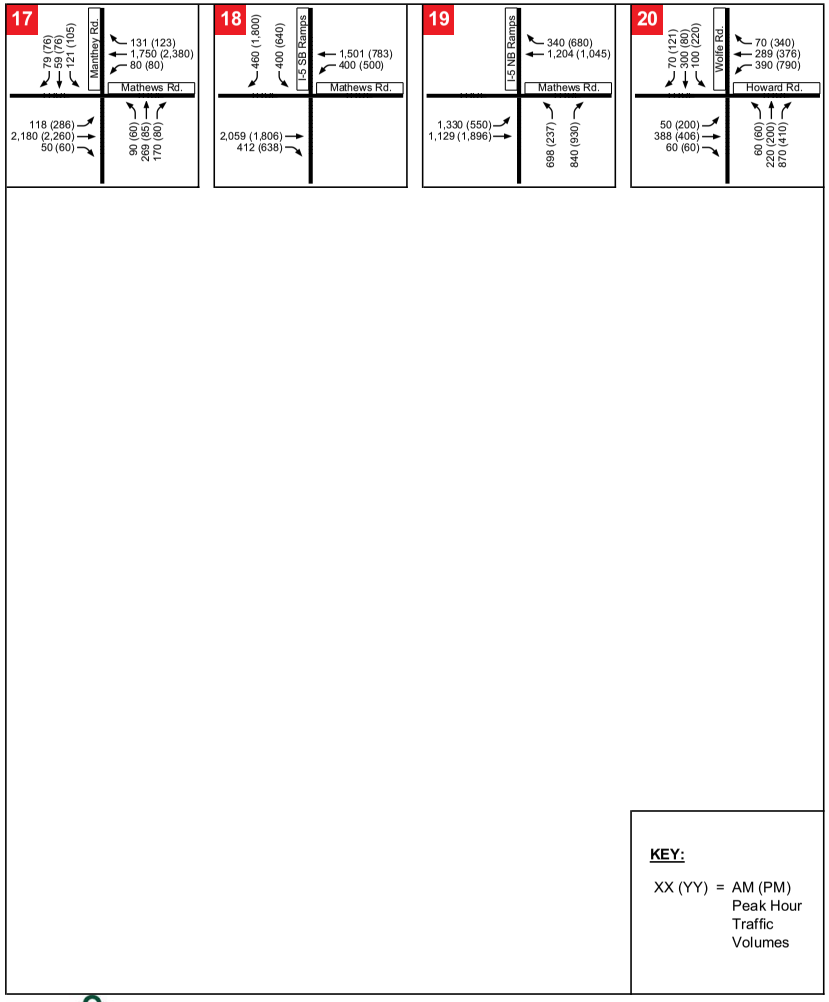
April 2008
WC07-2506_13A

2035 CUMULATIVE WITHOUT PROJECT PEAK HOUR INTERSECTION TURNING MOVEMENT VOLUMES
FIGURE 13A

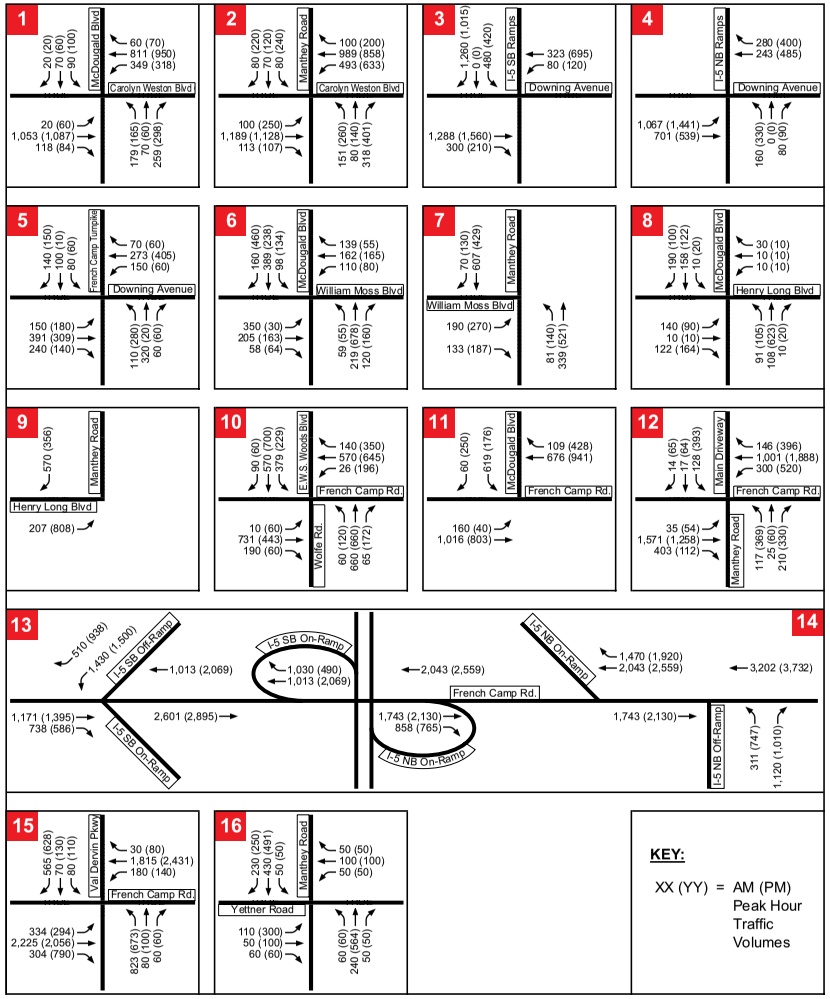


Weston Ranch Towne Center EIR

FEHR & PEERS
TRANSPORTATION CONSULTANTS

April 2008
WC07-2506_13B

2035 CUMULATIVE WITHOUT PROJECT
PEAK HOUR INTERSECTION TURNING MOVMENT VOLUMES
FIGURE 13B



Weston Ranch Towne Center EIR

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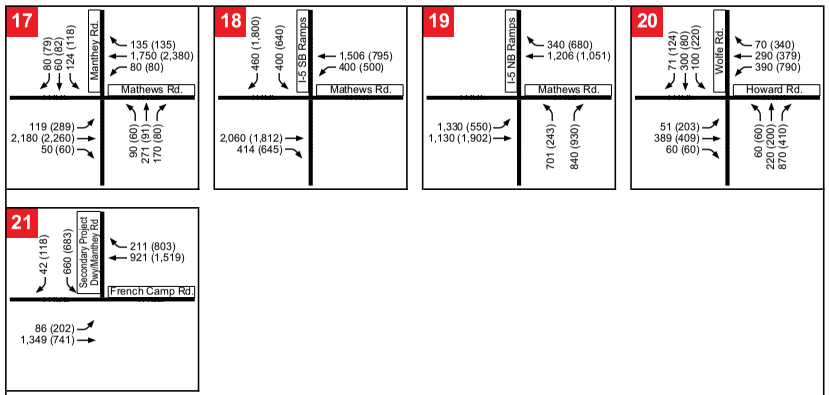
May 2008
WC07-2506_14A

2035 CUMULATIVE WITH REDUCED PROJECT ALTERNATIVE
PEAK HOUR INTERSECTION TURNING MOVEMENT VOLUMES
FIGURE 14A



KEY:

XX (YY) = AM (PM) Peak Hour Traffic Volumes

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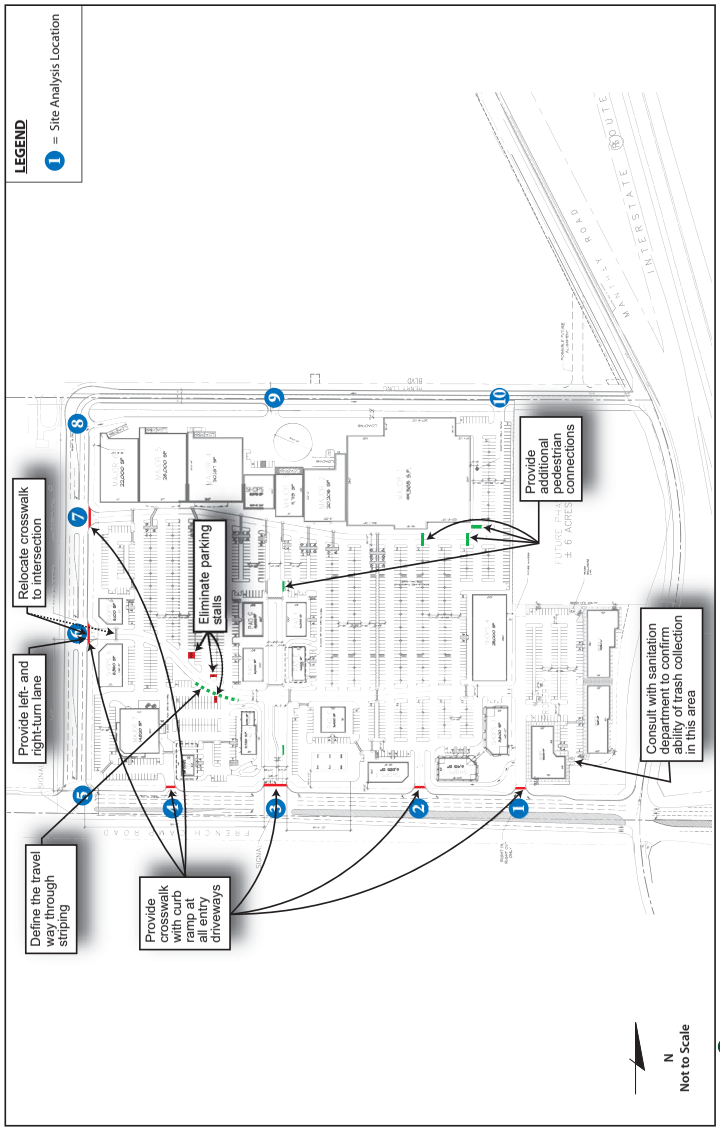
April 2008
WC07-2506_14B

Weston Ranch Towne Center EIR

2035 CUMULATIVE WITH REDUCED PROJECT ALTERNATIVE PEAK HOUR INTERSECTION TURNING MOVMENT VOLUMES

FIGURE 14B



Weston Ranch Towne Center EIR

SITE PLAN RECOMMENDATIONS

FIGURE 15

FEHR & PEERS
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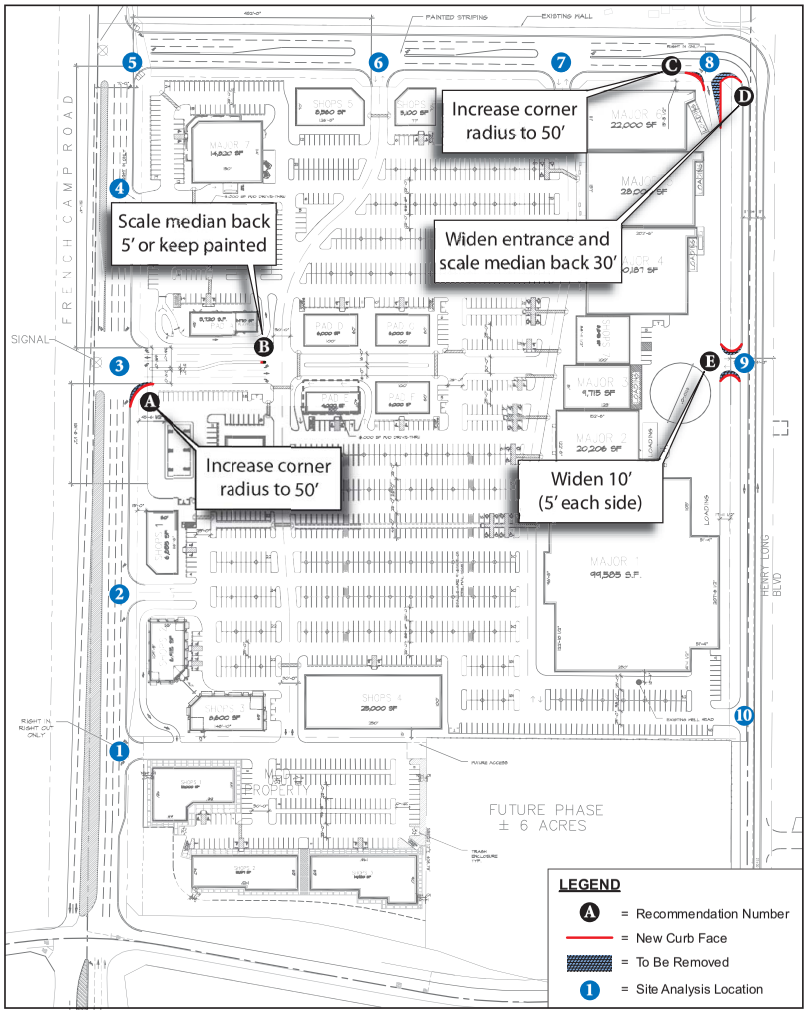
May 2008
WC07-2506_15

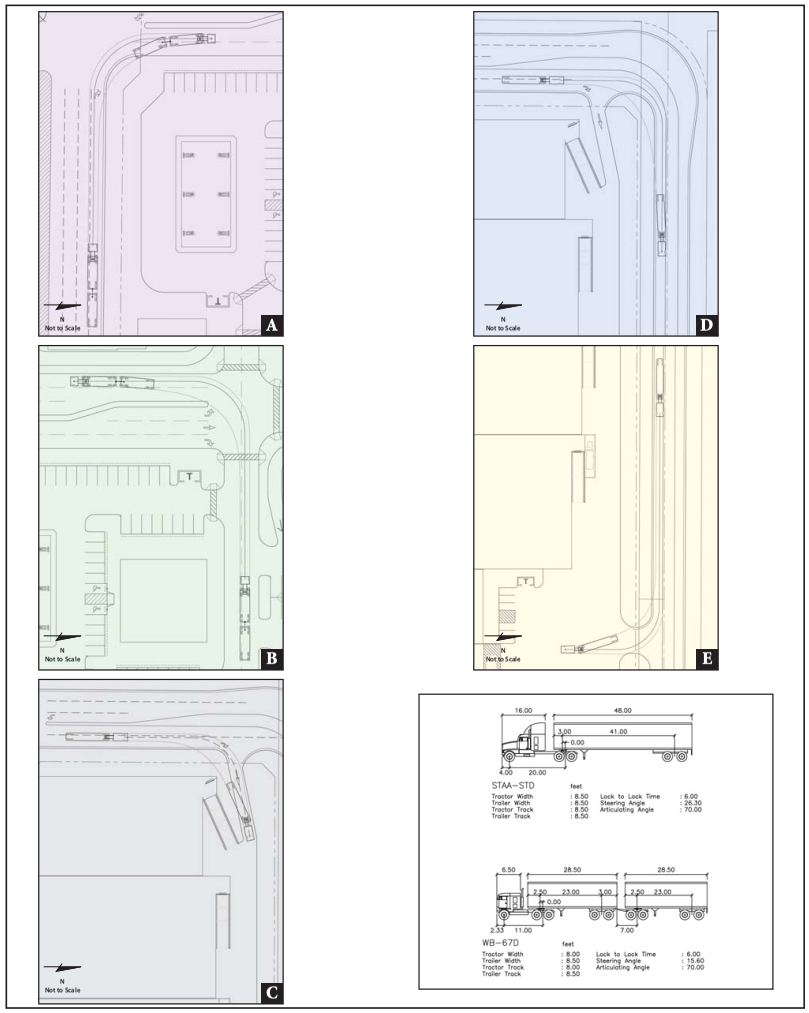


Weston Ranch Towne Center EIR

FEHR & PEERS
TRANSPORTATION CONSULTANTS

May 2008
WC07-2506_16A

TRUCK TURNING TEMPLATE
FIGURE 16A



Weston Ranch Towne Center EIR

FEHR & PEERS
TRANSPORTATION CONSULTANTS

January 2008
WC07-2506_16B

TRUCK TURNING TEMPLATE
FIGURE 16B

Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Scenario Report

Scenario:	Exist+App AM
Command:	Ex+App AM
Volume:	Existing + Approved AM
Geometry:	Existing Plus Approved
Impact Fee:	Default Impact Fee
Trip Generation:	No Project
Trip Distribution:	Existing
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Carolyn Weston Boulevard/McDougald Boulevard

Cycle (sec):	60	Critical Vol./Cap.(X):	0.644
Loss Time (sec):	16 (Y+R=5.0 sec)	Average Delay (sec/veh):	24.4
Optimal Cycle:	54	Level Of Service:	C

Street Name:	McDougald Boulevard						Carolyn Weston Boulevard					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0 1	0 1		1 0	0 1	0	1 0 1	1 0		1 0 1	1 0	
Volume Module:745-845												
Base Vol:	130	20	250	40	20	10	5	620	70	140	340	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	130	20	250	40	20	10	5	620	70	140	340	10
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	130	20	250	40	20	10	5	620	70	140	340	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	137	21	263	42	21	11	5	653	74	147	358	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	137	21	263	42	21	11	5	653	74	147	358	11
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	137	21	263	42	21	11	5	653	74	147	358	11
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	0.95	0.95	0.95	0.94	0.94	0.95	0.95	0.95
Lanes:	1.00	1.00	1.00	1.00	0.67	0.33	1.00	1.80	0.20	1.00	1.94	0.06
Final Sat.:	1805	1900	1615	1805	1203	602	1805	3195	361	1805	3493	103
Capacity Analysis Module:												
Vol/Sat:	0.08	0.01	0.16	0.02	0.02	0.02	0.00	0.20	0.20	0.08	0.10	0.10
Crit Moves:			****	****				****		****		
Green/Cycle:	0.14	0.22	0.22	0.12	0.20	0.20	0.16	0.28	0.28	0.12	0.23	0.23
Volume/Cap:	0.54	0.05	0.73	0.20	0.09	0.09	0.02	0.73	0.73	0.70	0.44	0.44
Delay/Veh:	26.5	18.4	29.4	24.4	19.7	19.7	21.1	22.5	22.5	35.5	20.1	20.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	26.5	18.4	29.4	24.4	19.7	19.7	21.1	22.5	22.5	35.5	20.1	20.1
LOS by Move:	C	B	C	C	B	B	C	C	C	D	C	C
HCM2kAvgQ:	3	0	6	1	0	0	0	8	8	4	3	3

Note: Queue reported is the number of cars per lane.

```
Exist+App AM                Wed Apr 9, 2008 16:30:34                    Page 5-1
--------------------------------------------------------------------------------
                          Weston Ranch Towne Center EIR
                            Near-Term Without Project
                                  AM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
              2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #2 Carolyn Weston Boulevard/S. Manthey Road
********************************************************************************
Cycle (sec):          90                 Critical Vol./Cap.(X):         0.444
Loss Time (sec):      16 (Y+R=5.0 sec)   Average Delay (sec/veh):        20.9
Optimal Cycle:        50                 Level Of Service:                 C
********************************************************************************
Street Name:         S. Manthey Road                Carolyn Weston Boulevard
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Protected        Protected        Protected        Protected
Rights:             Ovl             Include          Include          Include
Min. Green:     7   10    10     7   10    10     7   10    10     7   10    10
Lanes:        1  0  1  0  1    1  0  1  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:745-845
Base Vol:     100   30    50    30   20    30    50  830    30    60  360    50
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  100   30    50    30   20    30    50  830    30    60  360    50
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  100   30    50    30   20    30    50  830    30    60  360    50
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:   105   32    53    32   21    32    53  874    32    63  379    53
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  105   32    53    32   21    32    53  874    32    63  379    53
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  105   32    53    32   21    32    53  874    32    63  379    53
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 1.00  0.85  0.95 1.00  0.85  0.95 0.95  0.95  0.95 0.93  0.93
Lanes:       1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.93  0.07  1.00 1.76  0.24
Final Sat.:  1805 1900  1615  1805 1900  1615  1805 3467   125  1805 3113   432
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.02  0.03  0.02 0.01  0.02  0.03 0.25  0.25  0.03 0.12  0.12
Crit Moves:  ****                      ****        ****        ****
Green/Cycle: 0.12 0.14  0.21  0.09 0.11  0.11  0.23 0.51  0.51  0.08 0.36  0.36
Volume/Cap:  0.49 0.12  0.15  0.18 0.10  0.18  0.13 0.49  0.49  0.45 0.34  0.34
Delay/Veh:   38.8 34.4  29.0  38.1 36.2  36.7  27.6 14.4  14.4  41.9 21.1  21.1
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  38.8 34.4  29.0  38.1 36.2  36.7  27.6 14.4  14.4  41.9 21.1  21.1
LOS by Move:   D    C     C     D    D     D     C    B     B     D    C     C
HCM2kAvgQ:       3    1     1     1    1     1     1    7     7     2    4     4
********************************************************************************
Note: Queue reported is the number of cars per lane.

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```

HCM Signalized Intersection Capacity Analysis
3: Downing Avenue & I-5 SB Ramps

Near-Term without Project
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.91	1.00	1.00	0.95						1.00	0.88
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539						1770	2787
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		5085	1583	1770	3539						1770	2787
Volume (vph)	0	790	140	30	250	0	0	0	0	430	0	330
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	832	147	32	263	0	0	0	0	453	0	347
RTOR Reduction (vph)	0	0	77	0	0	0	0	0	0	0	0	236
Lane Group Flow (vph)	0	832	70	32	263	0	0	0	0	0	453	111
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		33.3	33.3	2.4	39.7						22.3	22.3
Effective Green, g (s)		33.3	33.3	2.4	39.7						22.3	22.3
Actuated g/C Ratio		0.48	0.48	0.03	0.57						0.32	0.32
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		2419	753	61	2007						564	888
v/s Ratio Prot		c0.16		c0.02	0.07							
v/s Ratio Perm			0.04								0.26	0.04
v/c Ratio		0.34	0.09	0.52	0.13						0.80	0.12
Uniform Delay, d1		11.5	10.1	33.2	7.1						21.8	16.9
Progression Factor		1.00	1.00	0.91	0.97						1.00	1.00
Incremental Delay, d2		0.4	0.2	7.7	0.1						8.1	0.1
Delay (s)		11.9	10.3	37.8	7.0						30.0	17.0
Level of Service		B	B	D	A						C	B
Approach Delay (s)		11.7			10.4			0.0			24.3	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Util. Factor	0.97	1.00			0.95			1.00	1.00			
Frt	1.00	1.00			0.90			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.96	1.00			
Satd. Flow (prot)	3433	1863			3202			1783	1583			
Flt Permitted	0.95	1.00			1.00			0.96	1.00			
Satd. Flow (perm)	3433	1863			3202			1783	1583			
Volume (vph)	690	530	0	0	190	330	90	10	30	0	0	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	726	558	0	0	200	347	95	11	32	0	0	0
RTOR Reduction (vph)	0	0	0	0	186	0	0	0	28	0	0	0
Lane Group Flow (vph)	726	558	0	0	361	0	0	106	4	0	0	0
Turn Type	Prot						Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases							2		2			
Actuated Green, G (s)	17.6	54.0			32.4			8.0	8.0			
Effective Green, g (s)	17.6	54.0			32.4			8.0	8.0			
Actuated g/C Ratio	0.25	0.77			0.46			0.11	0.11			
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	863	1437			1482			204	181			
v/s Ratio Prot	c0.21	c0.30			0.11							
v/s Ratio Perm								0.06	0.00			
v/c Ratio	0.84	0.39			0.24			0.52	0.02			
Uniform Delay, d1	24.9	2.6			11.4			29.2	27.5			
Progression Factor	1.16	1.20			1.00			1.00	1.00			
Incremental Delay, d2	7.0	0.7			0.4			2.2	0.0			
Delay (s)	35.9	3.9			11.8			31.4	27.6			
Level of Service	D	A			B			C	C			
Approach Delay (s)		22.0			11.8			30.5			0.0	
Approach LOS		C			B			C			A	

Intersection Summary			
HCM Average Control Delay	19.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			


```
Exist+App AM                Wed Apr 9, 2008 16:30:34                    Page 6-1
-------------------------------------------------------------------------------
                          Weston Ranch Towne Center EIR
                            Near-Term Without Project
                                 AM Peak Hour
-------------------------------------------------------------------------------
                       Level Of Service Computation Report
            2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #5 Downing Avenue/French Camp Turnpike
*******************************************************************************
Average Delay (sec/veh):     30.9       Worst Case Level Of Service: F[254.7]
*******************************************************************************
Street Name:       French Camp Turnpike                 Downing Avenue
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:         0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:730-830
Base Vol:     110   10    10    30   10    90   150  270   140   100  320    20
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  110   10    10    30   10    90   150  270   140   100  320    20
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  110   10    10    30   10    90   150  270   140   100  320    20
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:   116   11    11    32   11    95   158  284   147   105  337    21
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:  116   11    11    32   11    95   158  284   147   105  337    21
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1284 1242   358  1242 1305   347   358 xxxx xxxxx   432 xxxx xxxxx
Potent Cap.:  143  176   691   153  162   700  1212 xxxx xxxxx  1139 xxxx xxxxx
Move Cap.:     97  139   691   119  127   700  1212 xxxx xxxxx  1139 xxxx xxxxx
Volume/Cap:  1.19 0.08  0.02  0.27 0.08  0.14  0.13 xxxx  xxxx  0.09 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.4 xxxx xxxxx   0.3 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.4 xxxx xxxxx   8.5 xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     A    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  107 xxxxx  xxxx  283 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  9.3 xxxxx xxxxx  2.5 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx  255 xxxxx xxxxx 29.0 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    F     *     *    D     *     *    *     *     *    *     *
ApproachDel:     254.7             29.0           xxxxxx           xxxxxx
ApproachLOS:         F                D                *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************

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```

Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 William Moss Boulevard/McDougald Boulevard

Cycle (sec): 60 Critical Vol./Cap.(X): 0.310
Loss Time (sec): 16 (Y+R=5.0 sec) Average Delay (sec/veh): 20.0
Optimal Cycle: 50 Level Of Service: C

Street Name:	McDougald Boulevard						William Moss Boulevard					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0	1 1	0	1 0	1 1	0	1 0	1 1	0	1 0	1 1	0
Volume Module:745-845												
Base Vol:	20	180	100	60	80	110	70	50	10	70	120	90
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	180	100	60	80	110	70	50	10	70	120	90
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	20	180	100	60	80	110	70	50	10	70	120	90
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	21	189	105	63	84	116	74	53	11	74	126	95
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	21	189	105	63	84	116	74	53	11	74	126	95
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	21	189	105	63	84	116	74	53	11	74	126	95
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.90	0.90	0.95	0.87	0.87	0.95	0.93	0.93	0.95	0.89	0.89
Lanes:	1.00	1.29	0.71	1.00	1.00	1.00	1.00	1.67	0.33	1.00	1.14	0.86
Final Sat.:	1805	2195	1220	1805	1648	1648	1805	2933	587	1805	1931	1448
Capacity Analysis Module:												
Vol/Sat:	0.01	0.09	0.09	0.03	0.05	0.07	0.04	0.02	0.02	0.04	0.07	0.07
Crit Moves:		****		****			****				****	
Green/Cycle:	0.16	0.28	0.28	0.12	0.23	0.23	0.13	0.20	0.20	0.14	0.21	0.21
Volume/Cap:	0.07	0.31	0.31	0.30	0.22	0.30	0.31	0.09	0.09	0.29	0.31	0.31
Delay/Veh:	21.4	17.4	17.4	25.1	18.8	19.3	24.4	19.6	19.6	23.8	20.3	20.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.4	17.4	17.4	25.1	18.8	19.3	24.4	19.6	19.6	23.8	20.3	20.3
LOS by Move:	C	B	B	C	B	B	C	B	B	C	C	C
HCM2kAvgQ:	0	2	2	1	1	2	2	1	1	1	2	2

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 William Moss Boulevard/S. Manthey Road

Cycle (sec): 60 Critical Vol./Cap.(X): 0.181
Loss Time (sec): 12 (Y+R=5.0 sec) Average Delay (sec/veh): 14.6
Optimal Cycle: 39 Level Of Service: B

Street Name:							William Moss Boulevard					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Permitted			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0	1 0	0	0 0	0 1	0	1 0	0 0	1	0 0	0 0	0
Volume Module:7-8												
Base Vol:	50	10	0	0	80	30	170	0	80	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	10	0	0	80	30	170	0	80	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	50	10	0	0	80	30	170	0	80	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	53	11	0	0	84	32	179	0	84	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	53	11	0	0	84	32	179	0	84	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	53	11	0	0	84	32	179	0	84	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	1.00	0.96	0.96	0.95	1.00	0.85	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	0.73	0.27	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1805	1900	0	0	1331	499	1805	0	1615	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.03	0.01	0.00	0.00	0.06	0.06	0.10	0.00	0.05	0.00	0.00	0.00
Crit Moves:	****				****				****			
Green/Cycle:	0.12	0.39	0.00	0.00	0.26	0.26	0.41	0.00	0.41	0.00	0.00	0.00
Volume/Cap:	0.24	0.01	0.00	0.00	0.24	0.24	0.24	0.00	0.13	0.00	0.00	0.00
Delay/Veh:	24.4	11.4	0.0	0.0	17.6	17.6	11.6	0.0	11.0	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	24.4	11.4	0.0	0.0	17.6	17.6	11.6	0.0	11.0	0.0	0.0	0.0
LOS by Move:	C	B	A	A	B	B	B	A	B	A	A	A
HCM2kAvgQ:	1	0	0	0	2	2	2	0	1	0	0	0

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 Henry Long Boulevard/McDougald Boulevard

Cycle (sec): 100 Critical Vol./Cap.(X): 0.249
Loss Time (sec): 0 (Y+R=5.0 sec) Average Delay (sec/veh): 9.3
Optimal Cycle: 0 Level Of Service: A

Street Name:	McDougald Boulevard						Henry Long Boulevard					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0
Volume Module:												
Base Vol:	90	50	10	10	50	110	110	10	160	10	10	30
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	90	50	10	10	50	110	110	10	160	10	10	30
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	90	50	10	10	50	110	110	10	160	10	10	30
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	95	53	11	11	53	116	116	11	168	11	11	32
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	95	53	11	11	53	116	116	11	168	11	11	32
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	95	53	11	11	53	116	116	11	168	11	11	32
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.83	0.17	1.00	0.31	0.69	1.00	0.06	0.94	1.00	0.25	0.75
Final Sat.:	570	526	105	570	212	466	586	42	679	548	163	488
Capacity Analysis Module:												
Vol/Sat:	0.17	0.10	0.10	0.02	0.25	0.25	0.20	0.25	0.25	0.02	0.06	0.06
Crit Moves:	****				****			****				****
Delay/Veh:	9.9	8.7	8.7	8.9	9.3	9.3	10.0	9.0	9.0	9.0	8.2	8.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.9	8.7	8.7	8.9	9.3	9.3	10.0	9.0	9.0	9.0	8.2	8.2
LOS by Move:	A	A	A	A	A	A	B	A	A	A	A	A
ApproachDel:	9.4			9.3			9.4			8.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.4			9.3			9.4			8.4		
LOS by Appr:	A			A			A			A		
AllWayAvgQ:	0.2	0.1	0.1	0.0	0.3	0.3	0.2	0.3	0.3	0.0	0.1	0.1

Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 Wolfe Road / French Camp Road

Cycle (sec): 70 Critical Vol./Cap.(X): 0.598
Loss Time (sec): 16 (Y+R=5.0 sec) Average Delay (sec/veh): 24.0
Optimal Cycle: 53 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L - T - R				L - T - R				L - T - R				L - T - R			
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	0 0	1! 0	0		1 0	1 0	1		1 0	0 1	0		1 0	0 1	0	
Volume Module:																
Base Vol:	10	20	10		130	80	40		30	350	140		20	140	120	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	10	20	10		130	80	40		30	350	140		20	140	120	
Added Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	10	20	10		130	80	40		30	350	140		20	140	120	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95	
PHF Volume:	11	21	11		137	84	42		32	368	147		21	147	126	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	11	21	11		137	84	42		32	368	147		21	147	126	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	11	21	11		137	84	42		32	368	147		21	147	126	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.95	0.95		0.95	1.00	0.85		0.95	0.96	0.96		0.95	0.93	0.93	
Lanes:	0.25	0.50	0.25		1.00	1.00	1.00		1.00	0.71	0.29		1.00	0.54	0.46	
Final Sat.:	453	907	453		1805	1900	1615		1805	1299	520		1805	952	816	
Capacity Analysis Module:																
Vol/Sat:	0.02	0.02	0.02		0.08	0.04	0.03		0.02	0.28	0.28		0.01	0.15	0.15	
Crit Moves:		****				****				****			****			
Green/Cycle:	0.14	0.14	0.14		0.14	0.14	0.14		0.19	0.39	0.39		0.10	0.30	0.30	
Volume/Cap:	0.16	0.16	0.16		0.53	0.31	0.18		0.09	0.74	0.74		0.12	0.52	0.52	
Delay/Veh:	26.6	26.6	26.6		29.9	27.6	26.8		23.4	22.5	22.5		29.0	21.6	21.6	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	26.6	26.6	26.6		29.9	27.6	26.8		23.4	22.5	22.5		29.0	21.6	21.6	
LOS by Move:	C	C	C		C	C	C		C	C	C		C	C	C	
HCM2kAvgQ:	1	1	1		3	2	1		1	10	10		0	5	5	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 French Camp Road/McDougald Boulevard

Average Delay (sec/veh): 4.5 Worst Case Level Of Service: D[25.6]

Street Name:	McDougald Boulevard								French Camp Road							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	1	0	1
Volume Module:7-8																				
Base Vol:	0		0		0	170		0		10	20		470		0	0		270		120
Growth Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	0		0		0	170		0		10	20		470		0	0		270		120
Added Vol:	0		0		0	0		0		0	0		0		0	0		0		0
PasserByVol:	0		0		0	0		0		0	0		0		0	0		0		0
Initial Fut:	0		0		0	170		0		10	20		470		0	0		270		120
User Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95
PHF Volume:	0		0		0	179		0		11	21		495		0	0		284		126
Reduct Vol:	0		0		0	0		0		0	0		0		0	0		0		0
FinalVolume:	0		0		0	179		0		11	21		495		0	0		284		126
Critical Gap Module:																				
Critical Gp:	xxxxx		xxxx		xxxxx	6.4		xxxx		6.2	4.1		xxxx		xxxxx	xxxxx		xxxx		xxxxx
FollowUpTim:	xxxxx		xxxx		xxxxx	3.5		xxxx		3.3	2.2		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Capacity Module:																				
Cnflict Vol:	xxxx		xxxx		xxxxx	821		xxxx		284	411		xxxx		xxxxx	xxxx		xxxx		xxxxx
Potent Cap.:	xxxx		xxxx		xxxxx	347		xxxx		760	1159		xxxx		xxxxx	xxxx		xxxx		xxxxx
Move Cap.:	xxxx		xxxx		xxxxx	342		xxxx		760	1159		xxxx		xxxxx	xxxx		xxxx		xxxxx
Volume/Cap:	xxxx		xxxx		xxxx	0.52		xxxx		0.01	0.02		xxxx		xxxx	xxxx		xxxx		xxxx
Level Of Service Module:																				
2Way95thQ:	xxxx		xxxx		xxxxx	2.9		xxxx		0.0	0.1		xxxx		xxxxx	xxxx		xxxx		xxxxx
Control Del:	xxxxx		xxxx		xxxxx	26.5		xxxx		9.8	8.2		xxxx		xxxxx	xxxxx		xxxx		xxxxx
LOS by Move:	*		*		*	D		*		A	A		*		*	*		*		*
Movement:	LT -		LTR -		RT	LT -		LTR -		RT	LT -		LTR -		RT	LT -		LTR -		RT
Shared Cap.:	xxxx		xxxx		xxxxx	xxxx		xxxx		xxxxx	xxxx		xxxx		xxxxx	xxxx		xxxx		xxxxx
SharedQueue:	xxxxx		xxxx		xxxxx	xxxxx		xxxx		xxxxx	0.1		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shrd ConDel:	xxxxx		xxxx		xxxxx	xxxxx		xxxx		xxxxx	8.2		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shared LOS:	*		*		*	*		*		*	A		*		*	*		*		*
ApproachDel:	xxxxxx					25.6					xxxxxx					xxxxxx				
ApproachLOS:	*					D					*					*				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #12 Manthey Road/French Camp Road

Cycle (sec): 100 Critical Vol./Cap.(X): 1.266
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 116.4
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Min. Green:	7		10		10	7		10		10	7		10		10	7		10		10
Lanes:	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	0	1	0	0	1
Volume Module:																				
Base Vol:	20		30		160	120		30		10	10		600		30	250		360		20
Growth Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	20		30		160	120		30		10	10		600		30	250		360		20
Added Vol:	0		0		0	0		0		0	0		0		0	0		0		0
PasserByVol:	0		0		0	0		0		0	0		0		0	0		0		0
Initial Fut:	20		30		160	120		30		10	10		600		30	250		360		20
User Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95
PHF Volume:	21		32		168	126		32		11	11		632		32	263		379		21
Reduct Vol:	0		0		0	0		0		0	0		0		0	0		0		0
Reduced Vol:	21		32		168	126		32		11	11		632		32	263		379		21
PCE Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
MLF Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
FinalVolume:	21		32		168	126		32		11	11		632		32	263		379		21
Saturation Flow Module:																				
Adjustment:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
Lanes:	0.10		0.14		0.76	0.75		0.19		0.06	0.01		0.94		0.05	0.41		0.59		1.00
Final Sat.:	46		70		371	330		83		28	9		515		26	208		299		581
Capacity Analysis Module:																				
Vol/Sat:	0.45		0.45		0.45	0.38		0.38		0.38	1.23		1.23		1.23	1.27		1.27		0.04
Crit Moves:	****					****					****					****				
Delay/Veh:	16.0		16.0		16.0	15.6		15.6		15.6	139.2		139		139.2	157.1		157		9.1
Delay Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
AdjDel/Veh:	16.0		16.0		16.0	15.6		15.6		15.6	139.2		139		139.2	157.1		157		9.1
LOS by Move:	C		C		C	C		C		C	F		F		F	F		F		A
ApproachDel:	16.0					15.6					139.2					152.4				
Delay Adj:	1.00					1.00					1.00					1.00				
ApprAdjDel:	16.0					15.6					139.2					152.4				
LOS by Appr:	C					C					F					F				
AllWayAvgQ:	0.8		0.8		0.8	0.6		0.6		0.6	19.8		19.8		19.8	20.7		20.7		0.0

Note: Queue reported is the number of cars per lane.

Existing + Approved
13: French Camp Rd. & I-5 SB Ramps

AM Peak Hour
4/9/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3539	1583	1770	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3539	1583	1770	3539					1681	1681	1583
Volume (vph)	0	470	440	90	310	0	0	0	0	480	0	320
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	495	463	95	326	0	0	0	0	505	0	337
RTOR Reduction (vph)	0	0	215	0	0	0	0	0	0	0	0	261
Lane Group Flow (vph)	0	495	248	95	326	0	0	0	0	253	252	76
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		42.8	42.8	7.1	53.9					18.1	18.1	18.1
Effective Green, g (s)		42.8	42.8	7.1	53.9					18.1	18.1	18.1
Actuated g/C Ratio		0.53	0.53	0.09	0.67					0.23	0.23	0.23
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1893	847	157	2384					380	380	358
v/s Ratio Prot		0.14		c0.05	0.09							
v/s Ratio Perm			c0.16							c0.15	0.15	0.05
v/c Ratio		0.26	0.29	0.61	0.14					0.67	0.66	0.21
Uniform Delay, d1		10.1	10.3	35.1	4.7					28.2	28.2	25.2
Progression Factor		1.00	1.00	1.43	0.23					1.00	1.00	1.00
Incremental Delay, d2		0.3	0.9	6.4	0.1					4.4	4.3	0.3
Delay (s)		10.4	11.1	56.5	1.2					32.6	32.5	25.5
Level of Service		B	B	E	A					C	C	C
Approach Delay (s)		10.7			13.7			0.0			29.7	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	18.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Existing + Approved
14: French Camp Rd. & I-5 NB Ramps

AM Peak Hour
4/9/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)	1770	3539			3539	1583	1681	1681	1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	1770	3539			3539	1583	1681	1681	1583			
Volume (vph)	280	670	0	0	240	270	160	0	120	0	0	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	295	705	0	0	253	284	168	0	126	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	148	0	0	114	0	0	0
Lane Group Flow (vph)	295	705	0	0	253	136	84	84	12	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Actuated Green, G (s)	21.7	64.1			38.4	38.4	7.9	7.9	7.9			
Effective Green, g (s)	21.7	64.1			38.4	38.4	7.9	7.9	7.9			
Actuated g/C Ratio	0.27	0.80			0.48	0.48	0.10	0.10	0.10			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	480	2836			1699	760	166	166	156			
v/s Ratio Prot	c0.17	c0.20			0.07							
v/s Ratio Perm						0.09	c0.05	0.05	0.01			
v/c Ratio	0.61	0.25			0.15	0.18	0.51	0.51	0.08			
Uniform Delay, d1	25.5	2.0			11.6	11.8	34.2	34.2	32.7			
Progression Factor	0.67	0.42			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	2.2	0.2			0.2	0.5	2.4	2.4	0.2			
Delay (s)	19.4	1.0			11.8	12.4	36.6	36.6	33.0			
Level of Service	B	A			B	B	D	D	C			
Approach Delay (s)		6.4			12.1			35.1			0.0	
Approach LOS		A			B			D			A	

Intersection Summary			
HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 French Camp Road/Val Dervin Parkway

Average Delay (sec/veh): OVERFLOW Worst Case Level Of Service: F[xxxxx]

Street Name:	Val Dervin Parkway						French Camp Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 1 1 0			0 1 0 1 0		
Volume Module:												
Base Vol:	50	30	10	30	20	60	250	430	110	330	400	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	30	10	30	20	60	250	430	110	330	400	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	50	30	10	30	20	60	250	430	110	330	400	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	53	32	11	32	21	63	263	453	116	347	421	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	53	32	11	32	21	63	263	453	116	347	421	0
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1953	2153	284	1884	2211	211	421	xxxx	xxxxx	568	xxxx	xxxxx
Potent Cap.:	39	49	719	44	45	801	1149	xxxx	xxxxx	1014	xxxx	xxxxx
Move Cap.:	0	22	719	0	20	801	1149	xxxx	xxxxx	1014	xxxx	xxxxx
Volume/Cap:	xxxx	1.46	0.01	xxxx	1.06	0.08	0.23	xxxx	xxxx	0.34	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.9	xxxx	xxxxx	1.5	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.1	xxxx	xxxxx	10.4	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	B	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	0	xxxxx	xxxx	0	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	1.5	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	10.4	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	B	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	F			F			*			*		

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #16 Yettner Road/ S. Manthey Road

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B[11.4]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L - T - R				L - T - R				L - T - R				L - T - R			
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0 1 0 0 0				0 0 0 1 0				0 0 1! 0 0				0 0 0 0 0			
Volume Module:																
Base Vol:	10	200	0	0	300	10	10	0	10	0	0	0				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	10	200	0	0	300	10	10	0	10	0	0	0				
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0				
Initial Fut:	10	200	0	0	300	10	10	0	10	0	0	0				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95				
PHF Volume:	11	211	0	0	316	11	11	0	11	0	0	0				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
FinalVolume:	11	211	0	0	316	11	11	0	11	0	0	0				
Critical Gap Module:																
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx				
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx				
Capacity Module:																
Cnflict Vol:	326	xxxx	xxxxx	xxxx	xxxx	xxxxx	553	553	321	xxxx	xxxx	xxxxx				
Potent Cap.:	1245	xxxx	xxxxx	xxxx	xxxx	xxxxx	498	444	724	xxxx	xxxx	xxxxx				
Move Cap.:	1245	xxxx	xxxxx	xxxx	xxxx	xxxxx	495	440	724	xxxx	xxxx	xxxxx				
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	0.02	0.00	0.01	xxxx	xxxx	xxxx				
Level Of Service Module:																
2Way95thQ:	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Control Del:	7.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*				
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT				
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	588	xxxxx	xxxx	xxxx	xxxxx				
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	xxxxx	xxxx	xxxxx				
Shrd ConDel:	7.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	11.4	xxxxx	xxxxx	xxxx	xxxxx				
Shared LOS:	A	*	*	*	*	*	*	B	*	*	*	*				
ApproachDel:	xxxxxx			xxxxxx			11.4			xxxxxx						
ApproachLOS:	*			*			B			*						

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #17 Mathews Road/South Manthey Road

Cycle (sec): 100 Critical Vol./Cap.(X): 0.653
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.6
Optimal Cycle: 0 Level Of Service: B

Street Name:	South Manthey Road						Mathews Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	0 0	1! 0	0	1 0	1 0	1	0 1	0 1	0	0 1	0 1	0
Volume Module:715-815												
Base Vol:	20	20	20	20	10	30	10	170	20	30	740	90
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	20	20	20	10	30	10	170	20	30	740	90
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	20	20	20	20	10	30	10	170	20	30	740	90
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	21	21	21	21	11	32	11	179	21	32	779	95
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	21	21	21	21	11	32	11	179	21	32	779	95
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	21	21	21	21	11	32	11	179	21	32	779	95
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.34	0.33	0.33	1.00	1.00	1.00	0.10	1.70	0.20	0.07	1.72	0.21
Final Sat.:	175	175	175	456	487	538	59	1017	122	48	1211	150
Capacity Analysis Module:												
Vol/Sat:	0.12	0.12	0.12	0.05	0.02	0.06	0.18	0.18	0.17	0.65	0.64	0.63
Crit Moves:	****					****	****			****		
Delay/Veh:	10.3	10.3	10.3	10.4	9.7	9.2	9.8	9.7	9.6	16.9	16.4	15.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.3	10.3	10.3	10.4	9.7	9.2	9.8	9.7	9.6	16.9	16.4	15.7
LOS by Move:	B	B	B	B	A	A	A	A	A	C	C	C
ApproachDel:	10.3			9.7			9.7			16.3		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.3			9.7			9.7			16.3		
LOS by Appr:	B			A			A			C		
AllWayAvgQ:	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.2	1.7	1.6	1.6

Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 Mathews Road/I-5 SB Ramps

Average Delay (sec/veh): 10.7 Worst Case Level Of Service: C[23.8]

Street Name:	I-5 SB Ramps						Mathews Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 0	0	1 0	0 1	0	0 0	1 1	0	1 0	1 0	0
Volume Module:715-815												
Base Vol:	0	0	0	140	0	410	0	170	40	60	450	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	140	0	410	0	170	40	60	450	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	140	0	410	0	170	40	60	450	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	147	0	432	0	179	42	63	474	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	147	0	432	0	179	42	63	474	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	689	821	474	xxxx	xxxx	xxxxx	221	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	414	312	595	xxxx	xxxx	xxxxx	1360	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	400	297	595	xxxx	xxxx	xxxxx	1360	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.37	0.00	0.73	xxxx	xxxx	xxxx	0.05	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	1.7	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	19.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.8	xxxx	xxxxx
LOS by Move:	*	*	*	C	*	*	*	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	595	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.1	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	25.4	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	D	*	*	*	*	*	*
ApproachDel:	xxxxxx			23.8			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 Mathews Road/I-5 NB Ramps

Average Delay (sec/veh): 58.9 Worst Case Level Of Service: F[94.8]

Street Name:	I-5 NB Ramps									Mathews Road								
Approach:	North Bound				South Bound				East Bound				West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	1	0	0	1	0	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Volume Module:	715-815																			
Base Vol:	280		0	1050		0		0		0	120	190		0		0	230		290	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	280		0	1050		0		0		0	120	190		0		0	230		290	
Added Vol:	0		0		0	0		0		0	0		0		0	0		0		0
PasserByVol:	0		0		0	0		0		0	0		0		0	0		0		0
Initial Fut:	280		0	1050		0		0		0	120	190		0		0	230		290	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95	
PHF Volume:	295		0	1105		0		0		0	126	200		0		0	242		305	
Reduct Vol:	0		0		0	0		0		0	0		0		0	0		0		0
FinalVolume:	295		0	1105		0		0		0	126	200		0		0	242		305	
Critical Gap Module:																				
Critical Gp:	6.4	6.5		6.2	xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
FollowUpTim:	3.5	4.0		3.3	xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
Capacity Module:																				
Cnflict Vol:	847	1000		100	xxxx	xxxx	xxxxx		547	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Potent Cap.:	335	245		961	xxxx	xxxx	xxxxx		1032	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Move Cap.:	303	215		961	xxxx	xxxx	xxxxx		1032	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Volume/Cap:	0.97	0.00		1.15	xxxx	xxxx	xxxx		0.12	xxxx	xxxx	xxxx	xxxx	xxxx						
Level Of Service Module:																				
2Way95thQ:	10.0	xxxx	xxxxx		xxxx	xxxx	xxxxx		0.4	xxxx	xxxxx	xxxx	xxxx	xxxxx						
Control Del:	82.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx		9.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx							
LOS by Move:	F		*		*	*		*		A	*		*		*					
Movement:	LT - LTR - RT					LT - LTR - RT					LT - LTR - RT					LT - LTR - RT				
Shared Cap.:	xxxx	xxxx		961	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx						
SharedQueue:	xxxxx	xxxx		31.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxxx	xxxx	xxxxx						
Shrd ConDel:	xxxxx	xxxx		98.0	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxxx	xxxx	xxxxx						
Shared LOS:	*		*		F	*		*		*	*		*		*	*		*		
ApproachDel:	94.8					xxxxxx					xxxxxx					xxxxxx				
ApproachLOS:	F					*					*					*				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #20 Howard Road/ Wolfe Road

Average Delay (sec/veh): 5.8 Worst Case Level Of Service: B[14.0]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	10		20		40	100		20		60	10		60		10	10		240		10
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	10		20		40	100		20		60	10		60		10	10		240		10
Added Vol:	0		0		0	0		0		0	0		0		0	0		0		0
PasserByVol:	0		0		0	0		0		0	0		0		0	0		0		0
Initial Fut:	10		20		40	100		20		60	10		60		10	10		240		10
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95	
PHF Volume:	11		21		42	105		21		63	11		63		11	11		253		11
Reduct Vol:	0		0		0	0		0		0	0		0		0	0		0		0
FinalVolume:	11		21		42	105		21		63	11		63		11	11		253		11
Critical Gap Module:																				
Critical Gp:	7.1		6.5		6.2	7.1		6.5		6.2	4.1	xxxx	xxxxx			4.1	xxxx	xxxxx		
FollowUpTim:	3.5		4.0		3.3	3.5		4.0		3.3	2.2	xxxx	xxxxx			2.2	xxxx	xxxxx		
Capacity Module:																				
Cnflict Vol:	411		374		68	400		374		258	263	xxxx	xxxxx			74	xxxx	xxxxx		
Potent Cap.:	555		560		1000	564		560		786	1313	xxxx	xxxxx			1539	xxxx	xxxxx		
Move Cap.:	490		552		1000	519		552		786	1313	xxxx	xxxxx			1539	xxxx	xxxxx		
Volume/Cap:	0.02	0.04		0.04		0.20	0.04		0.08		0.01	xxxx		xxxx		0.01	xxxx		xxxx	
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		0.0	xxxx	xxxxx			0.0	xxxx	xxxxx				
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		7.8	xxxx	xxxxx			7.4	xxxx	xxxxx					
LOS by Move:	*		*		*	*		*		*	A		*		*	A		*		
Movement:	LT - LTR - RT					LT - LTR - RT					LT - LTR - RT					LT - LTR - RT				
Shared Cap.:	xxxx		724	xxxxx		xxxx		589	xxxxx		xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx		0.3	xxxxx	xxxxx		1.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx						
Shrd ConDel:	xxxxx		10.5	xxxxx	xxxxx	14.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx							
Shared LOS:	*		B		*	*		B		*	*		*		*	*		*		
ApproachDel:	10.5					14.0					xxxxxx					xxxxxx				
ApproachLOS:	B					B					*					*				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Scenario Report

Scenario:	Exist+App PM
Command:	Ex+App PM
Volume:	Existing + Approved PM
Geometry:	Existing Plus Approved
Impact Fee:	Default Impact Fee
Trip Generation:	No Project
Trip Distribution:	Existing
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Carolyn Weston Boulevard/McDougald Boulevard

Cycle (sec): 60 Critical Vol./Cap.(X): 0.588
Loss Time (sec): 16 (Y+R=5.0 sec) Average Delay (sec/veh): 27.5
Optimal Cycle: 50 Level Of Service: C

Street Name:	McDougald Boulevard						Carolyn Weston Boulevard					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0 1	0 1		1 0	0 1	0	1 0 1	1 0		1 0 1	1 0	
Volume Module:5-6												
Base Vol:	50	10	150	50	5	5	10	550	30	300	1000	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	10	150	50	5	5	10	550	30	300	1000	20
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	50	10	150	50	5	5	10	550	30	300	1000	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	53	11	158	53	5	5	11	579	32	316	1053	21
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	53	11	158	53	5	5	11	579	32	316	1053	21
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	53	11	158	53	5	5	11	579	32	316	1053	21
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	0.93	0.93	0.95	0.94	0.94	0.95	0.95	0.95
Lanes:	1.00	1.00	1.00	1.00	0.50	0.50	1.00	1.90	0.10	1.00	1.96	0.04
Final Sat.:	1805	1900	1615	1805	879	879	1805	3396	185	1805	3529	71
Capacity Analysis Module:												
Vol/Sat:	0.03	0.01	0.10	0.03	0.01	0.01	0.01	0.17	0.17	0.17	0.30	0.30
Crit Moves:			****	****			****				****	
Green/Cycle:	0.12	0.17	0.17	0.12	0.17	0.17	0.12	0.22	0.22	0.23	0.33	0.33
Volume/Cap:	0.25	0.03	0.59	0.25	0.04	0.04	0.05	0.77	0.77	0.77	0.89	0.89
Delay/Veh:	24.7	21.0	26.4	24.7	21.0	21.0	23.6	26.4	26.4	30.2	27.9	27.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	24.7	21.0	26.4	24.7	21.0	21.0	23.6	26.4	26.4	30.2	27.9	27.9
LOS by Move:	C	C	C	C	C	C	C	C	C	C	C	C
HCM2kAvgQ:	1	0	4	1	0	0	0	8	8	7	14	14

Note: Queue reported is the number of cars per lane.

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Exist+App PM                Wed Apr 9, 2008 16:31:42                    Page 5-1
------------------------------------------------------------------------------
                          Weston Ranch Towne Center EIR
                            Near-Term Without Project
                                  PM Peak Hour
------------------------------------------------------------------------------
                       Level Of Service Computation Report
              2000 HCM Operations Method (Future Volume Alternative)
******************************************************************************
Intersection #2 Carolyn Weston Boulevard/S. Manthey Road
******************************************************************************
Cycle (sec):          90                 Critical Vol./Cap.(X):         0.837
Loss Time (sec):      16 (Y+R=5.0 sec)   Average Delay (sec/veh):        36.4
Optimal Cycle:        91                 Level Of Service:                 D
******************************************************************************
Street Name:         S. Manthey Road              Carolyn Weston Boulevard
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:            Ovl              Include          Include          Include
Min. Green:     7   10    10     7   10    10     7   10    10     7   10    10
Lanes:        1  0  1  0  1    1  0  1  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:5-6
Base Vol:     200   90   130   190   70   170   200  500    50   300  950   200
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  200   90   130   190   70   170   200  500    50   300  950   200
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  200   90   130   190   70   170   200  500    50   300  950   200
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:   211   95   137   200   74   179   211  526    53   316 1000   211
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  211   95   137   200   74   179   211  526    53   316 1000   211
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  211   95   137   200   74   179   211  526    53   316 1000   211
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 1.00  0.85  0.95 1.00  0.85  0.95 0.94  0.94  0.95 0.93  0.93
Lanes:       1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.82  0.18  1.00 1.65  0.35
Final Sat.:  1805 1900  1615  1805 1900  1615  1805 3236   324  1805 2905   612
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.05  0.08  0.11 0.04  0.11  0.12 0.16  0.16  0.17 0.34  0.34
Crit Moves:  ****                        ****  ****                  ****
Green/Cycle: 0.14 0.14  0.42  0.14 0.13  0.13  0.14 0.27  0.27  0.29 0.41  0.41
Volume/Cap:  0.84 0.37  0.20  0.82 0.29  0.84  0.84 0.61  0.61  0.61 0.84  0.84
Delay/Veh:   58.9 36.2  16.6  56.7 35.9  62.2  58.9 30.2  30.2  30.1 28.3  28.3
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  58.9 36.2  16.6  56.7 35.9  62.2  58.9 30.2  30.2  30.1 28.3  28.3
LOS by Move:   E    D     B     E    D     E     E    C     C     C    C     C
HCM2kAvgQ:     8    3     2     8    2     7     8    8     8     8   17    17
******************************************************************************
Note: Queue reported is the number of cars per lane.

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HCM Signalized Intersection Capacity Analysis — Near-Term without Project

3: Downing Avenue & I-5 SB Ramps — PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.91	1.00	1.00	0.95						1.00	0.88
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539						1770	2787
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		5085	1583	1770	3539						1770	2787
Volume (vph)	0	710	160	20	590	0	0	0	0	370	0	800
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	747	168	21	621	0	0	0	0	389	0	842
RTOR Reduction (vph)	0	0	89	0	0	0	0	0	0	0	0	139
Lane Group Flow (vph)	0	747	79	21	621	0	0	0	0	0	389	703
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		33.1	33.1	1.2	38.3						23.7	23.7
Effective Green, g (s)		33.1	33.1	1.2	38.3						23.7	23.7
Actuated g/C Ratio		0.47	0.47	0.02	0.55						0.34	0.34
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		2404	749	30	1936						599	944
v/s Ratio Prot		0.15		0.01	c0.18							
v/s Ratio Perm			0.05								0.22	c0.25
v/c Ratio		0.31	0.11	0.70	0.32						0.65	0.74
Uniform Delay, d1		11.4	10.2	34.2	8.7						19.6	20.5
Progression Factor		1.00	1.00	0.71	1.35						1.00	1.00
Incremental Delay, d2		0.3	0.3	46.4	0.4						2.4	3.2
Delay (s)		11.7	10.5	70.8	12.2						22.1	23.7
Level of Service		B	B	E	B						C	C
Approach Delay (s)		11.5			14.1			0.0			23.2	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	17.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Downing Avenue & I-5 NB Ramps

Near-Term without Project
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Util. Factor	0.97	1.00			0.95			1.00	1.00			
Frt	1.00	1.00			0.92			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	3433	1863			3266			1777	1583			
Flt Permitted	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	3433	1863			3266			1777	1583			
Volume (vph)	600	480	0	0	330	350	280	10	40	0	0	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	505	0	0	347	368	295	11	42	0	0	0
RTOR Reduction (vph)	0	0	0	0	238	0	0	0	32	0	0	0
Lane Group Flow (vph)	632	505	0	0	477	0	0	306	10	0	0	0
Turn Type	Prot						Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases							2		2			
Actuated Green, G (s)	16.9	45.7			24.8			16.3	16.3			
Effective Green, g (s)	16.9	45.7			24.8			16.3	16.3			
Actuated g/C Ratio	0.24	0.65			0.35			0.23	0.23			
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	829	1216			1157			414	369			
v/s Ratio Prot	c0.18	c0.27			0.15							
v/s Ratio Perm								0.17	0.01			
v/c Ratio	0.76	0.42			0.41			0.74	0.03			
Uniform Delay, d1	24.7	5.8			17.1			24.9	20.7			
Progression Factor	0.96	1.12			1.00			1.00	1.00			
Incremental Delay, d2	4.0	1.0			1.1			6.8	0.0			
Delay (s)	27.8	7.5			18.2			31.7	20.8			
Level of Service	C	A			B			C	C			
Approach Delay (s)		18.8			18.2			30.3			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM Average Control Delay	20.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			


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-------------------------------------------------------------------------------
                          Weston Ranch Towne Center EIR
                            Near-Term Without Project
                                  PM Peak Hour
-------------------------------------------------------------------------------
                       Level Of Service Computation Report
            2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #5 Downing Avenue/French Camp Turnpike
*******************************************************************************
Average Delay (sec/veh):     90.2       Worst Case Level Of Service: F[441.7]
*******************************************************************************
Street Name:       French Camp Turnpike                 Downing Avenue
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:4-5
Base Vol:     230   10    10    10   10   100   150  250   120    10  350    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  230   10    10    10   10   100   150  250   120    10  350    10
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  230   10    10    10   10   100   150  250   120    10  350    10
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:   242   11    11    11   11   105   158  263   126    11  368    11
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:  242   11    11    11   11   105   158  263   126    11  368    11
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1095 1042   326  1047 1100   374   379 xxxx xxxxx   389 xxxx xxxxx
Potent Cap.:  193  231   720   208  214   677  1191 xxxx xxxxx  1180 xxxx xxxxx
Move Cap.:    139  199   720   176  184   677  1191 xxxx xxxxx  1180 xxxx xxxxx
Volume/Cap:  1.74 0.05  0.01  0.06 0.06  0.16  0.13 xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.5 xxxx xxxxx   0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.5 xxxx xxxxx   8.1 xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     A    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  146 xxxxx  xxxx  463 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx 19.7 xxxxx xxxxx  1.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx  442 xxxxx xxxxx 15.7 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    F     *     *    C     *     *    *     *     *    *     *
ApproachDel:     441.7             15.7           xxxxxx           xxxxxx
ApproachLOS:        F                C                *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************

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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 William Moss Boulevard/McDougald Boulevard

Cycle (sec): 60 Critical Vol./Cap.(X): 0.431
Loss Time (sec): 16 (Y+R=5.0 sec) Average Delay (sec/veh): 21.2
Optimal Cycle: 50 Level Of Service: C

Street Name:	McDougald Boulevard						William Moss Boulevard					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0
Volume Module:445-545												
Base Vol:	10	200	170	120	10	70	80	240	20	50	230	50
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	200	170	120	10	70	80	240	20	50	230	50
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	10	200	170	120	10	70	80	240	20	50	230	50
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	11	211	179	126	11	74	84	253	21	53	242	53
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	11	211	179	126	11	74	84	253	21	53	242	53
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	11	211	179	126	11	74	84	253	21	53	242	53
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.88	0.88	0.95	0.83	0.83	0.95	0.94	0.94	0.95	0.92	0.92
Lanes:	1.00	1.08	0.92	1.00	1.00	1.00	1.00	1.85	0.15	1.00	1.64	0.36
Final Sat.:	1805	1817	1544	1805	1569	1569	1805	3292	274	1805	2885	627
Capacity Analysis Module:												
Vol/Sat:	0.01	0.12	0.12	0.07	0.01	0.05	0.05	0.08	0.08	0.03	0.08	0.08
Crit Moves:		****		****			****				****	
Green/Cycle:	0.17	0.26	0.26	0.16	0.25	0.25	0.12	0.18	0.18	0.13	0.19	0.19
Volume/Cap:	0.03	0.44	0.44	0.44	0.03	0.19	0.40	0.42	0.42	0.23	0.44	0.44
Delay/Veh:	20.6	18.7	18.7	23.8	17.0	17.9	25.8	22.2	22.2	24.1	21.8	21.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	20.6	18.7	18.7	23.8	17.0	17.9	25.8	22.2	22.2	24.1	21.8	21.8
LOS by Move:	C	B	B	C	B	B	C	C	C	C	C	C
HCM2kAvgQ:	0	3	3	3	0	1	2	3	3	1	3	3

Note: Queue reported is the number of cars per lane.

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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 William Moss Boulevard/S. Manthey Road

Cycle (sec): 60 Critical Vol./Cap.(X): 0.431
Loss Time (sec): 12 (Y+R=5.0 sec) Average Delay (sec/veh): 17.0
Optimal Cycle: 39 Level Of Service: B

Street Name:							William Moss Boulevard					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Permitted			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0	1	0 0	0 0	0	1 0	1 0	0	1	0 0	0	0 0
Volume Module:5-6												
Base Vol:	130	100	0	0	90	170	190	0	170	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	130	100	0	0	90	170	190	0	170	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	130	100	0	0	90	170	190	0	170	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	137	105	0	0	95	179	200	0	179	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	137	105	0	0	95	179	200	0	179	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	137	105	0	0	95	179	200	0	179	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	1.00	0.91	0.91	0.95	1.00	0.85	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	0.35	0.65	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1805	1900	0	0	600	1133	1805	0	1615	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.08	0.06	0.00	0.00	0.16	0.16	0.11	0.00	0.11	0.00	0.00	0.00
Crit Moves:	****				****				****			
Green/Cycle:	0.18	0.54	0.00	0.00	0.37	0.37	0.26	0.00	0.26	0.00	0.00	0.00
Volume/Cap:	0.43	0.10	0.00	0.00	0.43	0.43	0.43	0.00	0.43	0.00	0.00	0.00
Delay/Veh:	23.0	6.7	0.0	0.0	14.8	14.8	19.3	0.0	19.3	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.0	6.7	0.0	0.0	14.8	14.8	19.3	0.0	19.3	0.0	0.0	0.0
LOS by Move:	C	A	A	A	B	B	B	A	B	A	A	A
HCM2kAvgQ:	3	1	0	0	4	4	3	0	3	0	0	0

Note: Queue reported is the number of cars per lane.

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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 Henry Long Boulevard/McDougald Boulevard

Cycle (sec): 100 Critical Vol./Cap.(X): 0.306
Loss Time (sec): 0 (Y+R=5.0 sec) Average Delay (sec/veh): 9.6
Optimal Cycle: 0 Level Of Service: A

Street Name:	McDougald Boulevard						Henry Long Boulevard					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0
Volume Module:												
Base Vol:	70	130	20	20	40	60	170	10	90	10	10	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	70	130	20	20	40	60	170	10	90	10	10	10
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	70	130	20	20	40	60	170	10	90	10	10	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	74	137	21	21	42	63	179	11	95	11	11	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	74	137	21	21	42	63	179	11	95	11	11	11
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	74	137	21	21	42	63	179	11	95	11	11	11
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.87	0.13	1.00	0.40	0.60	1.00	0.10	0.90	1.00	0.50	0.50
Final Sat.:	581	558	86	565	265	397	584	71	641	543	311	311
Capacity Analysis Module:												
Vol/Sat:	0.13	0.25	0.25	0.04	0.16	0.16	0.31	0.15	0.15	0.02	0.03	0.03
Crit Moves:		****			****		****				****	
Delay/Veh:	9.5	9.7	9.7	9.0	8.8	8.8	11.2	8.3	8.3	9.1	8.3	8.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.5	9.7	9.7	9.0	8.8	8.8	11.2	8.3	8.3	9.1	8.3	8.3
LOS by Move:	A	A	A	A	A	A	B	A	A	A	A	A
ApproachDel:	9.7			8.8			10.1			8.6		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.7			8.8			10.1			8.6		
LOS by Appr:	A			A			B			A		
AllWayAvgQ:	0.1	0.3	0.3	0.0	0.2	0.2	0.4	0.2	0.2	0.0	0.0	0.0

Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 Wolfe Road / French Camp Road

Cycle (sec): 70 Critical Vol./Cap.(X): 0.779
Loss Time (sec): 16 (Y+R=5.0 sec) Average Delay (sec/veh): 35.1
Optimal Cycle: 71 Level Of Service: D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L - T - R				L - T - R				L - T - R				L - T - R			
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	0 0	1! 0	0		1 0	1 0	1		1 0	0 1	0		1 0	0 1	0	
Volume Module:																
Base Vol:	30	210	80		60	20	10		10	110	10		10	240	210	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	30	210	80		60	20	10		10	110	10		10	240	210	
Added Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	30	210	80		60	20	10		10	110	10		10	240	210	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95	
PHF Volume:	32	221	84		63	21	11		11	116	11		11	253	221	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	32	221	84		63	21	11		11	116	11		11	253	221	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	32	221	84		63	21	11		11	116	11		11	253	221	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.96	0.96	0.96		0.95	1.00	0.85		0.95	0.99	0.99		0.95	0.93	0.93	
Lanes:	0.09	0.66	0.25		1.00	1.00	1.00		1.00	0.92	0.08		1.00	0.53	0.47	
Final Sat.:	171	1198	457		1805	1900	1615		1805	1721	156		1805	942	825	
Capacity Analysis Module:																
Vol/Sat:	0.18	0.18	0.18		0.03	0.01	0.01		0.01	0.07	0.07		0.01	0.27	0.27	
Crit Moves:			****			****			****					****		
Green/Cycle:	0.22	0.22	0.22		0.14	0.14	0.14		0.10	0.24	0.24		0.17	0.31	0.31	
Volume/Cap:	0.86	0.86	0.86		0.24	0.08	0.05		0.06	0.28	0.28		0.03	0.86	0.86	
Delay/Veh:	43.1	43.1	43.1		27.1	26.1	26.0		28.7	21.8	21.8		24.3	35.1	35.1	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	43.1	43.1	43.1		27.1	26.1	26.0		28.7	21.8	21.8		24.3	35.1	35.1	
LOS by Move:	D	D	D		C	C	C		C	C	C		C	D	D	
HCM2kAvgQ:	10	10	10		1	0	0		0	2	2		0	13	13	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 French Camp Road/McDougald Boulevard

Average Delay (sec/veh): 4.8 Worst Case Level Of Service: D[30.2]

Street Name:	McDougald Boulevard									French Camp Road								
Approach:	North Bound				South Bound				East Bound				West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	1	0	1
Volume Module: >> Count Date: 21 May 2003 << 5-6																				
Base Vol:	0		0		0	140		0		20	90		270		0	0		440		220
Growth Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	0		0		0	140		0		20	90		270		0	0		440		220
Added Vol:	0		0		0	0		0		0	0		0		0	0		0		0
PasserByVol:	0		0		0	0		0		0	0		0		0	0		0		0
Initial Fut:	0		0		0	140		0		20	90		270		0	0		440		220
User Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95
PHF Volume:	0		0		0	147		0		21	95		284		0	0		463		232
Reduct Vol:	0		0		0	0		0		0	0		0		0	0		0		0
FinalVolume:	0		0		0	147		0		21	95		284		0	0		463		232
Critical Gap Module:																				
Critical Gp:	xxxxx		xxxx		xxxxx	6.4		xxxx		6.2	4.1		xxxx		xxxxx	xxxxx		xxxx		xxxxx
FollowUpTim:	xxxxx		xxxx		xxxxx	3.5		xxxx		3.3	2.2		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Capacity Module:																				
Cnflict Vol:	xxxx		xxxx		xxxxx	937		xxxx		463	695		xxxx		xxxxx	xxxx		xxxx		xxxxx
Potent Cap.:	xxxx		xxxx		xxxxx	296		xxxx		603	910		xxxx		xxxxx	xxxx		xxxx		xxxxx
Move Cap.:	xxxx		xxxx		xxxxx	271		xxxx		603	910		xxxx		xxxxx	xxxx		xxxx		xxxxx
Volume/Cap:	xxxx		xxxx		xxxx	0.54		xxxx		0.03	0.10		xxxx		xxxx	xxxx		xxxx		xxxx
Level Of Service Module:																				
2Way95thQ:	xxxx		xxxx		xxxxx	3.0		xxxx		0.1	0.3		xxxx		xxxxx	xxxx		xxxx		xxxxx
Control Del:	xxxxx		xxxx		xxxxx	33.0		xxxx		11.2	9.4		xxxx		xxxxx	xxxxx		xxxx		xxxxx
LOS by Move:	*		*		*	D		*		B	A		*		*	*		*		*
Movement:	LT -		LTR -		RT	LT -		LTR -		RT	LT -		LTR -		RT	LT -		LTR -		RT
Shared Cap.:	xxxx		xxxx		xxxxx	xxxx		xxxx		xxxxx	xxxx		xxxx		xxxxx	xxxx		xxxx		xxxxx
SharedQueue:	xxxxx		xxxx		xxxxx	xxxxx		xxxx		xxxxx	0.3		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shrd ConDel:	xxxxx		xxxx		xxxxx	xxxxx		xxxx		xxxxx	9.4		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shared LOS:	*		*		*	*		*		*	A		*		*	*		*		*
ApproachDel:	xxxxxx					30.2					xxxxxx					xxxxxx				
ApproachLOS:	*					D					*					*				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #12 Manthey Road/French Camp Road

Cycle (sec): 100 Critical Vol./Cap.(X): 1.580
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 137.2
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Min. Green:	7		10		10	7		10		10	7		10		10	7		10		10
Lanes:	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	0	1	0	0	1
Volume Module:																				
Base Vol:	30		90		280	80		50		10	10		390		10	90		620		100
Growth Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	30		90		280	80		50		10	10		390		10	90		620		100
Added Vol:	0		0		0	0		0		0	0		0		0	0		0		0
PasserByVol:	0		0		0	0		0		0	0		0		0	0		0		0
Initial Fut:	30		90		280	80		50		10	10		390		10	90		620		100
User Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95
PHF Volume:	32		95		295	84		53		11	11		411		11	95		653		105
Reduct Vol:	0		0		0	0		0		0	0		0		0	0		0		0
Reduced Vol:	32		95		295	84		53		11	11		411		11	95		653		105
PCE Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
MLF Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
FinalVolume:	32		95		295	84		53		11	11		411		11	95		653		105
Saturation Flow Module:																				
Adjustment:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
Lanes:	0.08		0.22		0.70	0.57		0.36		0.07	0.02		0.96		0.02	0.13		0.87		1.00
Final Sat.:	38		113		351	224		140		28	12		461		12	60		413		526
Capacity Analysis Module:																				
Vol/Sat:	0.84		0.84		0.84	0.38		0.38		0.38	0.89		0.89		0.89	1.58		1.58		0.20
Crit Moves:			****					****			****					****				
Delay/Veh:	35.3		35.3		35.3	16.1		16.1		16.1	43.8		43.8		43.8	290.1		290		11.2
Delay Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
AdjDel/Veh:	35.3		35.3		35.3	16.1		16.1		16.1	43.8		43.8		43.8	290.1		290		11.2
LOS by Move:	E		E		E	C		C		C	E		E		E	F		F		B
ApproachDel:	35.3					16.1					43.8					255.7				
Delay Adj:	1.00					1.00					1.00					1.00				
ApprAdjDel:	35.3					16.1					43.8					255.7				
LOS by Appr:	E					C					E					F				
AllWayAvgQ:	3.5		3.5		3.5	0.5		0.5		0.5	4.5		4.5		4.5	36.8		36.8		0.2

Note: Queue reported is the number of cars per lane.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3539	1583	1770	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3539	1583	1770	3539					1681	1681	1583
Volume (vph)	0	590	170	90	580	0	0	0	0	380	0	230
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	621	179	95	611	0	0	0	0	400	0	242
RTOR Reduction (vph)	0	0	77	0	0	0	0	0	0	0	0	197
Lane Group Flow (vph)	0	621	102	95	611	0	0	0	0	200	200	45
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		45.4	45.4	7.8	57.2					14.8	14.8	14.8
Effective Green, g (s)		45.4	45.4	7.8	57.2					14.8	14.8	14.8
Actuated g/C Ratio		0.57	0.57	0.10	0.72					0.18	0.18	0.18
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		2008	898	173	2530					311	311	293
v/s Ratio Prot		c0.18		c0.05	0.17							
v/s Ratio Perm			0.06							c0.12	0.12	0.03
v/c Ratio		0.31	0.11	0.55	0.24					0.64	0.64	0.15
Uniform Delay, d1		9.1	8.0	34.4	3.9					30.2	30.2	27.3
Progression Factor		1.00	1.00	0.98	1.81					1.00	1.00	1.00
Incremental Delay, d2		0.4	0.3	3.4	0.2					4.5	4.5	0.2
Delay (s)		9.5	8.3	37.1	7.3					34.7	34.7	27.6
Level of Service		A	A	D	A					C	C	C
Approach Delay (s)		9.2			11.3			0.0			32.0	
Approach LOS		A			B			A			C	

Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)	1770	3539			3539	1583	1681	1681	1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	1770	3539			3539	1583	1681	1681	1583			
Volume (vph)	430	540	0	0	350	380	320	0	120	0	0	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	453	568	0	0	368	400	337	0	126	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	249	0	0	105	0	0	0
Lane Group Flow (vph)	453	568	0	0	368	152	169	168	21	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Actuated Green, G (s)	24.6	58.9			30.3	30.3	13.1	13.1	13.1			
Effective Green, g (s)	24.6	58.9			30.3	30.3	13.1	13.1	13.1			
Actuated g/C Ratio	0.31	0.74			0.38	0.38	0.16	0.16	0.16			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	544	2606			1340	600	275	275	259			
v/s Ratio Prot	c0.26	0.16			c0.10							
v/s Ratio Perm						0.10	c0.10	0.10	0.01			
v/c Ratio	0.83	0.22			0.27	0.25	0.61	0.61	0.08			
Uniform Delay, d1	25.8	3.3			17.2	17.1	31.1	31.1	28.3			
Progression Factor	0.67	0.52			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	10.2	0.2			0.5	1.0	4.0	4.0	0.1			
Delay (s)	27.4	1.9			17.7	18.1	35.1	35.1	28.5			
Level of Service	C	A			B	B	D	D	C			
Approach Delay (s)		13.2			17.9			33.3			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM Average Control Delay	19.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 French Camp Road/Val Dervin Parkway

Average Delay (sec/veh): 20.6 Worst Case Level Of Service: F[165.1]

Street Name:	Val Dervin Parkway									French Camp Road								
Approach:	North Bound				South Bound				East Bound				West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	1	1	0	0	1	0	1	0
Volume Module:																				
Base Vol:	70	10	10			60	10	210			90	490	80			90	450			0
Growth Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00			1.00
Initial Bse:	70	10	10			60	10	210			90	490	80			90	450			0
Added Vol:	0	0	0			0	0	0			0	0	0			0	0			0
PasserByVol:	0	0	0			0	0	0			0	0	0			0	0			0
Initial Fut:	70	10	10			60	10	210			90	490	80			90	450			0
User Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00			1.00
PHF Adj:	0.95	0.95	0.95			0.95	0.95	0.95			0.95	0.95	0.95			0.95	0.95			0.95
PHF Volume:	74	11	11			63	11	221			95	516	84			95	474			0
Reduct Vol:	0	0	0			0	0	0			0	0	0			0	0			0
FinalVolume:	74	11	11			63	11	221			95	516	84			95	474			0
Critical Gap Module:																				
Critical Gp:	7.5	6.5	6.9			7.5	6.5	6.9			4.1	xxxx	xxxxx			4.1	xxxx	xxxxx		
FollowUpTim:	3.5	4.0	3.3			3.5	4.0	3.3			2.2	xxxx	xxxxx			2.2	xxxx	xxxxx		
Capacity Module:																				
Cnflict Vol:	1179	1411	300			1116	1453	237			474	xxxx	xxxxx			600	xxxx	xxxxx		
Potent Cap.:	148	140	702			165	132	771			1099	xxxx	xxxxx			987	xxxx	xxxxx		
Move Cap.:	85	115	702			131	108	771			1099	xxxx	xxxxx			987	xxxx	xxxxx		
Volume/Cap:	0.87	0.09	0.01			0.48	0.10	0.29			0.09	xxxx	xxxx			0.10	xxxx	xxxx		
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			0.3	xxxx	xxxxx			0.3	xxxx	xxxxx		
Control Del:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			8.6	xxxx	xxxxx			9.0	xxxx	xxxxx		
LOS by Move:	*	*	*			*	*	*			A	*	*			A	*	*		
Movement:	LT -	LTR -	RT			LT -	LTR -	RT			LT -	LTR -	RT			LT -	LTR -	RT		
Shared Cap.:	xxxx	97	xxxxx			xxxx	340	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx	5.8	xxxxx			xxxxx	8.1	xxxxx			xxxxx	xxxx	xxxxx			0.3	xxxx	xxxxx		
Shrd ConDel:	xxxxx	165	xxxxx			xxxxx	56.8	xxxxx			xxxxx	xxxx	xxxxx			9.0	xxxx	xxxxx		
Shared LOS:	*	F	*			*	F	*			*	*	*			A	*	*		
ApproachDel:	165.1					56.8					xxxxxx					xxxxxx				
ApproachLOS:	F					F					*					*				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #16 Yettner Road/ S. Manthey Road

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: B[11.0]

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Volume Module:																				
Base Vol:	10	390	0			0	140	10			10	0	10			0	0	0		
Growth Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
Initial Bse:	10	390	0			0	140	10			10	0	10			0	0	0		
Added Vol:	0	0	0			0	0	0			0	0	0			0	0	0		
PasserByVol:	0	0	0			0	0	0			0	0	0			0	0	0		
Initial Fut:	10	390	0			0	140	10			10	0	10			0	0	0		
User Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
PHF Adj:	0.95	0.95	0.95			0.95	0.95	0.95			0.95	0.95	0.95			0.95	0.95	0.95		
PHF Volume:	11	411	0			0	147	11			11	0	11			0	0	0		
Reduct Vol:	0	0	0			0	0	0			0	0	0			0	0	0		
FinalVolume:	11	411	0			0	147	11			11	0	11			0	0	0		
Critical Gap Module:																				
Critical Gp:	4.1	xxxx	xxxxx			xxxxx	xxxx	xxxxx			6.4	6.5	6.2			xxxxx	xxxx	xxxxx		
FollowUpTim:	2.2	xxxx	xxxxx			xxxxx	xxxx	xxxxx			3.5	4.0	3.3			xxxxx	xxxx	xxxxx		
Capacity Module:																				
Cnflict Vol:	158	xxxx	xxxxx			xxxx	xxxx	xxxxx			584	584	153			xxxx	xxxx	xxxxx		
Potent Cap.:	1434	xxxx	xxxxx			xxxx	xxxx	xxxxx			477	426	899			xxxx	xxxx	xxxxx		
Move Cap.:	1434	xxxx	xxxxx			xxxx	xxxx	xxxxx			475	423	899			xxxx	xxxx	xxxxx		
Volume/Cap:	0.01	xxxx	xxxx			xxxx	xxxx	xxxx			0.02	0.00	0.01			xxxx	xxxx	xxxx		
Level Of Service Module:																				
2Way95thQ:	0.0	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
Control Del:	7.5	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
LOS by Move:	A	*	*			*	*	*			*	*	*			*	*	*		
Movement:	LT -	LTR -	RT			LT -	LTR -	RT			LT -	LTR -	RT			LT -	LTR -	RT		
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	621	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	0.0	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	0.1	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	7.5	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	11.0	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	A	*	*			*	*	*			*	B	*			*	*	*		
ApproachDel:	xxxxxx					xxxxxx					11.0					xxxxxx				
ApproachLOS:	*					*					B					*				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #17 Mathews Road/South Manthey Road

Cycle (sec): 100 Critical Vol./Cap.(X): 0.543
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 13.3
Optimal Cycle: 0 Level Of Service: B

Street Name:	South Manthey Road						Mathews Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	0 0	1! 0	0	1 0	1 0	1	0 1	0 1	0	0 1	0 1	0
Volume Module:430-530												
Base Vol:	10	40	30	80	30	20	30	590	10	30	310	50
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	40	30	80	30	20	30	590	10	30	310	50
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	10	40	30	80	30	20	30	590	10	30	310	50
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	11	42	32	84	32	21	32	621	11	32	326	53
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	11	42	32	84	32	21	32	621	11	32	326	53
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	11	42	32	84	32	21	32	621	11	32	326	53
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.12	0.50	0.38	1.00	1.00	1.00	0.10	1.87	0.03	0.15	1.59	0.26
Final Sat.:	61	244	183	447	475	523	58	1150	20	88	925	152
Capacity Analysis Module:												
Vol/Sat:	0.17	0.17	0.17	0.19	0.07	0.04	0.54	0.54	0.54	0.36	0.35	0.35
Crit Moves:		****		****			****			****		
Delay/Veh:	11.2	11.2	11.2	11.9	10.2	9.3	15.0	14.9	14.7	12.1	11.8	11.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.2	11.2	11.2	11.9	10.2	9.3	15.0	14.9	14.7	12.1	11.8	11.5
LOS by Move:	B	B	B	B	B	A	C	B	B	B	B	B
ApproachDel:	11.2			11.1			14.9			11.8		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	11.2			11.1			14.9			11.8		
LOS by Appr:	B			B			B			B		
AllWayAvgQ:	0.2	0.2	0.2	0.2	0.1	0.0	1.1	1.1	1.1	0.5	0.5	0.5

Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 Mathews Road/I-5 SB Ramps

Average Delay (sec/veh): 3.4 Worst Case Level Of Service: B[13.7]

Street Name:	I-5 SB Ramps						Mathews Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 0	0	1 0	0 1	0	0 0	1 1	0	1 0	1 0	0
Volume Module:445-545												
Base Vol:	0	0	0	120	0	160	0	600	100	50	230	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	120	0	160	0	600	100	50	230	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	120	0	160	0	600	100	50	230	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	126	0	168	0	632	105	53	242	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	126	0	168	0	632	105	53	242	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	663	1084	242	xxxx	xxxx	xxxxx	737	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	429	219	802	xxxx	xxxx	xxxxx	878	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	410	206	802	xxxx	xxxx	xxxxx	878	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.31	0.00	0.21	xxxx	xxxx	xxxx	0.06	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	1.3	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	17.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.4	xxxx	xxxxx
LOS by Move:	*	*	*	C	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	802	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	0.8	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	10.7	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	B	*	*	*	*	*	*
ApproachDel:	xxxxxx			13.7			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 Mathews Road/I-5 NB Ramps

Average Delay (sec/veh): 71.0 Worst Case Level Of Service: F[312.7]

Street Name:	I-5 NB Ramps									Mathews Road								
Approach:	North Bound				South Bound				East Bound				West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	1	0	0	1	0	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Volume Module:	415-515																			
Base Vol:	130		0		280	0		0		0	470		250		0	0		150		630
Growth Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	130		0		280	0		0		0	470		250		0	0		150		630
Added Vol:	0		0		0	0		0		0	0		0		0	0		0		0
PasserByVol:	0		0		0	0		0		0	0		0		0	0		0		0
Initial Fut:	130		0		280	0		0		0	470		250		0	0		150		630
User Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95
PHF Volume:	137		0		295	0		0		0	495		263		0	0		158		663
Reduct Vol:	0		0		0	0		0		0	0		0		0	0		0		0
FinalVolume:	137		0		295	0		0		0	495		263		0	0		158		663
Critical Gap Module:																				
Critical Gp:	6.4		6.5		6.2	xxxxx		xxxx		xxxxx	4.1		xxxx		xxxxx	xxxxx		xxxx		xxxxx
FollowUpTim:	3.5		4.0		3.3	xxxxx		xxxx		xxxxx	2.2		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Capacity Module:																				
Cnflict Vol:	1742		2074		132	xxxx		xxxx		xxxxx	821		xxxx		xxxxx	xxxx		xxxx		xxxxx
Potent Cap.:	96		54		923	xxxx		xxxx		xxxxx	817		xxxx		xxxxx	xxxx		xxxx		xxxxx
Move Cap.:	50		21		923	xxxx		xxxx		xxxxx	817		xxxx		xxxxx	xxxx		xxxx		xxxxx
Volume/Cap:	2.74		0.00		0.32	xxxx		xxxx		xxxx	0.61		xxxx		xxxx	xxxx		xxxx		xxxx
Level Of Service Module:																				
2Way95thQ:	14.4		xxxx		xxxxx	xxxx		xxxx		xxxxx	4.2		xxxx		xxxxx	xxxx		xxxx		xxxxx
Control Del:	963.0		xxxx		xxxxx	xxxxx		xxxx		xxxxx	15.9		xxxx		xxxxx	xxxxx		xxxx		xxxxx
LOS by Move:	F		*		*	*		*		*	C		*		*	*		*		*
Movement:	LT - LTR - RT					LT - LTR - RT					LT - LTR - RT					LT - LTR - RT				
Shared Cap.:	xxxx		xxxx		923	xxxx		xxxx		xxxxx	xxxx		xxxx		xxxxx	xxxx		xxxx		xxxxx
SharedQueue:	xxxxx		xxxx		1.4	xxxxx		xxxx		xxxxx	xxxxx		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shrd ConDel:	xxxxx		xxxx		10.7	xxxxx		xxxx		xxxxx	xxxxx		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shared LOS:	*		*		B	*		*		*	*		*		*	*		*		*
ApproachDel:	312.7					xxxxxx					xxxxxx					xxxxxx				
ApproachLOS:	F					*					*					*				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #20 Howard Road/ Wolfe Road

Average Delay (sec/veh): 10.9 Worst Case Level Of Service: E[38.3]

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	10		150		20	20		10		10	150		340		10	10		100		20
Growth Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	10		150		20	20		10		10	150		340		10	10		100		20
Added Vol:	0		0		0	0		0		0	0		0		0	0		0		0
PasserByVol:	0		0		0	0		0		0	0		0		0	0		0		0
Initial Fut:	10		150		20	20		10		10	150		340		10	10		100		20
User Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95
PHF Volume:	11		158		21	21		11		11	158		358		11	11		105		21
Reduct Vol:	0		0		0	0		0		0	0		0		0	0		0		0
FinalVolume:	11		158		21	21		11		11	158		358		11	11		105		21
Critical Gap Module:																				
Critical Gp:	7.1		6.5		6.2	7.1		6.5		6.2	4.1		xxxx		xxxxx	4.1		xxxx		xxxxx
FollowUpTim:	3.5		4.0		3.3	3.5		4.0		3.3	2.2		xxxx		xxxxx	2.2		xxxx		xxxxx
Capacity Module:																				
Cnflict Vol:	826		826		363	905		821		116	126		xxxx		xxxxx	368		xxxx		xxxxx
Potent Cap.:	293		309		686	259		312		942	1473		xxxx		xxxxx	1201		xxxx		xxxxx
Move Cap.:	255		271		686	123		273		942	1473		xxxx		xxxxx	1201		xxxx		xxxxx
Volume/Cap:	0.04		0.58		0.03	0.17		0.04		0.01	0.11		xxxx		xxxx	0.01		xxxx		xxxx
Level Of Service Module:																				
2Way95thQ:	xxxx		xxxx		xxxxx	xxxx		xxxx		xxxxx	0.4		xxxx		xxxxx	0.0		xxxx		xxxxx
Control Del:	xxxxx		xxxx		xxxxx	xxxxx		xxxx		xxxxx	7.7		xxxx		xxxxx	8.0		xxxx		xxxxx
LOS by Move:	*		*		*	*		*		*	A		*		*	A		*		*
Movement:	LT - LTR - RT					LT - LTR - RT					LT - LTR - RT					LT - LTR - RT				
Shared Cap.:	xxxx		289		xxxxx	xxxx		191		xxxxx	xxxx		xxxx		xxxxx	xxxx		xxxx		xxxxx
SharedQueue:	xxxxx		4.3		xxxxx	xxxxx		0.8		xxxxx	xxxxx		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shrd ConDel:	xxxxx		38.3		xxxxx	xxxxx		29.1		xxxxx	xxxxx		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shared LOS:	*		E		*	*		D		*	*		*		*	*		*		*
ApproachDel:	38.3					29.1					xxxxxx					xxxxxx				
ApproachLOS:	E					D					*					*				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Scenario Report

Scenario:	Cumulative w/o Proj AM
Command:	Cumulative w/o Proj AM
Volume:	Cumulative AM
Geometry:	Cumulative
Impact Fee:	Default Impact Fee
Trip Generation:	No Project AM
Trip Distribution:	Peak Hour
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Carolyn Weston/McDougald

Cycle (sec):	60	Critical Vol./Cap.(X):	0.692
Loss Time (sec):	16 (Y+R=4.0 sec)	Average Delay (sec/veh):	27.8
Optimal Cycle:	58	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0	1 0	1	1 0	0 1	0	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	20	10	310	20	10	10	5	760	50	140	350	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	10	310	20	10	10	5	760	50	140	350	10
Added Vol:	0	0	0	0	0	0	0	2	0	0	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	20	10	310	20	10	10	5	762	50	140	352	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	20	10	310	20	10	10	5	762	50	140	352	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	10	310	20	10	10	5	762	50	140	352	10
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	20	10	310	20	10	10	5	762	50	140	352	10
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	0.93	0.93	0.95	0.94	0.94	0.95	0.95	0.95
Lanes:	1.00	1.00	1.00	1.00	0.50	0.50	1.00	1.88	0.12	1.00	1.94	0.06
Final Sat.:	1805	1900	1615	1805	879	879	1805	3357	220	1805	3496	99
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.19	0.01	0.01	0.01	0.00	0.23	0.23	0.08	0.10	0.10
Crit Moves:			****	****				****		****		
Green/Cycle:	0.14	0.23	0.23	0.12	0.20	0.20	0.16	0.27	0.27	0.12	0.23	0.23
Volume/Cap:	0.08	0.02	0.84	0.09	0.06	0.06	0.02	0.84	0.84	0.66	0.44	0.44
Delay/Veh:	22.4	17.9	37.4	23.9	19.3	19.3	21.3	27.2	27.2	33.2	20.3	20.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	22.4	17.9	37.4	23.9	19.3	19.3	21.3	27.2	27.2	33.2	20.3	20.3
LOS by Move:	C	B	D	C	B	B	C	C	C	C	C	C
HCM2kAvgQ:	0	0	8	0	0	0	0	11	11	4	3	3

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Carolyn Weston/S. Manthey

Cycle (sec): 120 Critical Vol./Cap.(X): 0.625
Loss Time (sec): 16 (Y+R=4.0 sec) Average Delay (sec/veh): 34.0
Optimal Cycle: 62 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Ovl				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	1	0	1	1 0	1	0	1	1 0	1	1	0	1 0	1	1	0
Volume Module:																
Base Vol:	50	60	360		60	40	60		75	1010	70		290	70	30	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	50	60	360		60	40	60		75	1010	70		290	70	30	
Added Vol:	2	0	33		0	0	0		0	0	2		22	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	52	60	393		60	40	60		75	1010	72		312	70	30	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	52	60	393		60	40	60		75	1010	72		312	70	30	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	52	60	393		60	40	60		75	1010	72		312	70	30	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	52	60	393		60	40	60		75	1010	72		312	70	30	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	0.85		0.95	1.00	0.85		0.95	0.94	0.94		0.95	0.91	0.91	
Lanes:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.87	0.13		1.00	1.40	0.60	
Final Sat.:	1805	1900	1615		1805	1900	1615		1805	3336	238		1805	2413	1034	
Capacity Analysis Module:																
Vol/Sat:	0.03	0.03	0.24		0.03	0.02	0.04		0.04	0.30	0.30		0.17	0.03	0.03	
Crit Moves:	****						****			****			****			
Green/Cycle:	0.06	0.08	0.35		0.06	0.08	0.08		0.30	0.46	0.46		0.26	0.43	0.43	
Volume/Cap:	0.49	0.38	0.70		0.57	0.25	0.45		0.14	0.66	0.66		0.66	0.07	0.07	
Delay/Veh:	58.4	53.6	37.8		62.3	52.3	54.7		30.9	25.9	25.9		42.7	20.3	20.3	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	58.4	53.6	37.8		62.3	52.3	54.7		30.9	25.9	25.9		42.7	20.3	20.3	
LOS by Move:	E	D	D		E	D	D		C	C	C		D	C	C	
HCM2kAvgQ:	3	2	13		3	2	3		2	16	16		11	1	1	

Note: Queue reported is the number of cars per lane.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.91	1.00	1.00	0.95						1.00	0.88
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539						1770	2787
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		5085	1583	1770	3539						1770	2787
Volume (vph)	0	1273	290	40	181	0	0	0	0	220	0	531
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1273	290	40	181	0	0	0	0	220	0	531
RTOR Reduction (vph)	0	0	132	0	0	0	0	0	0	0	0	416
Lane Group Flow (vph)	0	1273	158	40	181	0	0	0	0	0	220	115
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		32.6	32.6	2.4	39.0						13.0	13.0
Effective Green, g (s)		32.6	32.6	2.4	39.0						13.0	13.0
Actuated g/C Ratio		0.54	0.54	0.04	0.65						0.22	0.22
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		2763	860	71	2300						384	604
v/s Ratio Prot		c0.25		c0.02	0.05							
v/s Ratio Perm			0.10								0.12	0.04
v/c Ratio		0.46	0.18	0.56	0.08						0.57	0.19
Uniform Delay, d1		8.3	6.9	28.3	3.9						21.0	19.2
Progression Factor		1.00	1.00	1.13	0.93						1.00	1.00
Incremental Delay, d2		0.6	0.5	9.6	0.1						2.1	0.2
Delay (s)		8.9	7.4	41.5	3.7						23.1	19.4
Level of Service		A	A	D	A						C	B
Approach Delay (s)		8.6			10.5			0.0			20.4	
Approach LOS		A			B			A			C	

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Util. Factor	0.97	1.00			0.95			1.00	1.00			
Frt	1.00	1.00			0.90			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	3433	1863			3169			1770	1583			
Flt Permitted	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	3433	1863			3169			1770	1583			
Volume (vph)	941	552	0	0	91	210	130	0	30	0	0	0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	941	552	0	0	91	210	130	0	30	0	0	0
RTOR Reduction (vph)	0	0	0	0	153	0	0	0	26	0	0	0
Lane Group Flow (vph)	941	552	0	0	148	0	0	130	4	0	0	0
Turn Type	Prot						Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases							2		2			
Actuated Green, G (s)	23.6	43.8			16.2			8.2	8.2			
Effective Green, g (s)	23.6	43.8			16.2			8.2	8.2			
Actuated g/C Ratio	0.39	0.73			0.27			0.14	0.14			
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	1350	1360			856			242	216			
v/s Ratio Prot	c0.27	c0.30			0.05							
v/s Ratio Perm								0.07	0.00			
v/c Ratio	0.70	0.41			0.17			0.54	0.02			
Uniform Delay, d1	15.2	3.1			16.8			24.1	22.4			
Progression Factor	0.64	0.62			1.00			1.00	1.00			
Incremental Delay, d2	1.5	0.8			0.4			2.3	0.0			
Delay (s)	11.3	2.8			17.2			26.4	22.5			
Level of Service	B	A			B			C	C			
Approach Delay (s)		8.1			17.2			25.7			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 Downing/Turnpike

Average Delay (sec/veh): 4.9 Worst Case Level Of Service: D[26.5]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0 0	1! 0	0		0 0	1! 0	0		1 0	0 1	0		1 0	0 1	0	
Volume Module:																
Base Vol:	60	20	50		10	10	50		80	470	30		10	190	70	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	60	20	50		10	10	50		80	470	30		10	190	70	
Added Vol:	0	0	0		0	0	0		1	1	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	60	20	50		10	10	50		81	471	30		10	190	70	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	60	20	50		10	10	50		81	471	30		10	190	70	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	60	20	50		10	10	50		81	471	30		10	190	70	
Critical Gap Module:																
Critical Gp:	7.1	6.5	6.2		7.1	6.5	6.2		4.1	xxxx	xxxxx		4.1	xxxx	xxxxx	
FollowUpTim:	3.5	4.0	3.3		3.5	4.0	3.3		2.2	xxxx	xxxxx		2.2	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	923	928	486		928	908	225		260	xxxx	xxxxx		501	xxxx	xxxxx	
Potent Cap.:	252	270	585		250	277	819		1316	xxxx	xxxxx		1074	xxxx	xxxxx	
Move Cap.:	218	251	585		204	258	819		1316	xxxx	xxxxx		1074	xxxx	xxxxx	
Volume/Cap:	0.28	0.08	0.09		0.05	0.04	0.06		0.06	xxxx	xxxx		0.01	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		0.2	xxxx	xxxxx		0.0	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		7.9	xxxx	xxxxx		8.4	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	*		A	*	*		A	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	295	xxxxx		xxxx	470	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	2.1	xxxxx		xxxxx	0.5	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	26.5	xxxxx		xxxxx	14.0	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	D	*		*	B	*		*	*	*		*	*	*	
ApproachDel:	26.5				14.0				xxxxxx				xxxxxx			
ApproachLOS:	D				B				*				*			

Note: Queue reported is the number of cars per lane.

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Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 William Moss/McDougald

Cycle (sec): 60 | Critical Vol./Cap.(X): 0.289
Loss Time (sec): 16 (Y+R=4.0 sec) | Average Delay (sec/veh): 19.8
Optimal Cycle: 50 | Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	1	1	0	1 0	1	1	0	1 0	1	1	0	1 0	1	1	0
Volume Module:																
Base Vol:	50	200	50		20	230	60		70	170	80		50	110	20	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	50	200	50		20	230	60		70	170	80		50	110	20	
Added Vol:	0	0	0		0	0	0		0	2	0		0	4	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	50	200	50		20	230	60		70	172	80		50	114	20	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	50	200	50		20	230	60		70	172	80		50	114	20	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	50	200	50		20	230	60		70	172	80		50	114	20	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	50	200	50		20	230	60		70	172	80		50	114	20	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.92	0.92		0.95	0.92	0.92		0.95	0.90	0.90		0.95	0.93	0.93	
Lanes:	1.00	1.60	0.40		1.00	1.59	0.41		1.00	1.37	0.63		1.00	1.70	0.30	
Final Sat.:	1805	2801	700		1805	2774	724		1805	2346	1091		1805	3004	527	
Capacity Analysis Module:																
Vol/Sat:	0.03	0.07	0.07		0.01	0.08	0.08		0.04	0.07	0.07		0.03	0.04	0.04	
Crit Moves:	****					****				****			****			
Green/Cycle:	0.12	0.22	0.22		0.16	0.27	0.27		0.14	0.23	0.23		0.12	0.21	0.21	
Volume/Cap:	0.24	0.32	0.32		0.07	0.31	0.31		0.27	0.31	0.31		0.24	0.18	0.18	
Delay/Veh:	24.7	19.7	19.7		21.6	17.8	17.8		23.4	19.2	19.2		24.7	19.7	19.7	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	24.7	19.7	19.7		21.6	17.8	17.8		23.4	19.2	19.2		24.7	19.7	19.7	
LOS by Move:	C	B	B		C	B	B		C	B	B		C	B	B	
HCM2kAvgQ:	1	2	2		0	2	2		1	2	2		1	1	1	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 William Moss/S. Manthey

Cycle (sec): 90 | Critical Vol./Cap.(X): 0.272
Loss Time (sec): 12 (Y+R=4.0 sec) | Average Delay (sec/veh): 25.1
Optimal Cycle: 46 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	1	0	0	0 0	0	1	0	1 0	0	0	1	0 0	0	0	0
Volume Module:																
Base Vol:	70	80	0		0	120	40		120	0	150		0	0	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	70	80	0		0	120	40		120	0	150		0	0	0	
Added Vol:	4	35	0		0	24	0		0	0	3		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	74	115	0		0	144	40		120	0	153		0	0	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	74	115	0		0	144	40		120	0	153		0	0	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	74	115	0		0	144	40		120	0	153		0	0	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	74	115	0		0	144	40		120	0	153		0	0	0	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	1.00		1.00	0.97	0.97		0.95	1.00	0.85		1.00	1.00	1.00	
Lanes:	1.00	1.00	0.00		0.00	0.78	0.22		1.00	0.00	1.00		0.00	0.00	0.00	
Final Sat.:	1805	1900	0		0	1444	401		1805	0	1615		0	0	0	
Capacity Analysis Module:																
Vol/Sat:	0.04	0.06	0.00		0.00	0.10	0.10		0.07	0.00	0.09		0.00	0.00	0.00	
Crit Moves:	****					****					****					
Green/Cycle:	0.15	0.30	0.00		0.00	0.37	0.37		0.18	0.00	0.35		0.00	0.00	0.00	
Volume/Cap:	0.27	0.20	0.00		0.00	0.27	0.27		0.38	0.00	0.27		0.00	0.00	0.00	
Delay/Veh:	34.4	23.3	0.0		0.0	20.2	20.2		33.5	0.0	21.3		0.0	0.0	0.0	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	34.4	23.3	0.0		0.0	20.2	20.2		33.5	0.0	21.3		0.0	0.0	0.0	
LOS by Move:	C	C	A		A	C	C		C	A	C		A	A	A	
HCM2kAvgQ:	2	2	0		0	4	4		3	0	3		0	0	0	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 McDougald/Henry Long

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.762
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): 16.7
Optimal Cycle: 0 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	0	1 0	1	0	0	1 0	1	0	0	1 0	1	0	0	1 0
Volume Module:																
Base Vol:	50	80	10		10	370	130		140	10	110		10	10	30	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	50	80	10		10	370	130		140	10	110		10	10	30	
Added Vol:	1	0	0		0	0	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	51	80	10		10	370	130		140	10	110		10	10	30	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	51	80	10		10	370	130		140	10	110		10	10	30	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	51	80	10		10	370	130		140	10	110		10	10	30	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	51	80	10		10	370	130		140	10	110		10	10	30	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	1.00	0.89	0.11		1.00	0.74	0.26		1.00	0.08	0.92		1.00	0.25	0.75	
Final Sat.:	529	515	64		576	485	170		500	49	544		458	132	395	
Capacity Analysis Module:																
Vol/Sat:	0.10	0.16	0.16		0.02	0.76	0.76		0.28	0.20	0.20		0.02	0.08	0.08	
Crit Moves:		****				****			****					****		
Delay/Veh:	9.9	9.6	9.6		8.9	22.7	22.7		11.9	9.7	9.7		10.0	9.3	9.3	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	9.9	9.6	9.6		8.9	22.7	22.7		11.9	9.7	9.7		10.0	9.3	9.3	
LOS by Move:	A	A	A		A	C	C		B	A	A		B	A	A	
ApproachDel:	9.7				22.4				10.9				9.4			
Delay Adj:	1.00				1.00				1.00				1.00			
ApprAdjDel:	9.7				22.4				10.9				9.4			
LOS by Appr:	A				C				B				A			
AllWayAvgQ:	0.1	0.2	0.2		0.0	2.6	2.6		0.3	0.2	0.2		0.0	0.1	0.1	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 French Camp/Wolfe

Cycle (sec): 90 | Critical Vol./Cap.(X): 0.386
Loss Time (sec): 16 (Y+R=4.0 sec) | Average Delay (sec/veh): 27.1
Optimal Cycle: 50 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	0	1 0	2	0	0	1 0	1	0	2	1 0	1	0	2	1 0
Volume Module:																
Base Vol:	10	10	10		670	50	30		10	510	10		20	150	170	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	10	10	10		670	50	30		10	510	10		20	150	170	
Added Vol:	0	0	2		1	0	0		0	1	0		5	2	1	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	10	10	12		671	50	30		10	511	10		25	152	171	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	10	10	12		671	50	30		10	511	10		25	152	171	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	10	10	12		671	50	30		10	511	10		25	152	171	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	10	10	12		671	50	30		10	511	10		25	152	171	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.92	0.92		0.92	0.94	0.94		0.95	0.91	0.91		0.95	0.84	0.84	
Lanes:	1.00	0.45	0.55		2.00	0.62	0.38		1.00	2.94	0.06		1.00	2.00	1.00	
Final Sat.:	1805	793	951		3502	1121	673		1805	5072	99		1805	3185	1592	
Capacity Analysis Module:																
Vol/Sat:	0.01	0.01	0.01		0.19	0.04	0.04		0.01	0.10	0.10		0.01	0.05	0.11	
Crit Moves:		****			****				****						****	
Green/Cycle:	0.21	0.11	0.11		0.41	0.30	0.30		0.08	0.18	0.18		0.13	0.23	0.23	
Volume/Cap:	0.03	0.11	0.11		0.47	0.15	0.15		0.07	0.56	0.56		0.11	0.21	0.47	
Delay/Veh:	28.1	36.3	36.3		19.9	22.9	22.9		38.7	34.5	34.5		35.1	28.3	30.6	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	28.1	36.3	36.3		19.9	22.9	22.9		38.7	34.5	34.5		35.1	28.3	30.6	
LOS by Move:	C	D	D		B	C	C		D	C	C		D	C	C	
HCM2kAvgQ:	0	1	1		7	2	2		0	6	6		1	2	5	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 French Camp/McDougald

Cycle (sec): 90 Critical Vol./Cap.(X): 0.666
Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 24.6
Optimal Cycle: 54 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	0 0	0	0	0	1 0	0	0	1	1 0	2	0	0	0 0	1	1	0
Volume Module:																
Base Vol:	0	0	0		460	0	20		10	1160	0		0	270	120	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		460	0	20		10	1160	0		0	270	120	
Added Vol:	0	0	0		0	0	0		0	4	0		0	8	1	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		460	0	20		10	1164	0		0	278	121	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	0	0	0		460	0	20		10	1164	0		0	278	121	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		460	0	20		10	1164	0		0	278	121	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	0	0	0		460	0	20		10	1164	0		0	278	121	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	1.00	1.00	1.00		0.95	1.00	0.85		0.95	0.95	1.00		1.00	0.91	0.91	
Lanes:	0.00	0.00	0.00		1.00	0.00	1.00		1.00	2.00	0.00		0.00	1.39	0.61	
Final Sat.:	0	0	0		1805	0	1615		1805	3610	0		0	2402	1045	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.25	0.00	0.01		0.01	0.32	0.00		0.00	0.12	0.12	
Crit Moves:					****					****			****			
Green/Cycle:	0.00	0.00	0.00		0.35	0.00	0.35		0.21	0.44	0.00		0.00	0.31	0.31	
Volume/Cap:	0.00	0.00	0.00		0.73	0.00	0.04		0.03	0.73	0.00		0.00	0.37	0.37	
Delay/Veh:	0.0	0.0	0.0		30.1	0.0	19.4		28.4	22.6	0.0		0.0	24.4	24.4	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		30.1	0.0	19.4		28.4	22.6	0.0		0.0	24.4	24.4	
LOS by Move:	A	A	A		C	A	B		C	C	A		A	C	C	
HCM2kAvgQ:	0	0	0		13	0	0		0	15	0		0	5	5	

Note: Queue reported is the number of cars per lane.

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CORSIM LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Year 2025 No Project **HCM:** 2000
Scenario: Weston Ranch Towne Center EIR **PHF:** 1
TOD: AM **# of Runs:** 10

Intersection: French Camp Rd / Manthey Rd **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	40	41	103	0	42.1	D	--
	T	50	47	94	0	38.0	D	--
	R	30	32	107	0	6.4	A	--
	Subtotal	**120**	**120**	**100**	**--**	**31.0**	**C**	**--**
SB	L	20	19	95	0	49.4	D	--
	T	110	110	100	0	44.8	D	--
	R	10	9	90	0	4.3	A	--
	Subtotal	**140**	**138**	**99**	**--**	**42.8**	**D**	**--**
EB	L	10	16	160	0	52.1	D	--
	T	1280	1292	101	0	15.5	B	--
	R	330	312	95	0	19.5	B	--
	Subtotal	**1620**	**1620**	**100**	**--**	**16.7**	**B**	**--**
WB	L	130	135	104	0	36.6	D	--
	T	330	336	102	0	6.9	A	--
	R	10	10	100	0	3.4	A	--
	Subtotal	**470**	**481**	**102**	**--**	**15.1**	**B**	**--**
	Total	**2350**	**2359**	**100**	**--**	**18.6**	**B**	**--**

Intersection: French Camp Rd / I-5 SB Ramps **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	1800	1800	100	0	27.3	C	--
	R	170	173	102	0	21.9	C	--
	Subtotal	**1970**	**1973**	**100**	**--**	**26.8**	**C**	**--**
EB	T	1200	1179	98	1	31.6	C	--
	R	130	154	118	0	8.6	A	--
	Subtotal	**1330**	**1333**	**100**	**--**	**29.0**	**C**	**--**
WB	T	300	307	102	0	16.1	B	--
	Subtotal	**300**	**307**	**102**	**--**	**16.1**	**B**	**--**
	Total	**3600**	**3613**	**100**	**--**	**26.7**	**C**	**--**

FEHR & PEERS
TRANSPORTATION CONSULTANTS

CORSIM LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Year 2025 No Project **HCM:** 2000
Scenario: Weston Ranch Towne Center EIR **PHF:** 1
TOD: AM **# of Runs:** 10

Intersection: French Camp Rd / I-5 NB Ramps **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	50	48	96	0	36.3	D	--
	R	210	211	100	0	44.6	D	--
	Subtotal	**260**	**259**	**100**	**--**	**43.1**	**D**	**--**
EB	T	2750	2725	99	1	5.0	A	--
	Subtotal	**2750**	**2725**	**99**	**--**	**5.0**	**A**	**--**
WB	T	1300	1347	104	0	5.1	A	--
	Subtotal	**1300**	**1347**	**104**	**--**	**5.1**	**A**	**--**
	Total	**4310**	**4331**	**100**	**--**	**7.3**	**A**	**--**

Intersection: French Camp Rd / Val Dervin Pkwy **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	570	591	104	0	35.9	D	--
	T	10	9	90	0	33.8	C	--
	R	290	266	92	0	11.4	B	--
	Subtotal	**870**	**866**	**100**	**--**	**28.4**	**C**	**--**
SB	L	350	333	95	0	50.9	D	--
	T	60	60	100	0	42.7	D	--
	R	50	63	126	0	7.8	A	--
	Subtotal	**460**	**456**	**99**	**--**	**43.8**	**D**	**--**
EB	L	170	172	101	2	45.2	D	--
	T	2420	2399	99	1	16.1	B	--
	R	370	371	100	1	7.8	A	--
	Subtotal	**2960**	**2942**	**99**	**--**	**16.8**	**B**	**--**
WB	L	30	21	70	0	48.2	D	--
	T	680	693	102	0	23.6	C	--
	R	30	22	73	0	4.8	A	--
	Subtotal	**740**	**736**	**99**	**--**	**23.7**	**C**	**--**
	Total	**5030**	**5000**	**99**	**--**	**22.3**	**C**	**--**

FEHR & PEERS
TRANSPORTATION CONSULTANTS

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Cumulative w/o Proj AM     Wed Apr 9, 2008 16:32:28                 Page 14-1
-------------------------------------------------------------------------------
                         Weston Ranch Towne Center EIR
                          Future 2025 Without Project
                                AM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #16 Yettner/Manthey
*******************************************************************************
Average Delay (sec/veh):      1.8       Worst Case Level Of Service: C[ 16.3]
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        1  0  0  1  0    1  0  0  1  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      20  160    10    10  610    20    10   10    30    10   10    20
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   20  160    10    10  610    20    10   10    30    10   10    20
Added Vol:      0    4     0     0    6     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   20  164    10    10  616    20    10   10    30    10   10    20
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    20  164    10    10  616    20    10   10    30    10   10    20
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   20  164    10    10  616    20    10   10    30    10   10    20
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx   4.1 xxxx xxxxx   7.1  6.5   6.2   7.1  6.5   6.2
FollowUpTim:  2.2 xxxx xxxxx   2.2 xxxx xxxxx   3.5  4.0   3.3   3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  636 xxxx xxxxx   174 xxxx xxxxx   870  860   626   875  865   169
Potent Cap.:  957 xxxx xxxxx  1415 xxxx xxxxx   274  296   488   272  294   880
Move Cap.:    957 xxxx xxxxx  1415 xxxx xxxxx   255  288   488   243  286   880
Volume/Cap:  0.02 xxxx  xxxx  0.01 xxxx  xxxx  0.04 0.03  0.06  0.04 0.04  0.02
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.1 xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  8.8 xxxx xxxxx   7.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:   A    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  369 xxxxx  xxxx  405 xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.5 xxxxx xxxxx  0.3 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 16.3 xxxxx xxxxx 14.9 xxxxx
Shared LOS:    *    *     *     *    *     *     *    C     *     *    B     *
ApproachDel:    xxxxxx            xxxxxx             16.3              14.9
ApproachLOS:        *                 *                C                 B
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************


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Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #17 Mathews/S. Manthey

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.615
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): 13.7
Optimal Cycle: 0 | Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	0 0	1! 0	0	1 0	1 0	1	0 1	0 1	0	0 1	0 1	0
Volume Module:												
Base Vol:	20	20	30	60	30	30	60	210	20	70	550	160
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	20	30	60	30	30	60	210	20	70	550	160
Added Vol:	0	1	0	4	2	0	0	0	0	0	0	3
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	20	21	30	64	32	30	60	210	20	70	550	163
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	20	21	30	64	32	30	60	210	20	70	550	163
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	21	30	64	32	30	60	210	20	70	550	163
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	20	21	30	64	32	30	60	210	20	70	550	163
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.28	0.30	0.42	1.00	1.00	1.00	0.41	1.45	0.14	0.18	1.40	0.42
Final Sat.:	142	149	213	454	484	534	231	832	81	114	921	284
Capacity Analysis Module:												
Vol/Sat:	0.14	0.14	0.14	0.14	0.07	0.06	0.26	0.25	0.25	0.62	0.60	0.57
Crit Moves:			****	****			****			****		
Delay/Veh:	10.7	10.7	10.7	11.3	10.1	9.3	11.0	10.7	10.5	16.6	15.7	14.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.7	10.7	10.7	11.3	10.1	9.3	11.0	10.7	10.5	16.6	15.7	14.5
LOS by Move:	B	B	B	B	B	A	B	B	B	C	C	B
ApproachDel:	10.7			10.5			10.8			15.6		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.7			10.5			10.8			15.6		
LOS by Appr:	B			B			B			C		
AllWayAvgQ:	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	1.5	1.3	1.3

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 Mathews/I5 SB Ramps

Average Delay (sec/veh): 14.1 Worst Case Level Of Service: C[24.2]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 0	0	0 1	0 0	1	0 0	1 1	0	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	410	0	470	0	230	70	30	310	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	410	0	470	0	230	70	30	310	0
Added Vol:	0	0	0	0	0	0	0	2	2	0	3	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	410	0	470	0	232	72	30	313	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	410	0	470	0	232	72	30	313	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	410	0	470	0	232	72	30	313	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	489	677	313	xxxx	xxxx	xxxxx	304	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	542	377	732	xxxx	xxxx	xxxxx	1268	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	532	368	732	xxxx	xxxx	xxxxx	1268	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.77	0.00	0.64	xxxx	xxxx	xxxx	0.02	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	4.7	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	18.3	xxxxx	xxxx	xxxxx	7.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	C	*	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	532	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	6.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	30.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	D	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			24.2			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 Mathews/I5 NB Ramps

Average Delay (sec/veh): 8.5 Worst Case Level Of Service: E[45.0]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	1	0	0	1		0	0	0	0	0		1	0	2	0	0		0	0	0	1	0	
Volume Module:																								
Base Vol:	150		0		30		0		0		0		180		460		0		0		190		120	
Growth Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
Initial Bse:	150		0		30		0		0		0		180		460		0		0		190		120	
Added Vol:	2		0		0		0		0		0		0		2		0		0		1		0	
PasserByVol:	0		0		0		0		0		0		0		0		0		0		0		0	
Initial Fut:	152		0		30		0		0		0		180		462		0		0		191		120	
User Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Volume:	152		0		30		0		0		0		180		462		0		0		191		120	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
FinalVolume:	152		0		30		0		0		0		180		462		0		0		191		120	
Critical Gap Module:																								
Critical Gp:	6.4		6.5		6.2		xxxxx	xxxx		xxxxx			4.1	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
FollowUpTim:	3.5		4.0		3.3		xxxxx	xxxx		xxxxx			2.2	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
Capacity Module:																								
Cnflict Vol:	1073	1133		231			xxxx	xxxx		xxxxx			311	xxxx		xxxxx			xxxx	xxxx		xxxxx		
Potent Cap.:	246		205		813		xxxx	xxxx		xxxxx			1261	xxxx		xxxxx			xxxx	xxxx		xxxxx		
Move Cap.:	219		175		813		xxxx	xxxx		xxxxx			1261	xxxx		xxxxx			xxxx	xxxx		xxxxx		
Volume/Cap:	0.69	0.00		0.04			xxxx	xxxx		xxxx			0.14	xxxx		xxxx			xxxx	xxxx		xxxx		
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx		0.1			xxxx	xxxx		xxxxx			0.5	xxxx		xxxxx			xxxx	xxxx		xxxxx		
Control Del:	xxxxx	xxxx		9.6			xxxxx	xxxx		xxxxx			8.3	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
LOS by Move:	*	*		A			*	*		*			A	*		*			*	*		*		
Movement:	LT - LTR - RT						LT - LTR - RT						LT - LTR - RT						LT - LTR - RT					
Shared Cap.:	219	xxxx	xxxxx				xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx		
SharedQueue:	4.4	xxxx	xxxxx				xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
Shrd ConDel:	52.0	xxxx	xxxxx				xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
Shared LOS:	F	*		*			*	*		*			*	*		*			*	*		*		
ApproachDel:	45.0						xxxxxx						xxxxxx						xxxxxx					
ApproachLOS:	E						*						*						*					

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #20 Howard/Wolfe

Average Delay (sec/veh): 2.1 Worst Case Level Of Service: B[12.8]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	1!	0	0		1	0	0	1	0		1	0	0	1	0	
Volume Module:																								
Base Vol:	10		10		10		10		10		40		10		270		30		20		150		60	
Growth Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
Initial Bse:	10		10		10		10		10		40		10		270		30		20		150		60	
Added Vol:	0		0		0		0		0		5		2		0		0		0		0		0	
PasserByVol:	0		0		0		0		0		0		0		0		0		0		0		0	
Initial Fut:	10		10		10		10		10		45		12		270		30		20		150		60	
User Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Volume:	10		10		10		10		10		45		12		270		30		20		150		60	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
FinalVolume:	10		10		10		10		10		45		12		270		30		20		150		60	
Critical Gap Module:																								
Critical Gp:	7.1		6.5		6.2		7.1		6.5		6.2		4.1	xxxx		xxxxx			4.1	xxxx		xxxxx		
FollowUpTim:	3.5		4.0		3.3		3.5		4.0		3.3		2.2	xxxx		xxxxx			2.2	xxxx		xxxxx		
Capacity Module:																								
Cnflict Vol:	557		559		285		539		544		180		210	xxxx		xxxxx			300	xxxx		xxxxx		
Potent Cap.:	444		440		759		456		449		868		1373	xxxx		xxxxx			1273	xxxx		xxxxx		
Move Cap.:	406		430		759		434		438		868		1373	xxxx		xxxxx			1273	xxxx		xxxxx		
Volume/Cap:	0.02	0.02		0.01		0.02	0.02		0.05		0.01	xxxx		xxxx		0.02	xxxx		xxxx					
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx			0.0	xxxx		xxxxx			0.0	xxxx		xxxxx			
Control Del:	xxxxx	xxxx		xxxxx		xxxxx	xxxxx		xxxxx			7.6	xxxx		xxxxx			7.9	xxxx		xxxxx			
LOS by Move:	*	*		*		*	*		*			A	*		*			A	*		*			
Movement:	LT - LTR - RT						LT - LTR - RT						LT - LTR - RT						LT - LTR - RT					
Shared Cap.:	xxxx	491	xxxxx		xxxx	665	xxxxx						xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx		
SharedQueue:	xxxxx	0.2	xxxxx		xxxxx	0.3	xxxxx						xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
Shrd ConDel:	xxxxx	12.8	xxxxx		xxxxx	11.0	xxxxx						xxxxx	xxxx		xxxxx			xxxxx	xxxx		xxxxx		
Shared LOS:	*	B		*		B	*						*	*		*			*	*		*		
ApproachDel:	12.8					11.0							xxxxxx						xxxxxx					
ApproachLOS:	B					B							*						*					

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Scenario Report

Scenario:	Cumulative w/o Proj PM
Command:	Cumulative w/o Proj PM
Volume:	Cumulative PM
Geometry:	Cumulative
Impact Fee:	Default Impact Fee
Trip Generation:	No Project PM
Trip Distribution:	Peak Hour
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Carolyn Weston/McDougald

Cycle (sec): 60 Critical Vol./Cap.(X): 0.501
Loss Time (sec): 16 (Y+R=4.0 sec) Average Delay (sec/veh): 22.9
Optimal Cycle: 50 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0 1	0 1		1 0	0 1	0	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	10	5	210	20	5	5	10	450	20	250	790	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	5	210	20	5	5	10	450	20	250	790	0
Added Vol:	0	0	0	0	0	0	0	7	0	0	7	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	10	5	210	20	5	5	10	457	20	250	797	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	10	5	210	20	5	5	10	457	20	250	797	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	5	210	20	5	5	10	457	20	250	797	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	10	5	210	20	5	5	10	457	20	250	797	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	0.93	0.93	0.95	0.94	0.94	0.95	0.95	0.95
Lanes:	1.00	1.00	1.00	1.00	0.50	0.50	1.00	1.92	0.08	1.00	2.00	0.00
Final Sat.:	1805	1900	1615	1805	879	879	1805	3438	150	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.01	0.00	0.13	0.01	0.01	0.01	0.01	0.13	0.13	0.14	0.22	0.00
Crit Moves:			****	****			****				****	
Green/Cycle:	0.12	0.19	0.19	0.12	0.18	0.18	0.12	0.24	0.24	0.20	0.31	0.00
Volume/Cap:	0.04	0.01	0.70	0.09	0.03	0.03	0.05	0.56	0.56	0.71	0.70	0.00
Delay/Veh:	23.2	20.0	30.2	23.9	20.4	20.4	23.6	21.1	21.1	29.0	20.1	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.2	20.0	30.2	23.9	20.4	20.4	23.6	21.1	21.1	29.0	20.1	0.0
LOS by Move:	C	B	C	C	C	C	C	C	C	C	C	A
HCM2kAvgQ:	0	0	5	0	0	0	0	5	5	6	8	0

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Carolyn Weston/S. Manthey

Cycle (sec): 120 Critical Vol./Cap.(X): 0.844
Loss Time (sec): 16 (Y+R=4.0 sec) Average Delay (sec/veh): 43.6
Optimal Cycle: 106 Level Of Service: D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Ovl				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	1	0 1	1	0	1	0 1	1	0	1	1 0	1	0	1	1 0
Volume Module:																
Base Vol:	150	110	320		210	90	190		225	590	80		520	880	150	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	150	110	320		210	90	190		225	590	80		520	880	150	
Added Vol:	7	0	82		0	0	0		0	0	7		86	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	157	110	402		210	90	190		225	590	87		606	880	150	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	157	110	402		210	90	190		225	590	87		606	880	150	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	157	110	402		210	90	190		225	590	87		606	880	150	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	157	110	402		210	90	190		225	590	87		606	880	150	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	0.85		0.95	1.00	0.85		0.95	0.93	0.93		0.95	0.93	0.93	
Lanes:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.74	0.26		1.00	1.71	0.29	
Final Sat.:	1805	1900	1615		1805	1900	1615		1805	3086	455		1805	3016	514	
Capacity Analysis Module:																
Vol/Sat:	0.09	0.06	0.25		0.12	0.05	0.12		0.12	0.19	0.19		0.34	0.29	0.29	
Crit Moves:	****						****			****			****			
Green/Cycle:	0.10	0.10	0.50		0.14	0.14	0.14		0.19	0.23	0.23		0.40	0.44	0.44	
Volume/Cap:	0.84	0.57	0.50		0.82	0.34	0.84		0.67	0.84	0.84		0.84	0.67	0.67	
Delay/Veh:	80.9	55.6	20.5		69.2	47.4	74.5		50.4	52.6	52.6		41.8	27.9	27.9	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	80.9	55.6	20.5		69.2	47.4	74.5		50.4	52.6	52.6		41.8	27.9	27.9	
LOS by Move:	F	E	C		E	D	E		D	D	D		D	C	C	
HCM2kAvgQ:	8	5	10		10	3	9		9	15	15		22	16	16	

Note: Queue reported is the number of cars per lane.

Traffix 7.8.0115 (c) 2007 Dowling Assoc. Licensed to FEHR & PEERS, W.C.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.91	1.00	1.00	0.95						1.00	0.88
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539						1770	2787
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		5085	1583	1770	3539						1770	2787
Volume (vph)	0	912	110	40	452	0	0	0	0	150	0	1074
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	912	110	40	452	0	0	0	0	150	0	1074
RTOR Reduction (vph)	0	0	63	0	0	0	0	0	0	0	0	346
Lane Group Flow (vph)	0	912	47	40	452	0	0	0	0	0	150	728
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		25.8	25.8	2.0	31.8						20.2	20.2
Effective Green, g (s)		25.8	25.8	2.0	31.8						20.2	20.2
Actuated g/C Ratio		0.43	0.43	0.03	0.53						0.34	0.34
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		2187	681	59	1876						596	938
v/s Ratio Prot		c0.18		c0.02	0.13							
v/s Ratio Perm			0.03								0.08	c0.26
v/c Ratio		0.42	0.07	0.68	0.24						0.25	0.78
Uniform Delay, d1		11.9	10.0	28.7	7.6						14.4	17.9
Progression Factor		1.00	1.00	0.85	0.82						1.00	1.00
Incremental Delay, d2		0.6	0.2	24.3	0.3						0.2	4.1
Delay (s)		12.5	10.2	48.8	6.5						14.6	22.0
Level of Service		B	B	D	A						B	C
Approach Delay (s)		12.2			10.0			0.0			21.1	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Util. Factor	0.97	1.00			0.95			1.00	1.00			
Frt	1.00	1.00			0.92			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	3433	1863			3250			1770	1583			
Flt Permitted	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	3433	1863			3250			1770	1583			
Volume (vph)	731	331	0	0	242	290	250	0	110	0	0	0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	731	331	0	0	242	290	250	0	110	0	0	0
RTOR Reduction (vph)	0	0	0	0	198	0	0	0	86	0	0	0
Lane Group Flow (vph)	731	331	0	0	334	0	0	250	24	0	0	0
Turn Type	Prot						Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases							2		2			
Actuated Green, G (s)	16.0	39.0			19.0			13.0	13.0			
Effective Green, g (s)	16.0	39.0			19.0			13.0	13.0			
Actuated g/C Ratio	0.27	0.65			0.32			0.22	0.22			
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	915	1211			1029			384	343			
v/s Ratio Prot	c0.21	0.18			c0.10							
v/s Ratio Perm								0.14	0.02			
v/c Ratio	0.80	0.27			0.32			0.65	0.07			
Uniform Delay, d1	20.5	4.5			15.6			21.4	18.7			
Progression Factor	0.59	0.42			1.00			1.00	1.00			
Incremental Delay, d2	4.7	0.5			0.8			3.9	0.1			
Delay (s)	16.9	2.4			16.4			25.4	18.8			
Level of Service	B	A			B			C	B			
Approach Delay (s)		12.4			16.4			23.3			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM Average Control Delay	15.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			


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Cumulative w/o Proj PM     Wed Apr 9, 2008 16:34:08                    Page 7-1
-------------------------------------------------------------------------------
                         Weston Ranch Towne Center EIR
                          Future 2025 Without Project
                                PM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #5 Downing/Turnpike
*******************************************************************************
Average Delay (sec/veh):      6.9       Worst Case Level Of Service: D[ 31.0]
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      70   10    10    60   50   70    30  280   130    10  390    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00 1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   70   10    10    60   50   70    30  280   130    10  390    10
Added Vol:      0    0     0     0    0    1     1    1     0     0    1     0
PasserByVol:    0    0     0     0    0    0     0    0     0     0    0     0
Initial Fut:   70   10    10    60   50   71    31  281   130    10  391    10
User Adj:    1.00 1.00  1.00  1.00 1.00 1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00 1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    70   10    10    60   50   71    31  281   130    10  391    10
Reduct Vol:     0    0     0     0    0    0     0    0     0     0    0     0
FinalVolume:   70   10    10    60   50   71    31  281   130    10  391    10
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5  6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0  3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  885  829   346   834  889  396   401 xxxx xxxxx   411 xxxx xxxxx
Potent Cap.:  268  308   702   290  285  658  1169 xxxx xxxxx  1159 xxxx xxxxx
Move Cap.:    200  298   702   271  275  658  1169 xxxx xxxxx  1159 xxxx xxxxx
Volume/Cap:  0.35 0.03  0.01  0.22 0.18 0.11  0.03 xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.1 xxxx xxxxx   0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.2 xxxx xxxxx   8.1 xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     A    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  226 xxxxx  xxxx  354 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  1.8 xxxxx xxxxx  2.8 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 31.0 xxxxx xxxxx 25.4 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    D     *     *    D     *     *    *     *     *    *     *
ApproachDel:      31.0             25.4            xxxxxx            xxxxxx
ApproachLOS:       D                D                 *                 *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************


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Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 William Moss/McDougald

Cycle (sec): 60 | Critical Vol./Cap.(X): 0.251
Loss Time (sec): 16 (Y+R=4.0 sec) | Average Delay (sec/veh): 20.2
Optimal Cycle: 50 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	1	1 0	1	0	1	1 0	1	0	1	1 0	1	0	1	1 0
Volume Module:																
Base Vol:	90	240	30		10	120	70		40	140	30		30	160	30	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	90	240	30		10	120	70		40	140	30		30	160	30	
Added Vol:	0	0	2		0	0	0		0	8	0		2	8	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	90	240	32		10	120	70		40	148	30		32	168	30	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	90	240	32		10	120	70		40	148	30		32	168	30	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	90	240	32		10	120	70		40	148	30		32	168	30	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	90	240	32		10	120	70		40	148	30		32	168	30	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.93	0.93		0.95	0.90	0.90		0.95	0.93	0.93		0.95	0.93	0.93	
Lanes:	1.00	1.76	0.24		1.00	1.26	0.74		1.00	1.66	0.34		1.00	1.70	0.30	
Final Sat.:	1805	3128	417		1805	2155	1257		1805	2927	593		1805	2993	534	
Capacity Analysis Module:																
Vol/Sat:	0.05	0.08	0.08		0.01	0.06	0.06		0.02	0.05	0.05		0.02	0.06	0.06	
Crit Moves:	****					****			****					****		
Green/Cycle:	0.19	0.24	0.24		0.17	0.21	0.21		0.12	0.19	0.19		0.14	0.21	0.21	
Volume/Cap:	0.26	0.32	0.32		0.03	0.26	0.26		0.19	0.26	0.26		0.13	0.26	0.26	
Delay/Veh:	21.1	19.2	19.2		21.0	19.9	19.9		24.4	20.7	20.7		23.0	19.8	19.8	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	21.1	19.2	19.2		21.0	19.9	19.9		24.4	20.7	20.7		23.0	19.8	19.8	
LOS by Move:	C	B	B		C	B	B		C	C	C		C	B	B	
HCM2kAvgQ:	2	2	2		0	2	2		1	2	2		1	2	2	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 William Moss/S. Manthey

Cycle (sec): 90 | Critical Vol./Cap.(X): 0.417
Loss Time (sec): 12 (Y+R=4.0 sec) | Average Delay (sec/veh): 26.9
Optimal Cycle: 46 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	1	0 0	0	0	0	1 0	1	0	0	1	0	0	0	0
Volume Module:																
Base Vol:	130	180	0		0	150	140		130	0	70		0	0	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	130	180	0		0	150	140		130	0	70		0	0	0	
Added Vol:	10	89	0		0	93	0		0	0	10		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	140	269	0		0	243	140		130	0	80		0	0	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	140	269	0		0	243	140		130	0	80		0	0	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	140	269	0		0	243	140		130	0	80		0	0	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	140	269	0		0	243	140		130	0	80		0	0	0	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	1.00		1.00	0.95	0.95		0.95	1.00	0.85		1.00	1.00	1.00	
Lanes:	1.00	1.00	0.00		0.00	0.63	0.37		1.00	0.00	1.00		0.00	0.00	0.00	
Final Sat.:	1805	1900	0		0	1146	660		1805	0	1615		0	0	0	
Capacity Analysis Module:																
Vol/Sat:	0.08	0.14	0.00		0.00	0.21	0.21		0.07	0.00	0.05		0.00	0.00	0.00	
Crit Moves:	****					****			****							
Green/Cycle:	0.19	0.45	0.00		0.00	0.51	0.51		0.17	0.00	0.06		0.00	0.00	0.00	
Volume/Cap:	0.42	0.32	0.00		0.00	0.42	0.42		0.42	0.00	0.89		0.00	0.00	0.00	
Delay/Veh:	33.2	16.2	0.0		0.0	14.1	14.1		34.1	0.0	101.7		0.0	0.0	0.0	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	33.2	16.2	0.0		0.0	14.1	14.1		34.1	0.0	101.7		0.0	0.0	0.0	
LOS by Move:	C	B	A		A	B	B		C	A	F		A	A	A	
HCM2kAvgQ:	4	5	0		0	7	7		4	0	5		0	0	0	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 McDougald/Henry Long

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.792
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): 21.5
Optimal Cycle: 0 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	0 1	0		1 0	0 1	0		1 0	0 1	0		1 0	0 1	0	
Volume Module:																
Base Vol:	100	460	20		20	370	130		60	10	90		10	10	10	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	100	460	20		20	370	130		60	10	90		10	10	10	
Added Vol:	0	0	0		0	0	2		2	0	1		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	100	460	20		20	370	132		62	10	91		10	10	10	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	100	460	20		20	370	132		62	10	91		10	10	10	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	100	460	20		20	370	132		62	10	91		10	10	10	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	100	460	20		20	370	132		62	10	91		10	10	10	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	1.00	0.96	0.04		1.00	0.74	0.26		1.00	0.10	0.90		1.00	0.50	0.50	
Final Sat.:	566	600	26		554	467	167		443	51	463		416	230	230	
Capacity Analysis Module:																
Vol/Sat:	0.18	0.77	0.77	0.04	0.79	0.79	0.14		0.20	0.20	0.02		0.04	0.04		
Crit Moves:			****		****				****				****			
Delay/Veh:	10.2	24.1	24.1	9.2	25.8	25.8	11.5		10.6	10.6	10.8		10.1	10.1		
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		
AdjDel/Veh:	10.2	24.1	24.1	9.2	25.8	25.8	11.5		10.6	10.6	10.8		10.1	10.1		
LOS by Move:	B	C	C	A	D	D	B		B	B	B		B	B		
ApproachDel:	21.7				25.2				10.9				10.3			
Delay Adj:	1.00				1.00				1.00				1.00			
ApprAdjDel:	21.7				25.2				10.9				10.3			
LOS by Appr:	C				D				B				B			
AllWayAvgQ:	0.2	2.7	2.7	0.0	3.1	3.1	0.1		0.2	0.2	0.0		0.0	0.0		

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 French Camp/Wolfe

Cycle (sec): 90 | Critical Vol./Cap.(X): 0.837
Loss Time (sec): 16 (Y+R=4.0 sec) | Average Delay (sec/veh): 32.1
Optimal Cycle: 91 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	0 1	0		2 0	0 1	0		1 0	2 1	0		1 0	2 1	0	
Volume Module:																
Base Vol:	40	160	70		220	20	20		10	220	10		20	610	770	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	40	160	70		220	20	20		10	220	10		20	610	770	
Added Vol:	0	0	7		3	0	0		0	5	0		5	5	2	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	40	160	77		223	20	20		10	225	10		25	615	772	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	40	160	77		223	20	20		10	225	10		25	615	772	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	40	160	77		223	20	20		10	225	10		25	615	772	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	40	160	77		223	20	20		10	225	10		25	615	772	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.95	0.95		0.92	0.93	0.93		0.95	0.90	0.90		0.95	0.83	0.83	
Lanes:	1.00	0.68	0.32		2.00	0.50	0.50		1.00	2.87	0.13		1.00	2.00	1.00	
Final Sat.:	1805	1220	587		3502	879	879		1805	4936	219		1805	3168	1584	
Capacity Analysis Module:																
Vol/Sat:	0.02	0.13	0.13	0.06	0.02	0.02	0.01		0.05	0.05	0.01		0.19	0.49		
Crit Moves:		****		****			****							****		
Green/Cycle:	0.09	0.14	0.14	0.08	0.13	0.13	0.08		0.35	0.35	0.25		0.53	0.53		
Volume/Cap:	0.25	0.93	0.93	0.82	0.18	0.18	0.07		0.13	0.13	0.06		0.37	0.93		
Delay/Veh:	38.9	75.5	75.5	58.3	35.3	35.3	38.7		19.7	19.7	25.8		12.6	30.2		
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		
AdjDel/Veh:	38.9	75.5	75.5	58.3	35.3	35.3	38.7		19.7	19.7	25.8		12.6	30.2		
LOS by Move:	D	E	E	E	D	D	D		B	B	C		B	C		
HCM2kAvgQ:	1	10	10	5	1	1	0		2	2	1		6	27		

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

```
*******************************************************************************
Intersection #11 French Camp/McDougald
*******************************************************************************
Cycle (sec):          90                 Critical Vol./Cap.(X):         0.792
Loss Time (sec):      12 (Y+R=4.0 sec)   Average Delay (sec/veh):        16.6
Optimal Cycle:        73                 Level Of Service:                 B
*******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase      Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     7   10   10     7   10   10     7   10   10     7   10   10
Lanes:        0  0  0  0  0    1  0  0  0  1    1  0  2  0  0    0  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0    0   160    0   10   20  490    0    0 1400  540
Growth Adj:  1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:    0    0    0   160    0   10   20  490    0    0 1400  540
Added Vol:      0    0    0     1    0    0    0   14    0    0   12    0
PasserByVol:    0    0    0     0    0    0    0    0    0    0    0    0
Initial Fut:    0    0    0   161    0   10   20  504    0    0 1412  540
User Adj:    1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume:     0    0    0   161    0   10   20  504    0    0 1412  540
Reduct Vol:     0    0    0     0    0    0    0    0    0    0    0    0
Reduced Vol:    0    0    0   161    0   10   20  504    0    0 1412  540
PCE Adj:     1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj:     1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume:    0    0    0   161    0   10   20  504    0    0 1412  540
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment:  1.00 1.00 1.00 0.95 1.00 0.85 0.95 0.95 1.00 1.00 0.91 0.91
Lanes:       0.00 0.00 0.00 1.00 0.00 1.00 1.00 2.00 0.00 0.00 1.45 0.55
Final Sat.:     0    0    0 1805    0 1615 1805 3610    0    0 2502  957
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00 0.00 0.09 0.00 0.01 0.01 0.14 0.00 0.00 0.56 0.56
Crit Moves:                      ****          ****                ****
Green/Cycle: 0.00 0.00 0.00 0.11 0.00 0.11 0.08 0.49 0.00 0.00 0.68 0.68
Volume/Cap:  0.00 0.00 0.00 0.80 0.00 0.06 0.14 0.29 0.00 0.00 0.83 0.83
Delay/Veh:    0.0  0.0  0.0 59.4  0.0 35.9 39.2 14.0  0.0  0.0 13.4 13.4
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh:   0.0  0.0  0.0 59.4  0.0 35.9 39.2 14.0  0.0  0.0 13.4 13.4
LOS by Move:    A    A    A    E    A    D    D    B    A    A    B    B
HCM2kAvgQ:      0    0    0    7    0    0    1    4    0    0   23   23
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

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CORSIM LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Year 2025 No Project **HCM:** 2000
Scenario: Weston Ranch Towne Center EIR **PHF:** 1
TOD: PM **# of Runs:** 10

Intersection: French Camp Rd / Manthey Rd **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	160	148	93	0	53.9	D	--
	T	160	143	89	0	40.5	D	--
	R	180	208	116	0	6.4	A	--
	Subtotal	**500**	**499**	**100**	**--**	**30.3**	**C**	**--**
SB	L	10	10	100	0	47.1	D	--
	T	60	68	113	0	63.3	E	--
	R	30	24	80	0	8.1	A	--
	Subtotal	**100**	**102**	**102**	**--**	**48.7**	**D**	**--**
EB	L	10	10	100	0	68.9	E	--
	T	570	569	100	0	15.7	B	--
	R	70	68	97	0	14.0	B	--
	Subtotal	**650**	**647**	**100**	**--**	**16.4**	**B**	**--**
WB	L	110	105	95	1	55.8	E	--
	T	1550	1484	96	4	11.7	B	--
	R	230	229	100	1	6.1	A	--
	Subtotal	**1890**	**1818**	**96**	**--**	**13.5**	**B**	**--**
	Total	**3140**	**3066**	**98**	**--**	**18.0**	**B**	**--**

Intersection: French Camp Rd / I-5 SB Ramps **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	860	862	100	0	39.3	D	--
	R	480	477	99	1	42.3	D	--
	Subtotal	**1340**	**1339**	**100**	**--**	**40.4**	**D**	**--**
EB	T	690	686	99	4	20.2	C	--
	R	90	99	110	0	6.3	A	--
	Subtotal	**780**	**785**	**101**	**--**	**18.5**	**B**	**--**
WB	T	1410	1339	95	6	14.6	B	--
	Subtotal	**1410**	**1339**	**95**	**--**	**14.6**	**B**	**--**
	Total	**3530**	**3462**	**98**	**--**	**25.4**	**C**	**--**

FEHR & PEERS
TRANSPORTATION CONSULTANTS

CORSIM LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Year 2025 No Project **HCM:** 2000
Scenario: Weston Ranch Towne Center EIR **PHF:** 1
TOD: PM **# of Runs:** 10

Intersection: French Camp Rd / I-5 NB Ramps **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	120	121	101	0	42.9	D	--
	R	180	179	99	0	52.7	D	--
	Subtotal	**300**	**300**	**100**	**--**	**48.8**	**D**	**--**
EB	T	1220	1214	100	1	8.1	A	--
	Subtotal	**1220**	**1214**	**100**	**--**	**8.1**	**A**	**--**
WB	T	4430	4340	98	15	6.9	A	--
	Subtotal	**4430**	**4340**	**98**	**--**	**6.9**	**A**	**--**
	Total	**5950**	**5854**	**98**	**--**	**9.2**	**A**	**--**

Intersection: French Camp Rd / Val Dervin Pkwy **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	660	678	103	8	67.9	E	--
	T	10	6	60	0	72.3	E	--
	R	30	27	90	0	6.7	A	--
	Subtotal	**700**	**711**	**102**	**--**	**65.7**	**E**	**--**
SB	L	20	12	60	0	61.8	E	--
	T	20	24	120	0	71.9	E	--
	R	200	204	102	0	11.9	B	--
	Subtotal	**240**	**240**	**100**	**--**	**20.4**	**C**	**--**
EB	L	120	125	104	1	154.9	F	--
	T	650	627	96	1	15.3	B	--
	R	630	659	105	1	15.1	B	--
	Subtotal	**1400**	**1411**	**101**	**--**	**27.5**	**C**	**--**
WB	L	110	135	123	0	76.1	E	--
	T	3570	3468	97	21	48.3	D	--
	R	220	227	103	1	52.6	D	--
	Subtotal	**3900**	**3830**	**98**	**--**	**49.5**	**D**	**--**
	Total	**6240**	**6192**	**99**	**--**	**45.2**	**D**	**--**

FEHR & PEERS
TRANSPORTATION CONSULTANTS

```
Cumulative w/o Proj PM     Wed Apr 9, 2008 16:34:09                 Page 14-1
-------------------------------------------------------------------------------
                        Weston Ranch Towne Center EIR
                         Future 2025 Without Project
                               PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #16 Yettner/Manthey
*******************************************************************************
Average Delay (sec/veh):      2.0       Worst Case Level Of Service: C[ 16.0]
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        1  0  0  1  0    1  0  0  1  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       30  520    10    10  180    20    20   10    20    10   10    20
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    30  520    10    10  180    20    20   10    20    10   10    20
Added Vol:       0   14     0     0   14     0     0    0     0     0    0     0
PasserByVol:     0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    30  534    10    10  194    20    20   10    20    10   10    20
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     30  534    10    10  194    20    20   10    20    10   10    20
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    30  534    10    10  194    20    20   10    20    10   10    20
Critical Gap Module:
Critical Gp:   4.1 xxxx xxxxx   4.1 xxxx xxxxx   7.1  6.5   6.2   7.1  6.5   6.2
FollowUpTim:   2.2 xxxx xxxxx   2.2 xxxx xxxxx   3.5  4.0   3.3   3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:   214 xxxx xxxxx   544 xxxx xxxxx   838  828   204   838  833   539
Potent Cap.:  1368 xxxx xxxxx  1035 xxxx xxxxx   288  309   842   288  307   546
Move Cap.:    1368 xxxx xxxxx  1035 xxxx xxxxx   264  299   842   267  297   546
Volume/Cap:   0.02 xxxx  xxxx  0.01 xxxx  xxxx  0.08 0.03  0.02  0.04 0.03  0.04
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:     0.1 xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:   7.7 xxxx xxxxx   8.5 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     A    *     *     *    *     *     *    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.:  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  376 xxxxx  xxxx  372 xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.5 xxxxx xxxxx  0.4 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 16.0 xxxxx xxxxx 15.9 xxxxx
Shared LOS:     *    *     *     *    *     *     *    C     *     *    C     *
ApproachDel:    xxxxxx            xxxxxx             16.0             15.9
ApproachLOS:         *                 *                C                C
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************


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```

Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #17 Mathews/S. Manthey

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.680
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): 16.6
Optimal Cycle: 0 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	0	0	1!	0 0	1	0	1	0 1	0	1	0	1 0	0	1	0	1 0
Volume Module:																
Base Vol:	10	40	30		100	40	70		40	720	20		40	280	100	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	10	40	30		100	40	70		40	720	20		40	280	100	
Added Vol:	0	4	0		11	3	0		0	0	0		0	0	11	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	10	44	30		111	43	70		40	720	20		40	280	111	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	10	44	30		111	43	70		40	720	20		40	280	111	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	10	44	30		111	43	70		40	720	20		40	280	111	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	10	44	30		111	43	70		40	720	20		40	280	111	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.12	0.52	0.36		1.00	1.00	1.00		0.10	1.85	0.05		0.19	1.30	0.51	
Final Sat.:	55	240	164		434	460	506		59	1067	30		97	699	289	
Capacity Analysis Module:																
Vol/Sat:	0.18	0.18	0.18		0.26	0.09	0.14		0.68	0.67	0.67		0.41	0.40	0.38	
Crit Moves:	****				****				****				****			
Delay/Veh:	11.9	11.9	11.9		13.1	10.8	10.4		20.7	20.4	20.1		13.8	13.3	12.6	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	11.9	11.9	11.9		13.1	10.8	10.4		20.7	20.4	20.1		13.8	13.3	12.6	
LOS by Move:	B	B	B		B	B	B		C	C	C		B	B	B	
ApproachDel:	11.9				11.8				20.4				13.2			
Delay Adj:	1.00				1.00				1.00				1.00			
ApprAdjDel:	11.9				11.8				20.4				13.2			
LOS by Appr:	B				B				C				B			
AllWayAvgQ:	0.2	0.2	0.2		0.3	0.1	0.1		1.9	1.8	1.8		0.6	0.6	0.6	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 Mathews/I5 SB Ramps

Average Delay (sec/veh): 3.0 | Worst Case Level Of Service: B[13.7]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	1	0	0 1	0	0	1	1 0	1	0	1	0 0
Volume Module:																
Base Vol:	0	0	0		120	0	170		0	730	120		30	250	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		120	0	170		0	730	120		30	250	0	
Added Vol:	0	0	0		0	0	0		0	3	7		0	11	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		120	0	170		0	733	127		30	261	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	0	0	0		120	0	170		0	733	127		30	261	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	0	0	0		120	0	170		0	733	127		30	261	0	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		6.4	6.5	6.2		xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx	
FollowUpTim:	xxxxx	xxxx	xxxxx		3.5	4.0	3.3		xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		688	1181	261		xxxx	xxxx	xxxxx		860	xxxx	xxxxx	
Potent Cap.:	xxxx	xxxx	xxxxx		415	192	783		xxxx	xxxx	xxxxx		790	xxxx	xxxxx	
Move Cap.:	xxxx	xxxx	xxxxx		403	184	783		xxxx	xxxx	xxxxx		790	xxxx	xxxxx	
Volume/Cap:	xxxx	xxxx	xxxx		0.30	0.00	0.22		xxxx	xxxx	xxxx		0.04	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	0.8		xxxx	xxxx	xxxxx		0.1	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	10.9		xxxxx	xxxx	xxxxx		9.7	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	B		*	*	*		A	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		403	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		1.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		17.7	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		C	*	*		*	*	*		*	*	*	
ApproachDel:	xxxxxx				13.7				xxxxxx				xxxxxx			
ApproachLOS:	*				B				*				*			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 Mathews/I5 NB Ramps

Average Delay (sec/veh): 10.6 Worst Case Level Of Service: F[149.9]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	1	0	0 1	0	0	0	0 0	1	0	2	0 0	0	0	0	1 0
Volume Module:																
Base Vol:	40		0	20	0		0	0	500	350		0	0	240		380
Growth Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Initial Bse:	40		0	20	0		0	0	500	350		0	0	240		380
Added Vol:	7		0	0	0		0	0	0	3		0	0	4		0
PasserByVol:	0		0	0	0		0	0	0	0		0	0	0		0
Initial Fut:	47		0	20	0		0	0	500	353		0	0	244		380
User Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
PHF Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
PHF Volume:	47		0	20	0		0	0	500	353		0	0	244		380
Reduct Vol:	0		0	0	0		0	0	0	0		0	0	0		0
FinalVolume:	47		0	20	0		0	0	500	353		0	0	244		380
Critical Gap Module:																
Critical Gp:	6.4	6.5		6.2	xxxxx	xxxx		xxxxx	4.1	xxxx		xxxxx	xxxxx	xxxx		xxxxx
FollowUpTim:	3.5	4.0		3.3	xxxxx	xxxx		xxxxx	2.2	xxxx		xxxxx	xxxxx	xxxx		xxxxx
Capacity Module:																
Cnflict Vol:	1787	1977		177	xxxx	xxxx		xxxxx	624	xxxx		xxxxx	xxxx	xxxx		xxxxx
Potent Cap.:	90		63	872	xxxx	xxxx		xxxxx	967	xxxx		xxxxx	xxxx	xxxx		xxxxx
Move Cap.:	54		30	872	xxxx	xxxx		xxxxx	967	xxxx		xxxxx	xxxx	xxxx		xxxxx
Volume/Cap:	0.88	0.00		0.02	xxxx	xxxx		xxxx	0.52	xxxx		xxxx	xxxx	xxxx		xxxx
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx		0.1	xxxx	xxxx		xxxxx	3.1	xxxx		xxxxx	xxxx	xxxx		xxxxx
Control Del:	xxxxx	xxxx		9.2	xxxxx	xxxx		xxxxx	12.6	xxxx		xxxxx	xxxxx	xxxx		xxxxx
LOS by Move:	*	*		A	*	*		*	B	*		*	*	*		*
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	54	xxxx		xxxxx	xxxx	xxxx		xxxxx	xxxx	xxxx		xxxxx	xxxx	xxxx		xxxxx
SharedQueue:	3.8	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx
Shrd ConDel:	209.8	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx
Shared LOS:	F	*		*	*	*		*	*	*		*	*	*		*
ApproachDel:	149.9				xxxxxx				xxxxxx				xxxxxx			
ApproachLOS:	F				*				*				*			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #20 Howard/Wolfe

Average Delay (sec/veh): 3.4 Worst Case Level Of Service: C[19.4]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	1	0	0	1 0	1	0	0	1 0
Volume Module:																
Base Vol:	10		10	10	10		10	10	170	400		10	20	130		10
Growth Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Initial Bse:	10		10	10	10		10	10	170	400		10	20	130		10
Added Vol:	0		0	0	0		0	5	7	0		0	0	0		0
PasserByVol:	0		0	0	0		0	0	0	0		0	0	0		0
Initial Fut:	10		10	10	10		10	15	177	400		10	20	130		10
User Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
PHF Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
PHF Volume:	10		10	10	10		10	15	177	400		10	20	130		10
Reduct Vol:	0		0	0	0		0	0	0	0		0	0	0		0
FinalVolume:	10		10	10	10		10	15	177	400		10	20	130		10
Critical Gap Module:																
Critical Gp:	7.1	6.5		6.2	7.1	6.5		6.2	4.1	xxxx		xxxxx	4.1	xxxx		xxxxx
FollowUpTim:	3.5	4.0		3.3	3.5	4.0		3.3	2.2	xxxx		xxxxx	2.2	xxxx		xxxxx
Capacity Module:																
Cnflict Vol:	947	939		405	944	939		135	140	xxxx		xxxxx	410	xxxx		xxxxx
Potent Cap.:	243	266		650	244	266		919	1456	xxxx		xxxxx	1160	xxxx		xxxxx
Move Cap.:	207	230		650	208	230		919	1456	xxxx		xxxxx	1160	xxxx		xxxxx
Volume/Cap:	0.05	0.04		0.02	0.05	0.04		0.02	0.12	xxxx		xxxx	0.02	xxxx		xxxx
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx		xxxxx	xxxx	xxxx		xxxxx	0.4	xxxx		xxxxx	0.1	xxxx		xxxxx
Control Del:	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	7.8	xxxx		xxxxx	8.2	xxxx		xxxxx
LOS by Move:	*	*		*	*	*		*	A	*		*	A	*		*
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	280		xxxxx	xxxx	324		xxxxx	xxxx	xxxx		xxxxx	xxxx	xxxx		xxxxx
SharedQueue:	xxxxx	0.4		xxxxx	xxxxx	0.4		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx
Shrd ConDel:	xxxxx	19.4		xxxxx	xxxxx	17.4		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx
Shared LOS:	*	C		*	*	C		*	*	*		*	*	*		*
ApproachDel:	19.4				17.4				xxxxxx				xxxxxx			
ApproachLOS:	C				C				*				*			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 Without Project
AM Peak Hour

Scenario Report

Scenario:	Cumulative w/o Proj AM
Command:	Cumulative w/o Proj AM
Volume:	Cumulative AM WO
Geometry:	Cumulative
Impact Fee:	Default Impact Fee
Trip Generation:	No Project AM
Trip Distribution:	Peak Hour
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Future 2035 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Carolyn Weston/McDougald

Cycle (sec): 120 Critical Vol./Cap.(X): 0.840
Loss Time (sec): 16 (Y+R=4.0 sec) Average Delay (sec/veh): 41.1
Optimal Cycle: 105 Level Of Service: D

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Protected						Protected						Protected						Protected					
Rights:	Include						Include						Include						Include					
Min. Green:	7	10	10				7	10	10				7	10	10				7	10	10			
Lanes:	1	0	1	0	1		1	0	0	1	0		1	0	1	1	0		1	0	1	1	0	
Volume Module:																								
Base Vol:	176	70	258				90	70	20				20	1043	113				347	806	60			
Growth Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
Initial Bse:	176	70	258				90	70	20				20	1043	113				347	806	60			
Added Vol:	0	0	0				0	0	0				0	5	0				0	2	0			
PasserByVol:	0	0	0				0	0	0				0	0	0				0	0	0			
Initial Fut:	176	70	258				90	70	20				20	1048	113				347	808	60			
User Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
PHF Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
PHF Volume:	176	70	258				90	70	20				20	1048	113				347	808	60			
Reduct Vol:	0	0	0				0	0	0				0	0	0				0	0	0			
Reduced Vol:	176	70	258				90	70	20				20	1048	113				347	808	60			
PCE Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
MLF Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
FinalVolume:	176	70	258				90	70	20				20	1048	113				347	808	60			
Saturation Flow Module:																								
Sat/Lane:	1900	1900	1900				1900	1900	1900				1900	1900	1900				1900	1900	1900			
Adjustment:	0.95	1.00	0.85				0.95	0.97	0.97				0.95	0.94	0.94				0.95	0.94	0.94			
Lanes:	1.00	1.00	1.00				1.00	0.78	0.22				1.00	1.81	0.19				1.00	1.86	0.14			
Final Sat.:	1805	1900	1615				1805	1429	408				1805	3210	346				1805	3327	247			
Capacity Analysis Module:																								
Vol/Sat:	0.10	0.04	0.16				0.05	0.05	0.05				0.01	0.33	0.33				0.19	0.24	0.24			
Crit Moves:			****				****							****					****					
Green/Cycle:	0.13	0.19	0.19				0.06	0.11	0.11				0.12	0.39	0.39				0.23	0.50	0.50			
Volume/Cap:	0.73	0.19	0.84				0.84	0.43	0.43				0.09	0.84	0.84				0.84	0.49	0.49			
Delay/Veh:	60.2	41.1	65.2				97.6	50.8	50.8				47.2	38.1	38.1				58.4	20.2	20.2			
User DelAdj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
AdjDel/Veh:	60.2	41.1	65.2				97.6	50.8	50.8				47.2	38.1	38.1				58.4	20.2	20.2			
LOS by Move:	E	D	E				F	D	D				D	D	D				E	C	C			
HCM2kAvgQ:	8	2	12				5	4	4				1	23	23				15	11	11			

Note: Queue reported is the number of cars per lane.

```
Cumulative w/o Proj AM     Wed Apr 9, 2008 16:35:27                    Page 6-1
--------------------------------------------------------------------------------
                          Weston Ranch Towne Center EIR
                           Future 2035 Without Project
                                  AM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
              2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #2 Carolyn Weston/S. Manthey
********************************************************************************
Cycle (sec):          120                 Critical Vol./Cap.(X):          0.692
Loss Time (sec):       16 (Y+R=4.0 sec)   Average Delay (sec/veh):        31.9
Optimal Cycle:         71                  Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:            Ovl              Ovl             Include          Include
Min. Green:     7   10    10     7   10    10     7   10    10     7   10    10
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  1  0    2  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     146   80   283    80   70    80   100 1188   103   430  987   100
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  146   80   283    80   70    80   100 1188   103   430  987   100
Added Vol:      2    0    20     0    0     0     0    0     5    43    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  148   80   303    80   70    80   100 1188   108   473  987   100
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   148   80   303    80   70    80   100 1188   108   473  987   100
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  148   80   303    80   70    80   100 1188   108   473  987   100
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  148   80   303    80   70    80   100 1188   108   473  987   100
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.95 0.95  0.85  0.95 0.94  0.94  0.92 0.94  0.94
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.83  0.17  2.00 1.82  0.18
Final Sat.:  1805 3610  1615  1805 3610  1615  1805 3269   297  3502 3232   327
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.02  0.19  0.04 0.02  0.05  0.06 0.36  0.36  0.14 0.31  0.31
Crit Moves:  ****                ****              ****        ****
Green/Cycle: 0.11 0.11  0.30  0.08 0.08  0.19  0.11 0.49  0.49  0.18 0.56  0.56
Volume/Cap:  0.74 0.19  0.63  0.55 0.23  0.26  0.51 0.74  0.74  0.74 0.54  0.54
Delay/Veh:   65.5 48.4  39.3  57.8 51.8  41.7  52.9 26.2  26.2  51.0 16.7  16.7
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  65.5 48.4  39.3  57.8 51.8  41.7  52.9 26.2  26.2  51.0 16.7  16.7
LOS by Move:   E    D     D     E    D     D     D    C     C     D    B     B
HCM2kAvgQ:     7    2    10     4    1     3     4   21    21    10   13    13
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************

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HCM Signalized Intersection Capacity Analysis — 2035 Cumulative Without Project

3: Downing Avenue & I-5 SB Ramps — AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.91	1.00	1.00	0.95						1.00	0.88
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539						1770	2787
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		5085	1583	1770	3539						1770	2787
Volume (vph)	0	1272	300	80	313	0	0	0	0	480	0	1247
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1272	300	80	313	0	0	0	0	480	0	1247
RTOR Reduction (vph)	0	0	177	0	0	0	0	0	0	0	0	535
Lane Group Flow (vph)	0	1272	123	80	313	0	0	0	0	0	480	712
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		32.9	32.9	6.0	42.9						29.1	29.1
Effective Green, g (s)		32.9	32.9	6.0	42.9						29.1	29.1
Actuated g/C Ratio		0.41	0.41	0.08	0.54						0.36	0.36
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		2091	651	133	1898						644	1014
v/s Ratio Prot		c0.25		c0.05	0.09							
v/s Ratio Perm			0.08								0.27	0.26
v/c Ratio		0.61	0.19	0.60	0.16						0.75	0.70
Uniform Delay, d1		18.5	15.0	35.8	9.4						22.2	21.7
Progression Factor		1.00	1.00	0.57	1.03						1.00	1.00
Incremental Delay, d2		1.3	0.6	6.9	0.2						4.7	2.2
Delay (s)		19.8	15.7	27.3	9.9						26.9	24.0
Level of Service		B	B	C	A						C	C
Approach Delay (s)		19.0			13.4			0.0			24.8	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	21.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Downing Avenue & I-5 NB Ramps

2035 Cumulative Without Project
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Util. Factor	0.97	1.00			0.95			1.00	1.00			
Frt	1.00	1.00			0.92			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	3433	1863			3249			1770	1583			
Flt Permitted	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	3433	1863			3249			1770	1583			
Volume (vph)	1057	695	0	0	233	280	160	0	80	0	0	0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1057	695	0	0	233	280	160	0	80	0	0	0
RTOR Reduction (vph)	0	0	0	0	189	0	0	0	68	0	0	0
Lane Group Flow (vph)	1057	695	0	0	324	0	0	160	12	0	0	0
Turn Type	Prot						Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases							2		2			
Actuated Green, G (s)	29.9	59.8			25.9			12.2	12.2			
Effective Green, g (s)	29.9	59.8			25.9			12.2	12.2			
Actuated g/C Ratio	0.37	0.75			0.32			0.15	0.15			
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	1283	1393			1052			270	241			
v/s Ratio Prot	c0.31	c0.37			0.10							
v/s Ratio Perm								0.09	0.01			
v/c Ratio	0.82	0.50			0.31			0.59	0.05			
Uniform Delay, d1	22.7	4.1			20.3			31.6	29.0			
Progression Factor	0.61	0.58			1.00			1.00	1.00			
Incremental Delay, d2	3.6	1.0			0.8			3.5	0.1			
Delay (s)	17.4	3.4			21.1			35.0	29.0			
Level of Service	B	A			C			D	C			
Approach Delay (s)		11.9			21.1			33.0			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			


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Cumulative w/o Proj AM     Wed Apr 9, 2008 16:35:27                    Page 7-1
--------------------------------------------------------------------------------
                          Weston Ranch Towne Center EIR
                           Future 2035 Without Project
                                 AM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
            2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #5 Downing/Turnpike
********************************************************************************
Average Delay (sec/veh): OVERFLOW       Worst Case Level Of Service: F[xxxxx]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     110  320    60    80  100   140   150  382   240   150  257    70
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  110  320    60    80  100   140   150  382   240   150  257    70
Added Vol:      0    0     0     0    0     0     0    3     0     0    6     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  110  320    60    80  100   140   150  385   240   150  263    70
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   110  320    60    80  100   140   150  385   240   150  263    70
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:  110  320    60    80  100   140   150  385   240   150  263    70
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1523 1438   505  1593 1523   298   333 xxxx xxxxx   625 xxxx xxxxx
Potent Cap.:   98  134   571    87  119   746  1238 xxxx xxxxx   966 xxxx xxxxx
Move Cap.:      0  100   571     0   89   746  1238 xxxx xxxxx   966 xxxx xxxxx
Volume/Cap:  xxxx 3.21  0.11  xxxx 1.13  0.19  0.12 xxxx  xxxx  0.16 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.4 xxxx xxxxx   0.5 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.3 xxxx xxxxx   9.4 xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     A    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx    0 xxxxx  xxxx    0 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx           xxxxxx           xxxxxx
ApproachLOS:        F                F                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************


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Weston Ranch Towne Center EIR
Future 2035 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 William Moss/McDougald

Cycle (sec): 60 | Critical Vol./Cap.(X): 0.644
Loss Time (sec): 16 (Y+R=4.0 sec) | Average Delay (sec/veh): 25.3
Optimal Cycle: 54 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	1	1	0	1 0	1	1	0	1 0	1	1	0	1 0	1	1	0
Volume Module:																
Base Vol:	56	218	120		93	387	160		350	200	53		110	160	136	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	56	218	120		93	387	160		350	200	53		110	160	136	
Added Vol:	0	0	0		0	0	0		0	5	0		0	2	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	56	218	120		93	387	160		350	205	53		110	162	136	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	56	218	120		93	387	160		350	205	53		110	162	136	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	56	218	120		93	387	160		350	205	53		110	162	136	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	56	218	120		93	387	160		350	205	53		110	162	136	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.90	0.90		0.95	0.91	0.91		0.95	0.92	0.92		0.95	0.89	0.89	
Lanes:	1.00	1.29	0.71		1.00	1.41	0.59		1.00	1.59	0.41		1.00	1.09	0.91	
Final Sat.:	1805	2205	1214		1805	2442	1009		1805	2779	719		1805	1829	1535	
Capacity Analysis Module:																
Vol/Sat:	0.03	0.10	0.10		0.05	0.16	0.16		0.19	0.07	0.07		0.06	0.09	0.09	
Crit Moves:	****					****			****					****		
Green/Cycle:	0.12	0.19	0.19		0.13	0.20	0.20		0.25	0.24	0.24		0.17	0.17	0.17	
Volume/Cap:	0.27	0.53	0.53		0.39	0.78	0.78		0.78	0.30	0.30		0.36	0.53	0.53	
Delay/Veh:	24.8	22.8	22.8		24.9	28.4	28.4		29.8	18.7	18.7		22.7	23.8	23.8	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	24.8	22.8	22.8		24.9	28.4	28.4		29.8	18.7	18.7		22.7	23.8	23.8	
LOS by Move:	C	C	C		C	C	C		C	B	B		C	C	C	
HCM2kAvgQ:	1	4	4		2	7	7		8	2	2		2	3	3	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 William Moss/S. Manthey

Cycle (sec): 60 | Critical Vol./Cap.(X): 0.415
Loss Time (sec): 12 (Y+R=4.0 sec) | Average Delay (sec/veh): 21.9
Optimal Cycle: 46 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Protected				Permitted				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	2	0	0	0 0	1	1	0	1 0	0	0	1	0 0	0	0	0
Volume Module:																
Base Vol:	76	299	0		0	534	70		190	0	123		0	0	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	76	299	0		0	534	70		190	0	123		0	0	0	
Added Vol:	2	22	0		0	47	0		0	0	5		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	78	321	0		0	581	70		190	0	128		0	0	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	78	321	0		0	581	70		190	0	128		0	0	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	78	321	0		0	581	70		190	0	128		0	0	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	78	321	0		0	581	70		190	0	128		0	0	0	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.95	1.00		1.00	0.93	0.93		0.95	1.00	0.85		1.00	1.00	1.00	
Lanes:	1.00	2.00	0.00		0.00	1.78	0.22		1.00	0.00	1.00		0.00	0.00	0.00	
Final Sat.:	1805	3610	0		0	3170	382		1805	0	1615		0	0	0	
Capacity Analysis Module:																
Vol/Sat:	0.04	0.09	0.00		0.00	0.18	0.18		0.11	0.00	0.08		0.00	0.00	0.00	
Crit Moves:	****					****			****							
Green/Cycle:	0.12	0.55	0.00		0.00	0.43	0.43		0.25	0.00	0.08		0.00	0.00	0.00	
Volume/Cap:	0.37	0.16	0.00		0.00	0.42	0.42		0.42	0.00	1.02		0.00	0.00	0.00	
Delay/Veh:	25.6	6.7	0.0		0.0	12.0	12.0		19.5	0.0	112.2		0.0	0.0	0.0	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	25.6	6.7	0.0		0.0	12.0	12.0		19.5	0.0	112.2		0.0	0.0	0.0	
LOS by Move:	C	A	A		A	B	B		B	A	F		A	A	A	
HCM2kAvgQ:	2	2	0		0	5	5		3	0	6		0	0	0	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 McDougald/Henry Long

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.292
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): 10.2
Optimal Cycle: 0 | Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	1	1 0	1	0	1	1 0	1	0	0	1 0	1	0	0	1 0
Volume Module:																
Base Vol:	90	104	10		10	151	190		140	10	120		10	10	30	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	90	104	10		10	151	190		140	10	120		10	10	30	
Added Vol:	1	0	0		0	0	0		0	0	2		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	91	104	10		10	151	190		140	10	122		10	10	30	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	91	104	10		10	151	190		140	10	122		10	10	30	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	91	104	10		10	151	190		140	10	122		10	10	30	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	91	104	10		10	151	190		140	10	122		10	10	30	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	1.00	1.82	0.18		1.00	1.00	1.00		1.00	0.08	0.92		1.00	0.25	0.75	
Final Sat.:	510	1008	98		532	578	652		531	48	589		492	143	430	
Capacity Analysis Module:																
Vol/Sat:	0.18	0.10	0.10		0.02	0.26	0.29		0.26	0.21	0.21		0.02	0.07	0.07	
Crit Moves:	****						****		****					****		
Delay/Veh:	10.8	9.5	9.5		9.3	10.7	10.0		11.4	9.3	9.3		9.6	8.9	8.9	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	10.8	9.5	9.5		9.3	10.7	10.0		11.4	9.3	9.3		9.6	8.9	8.9	
LOS by Move:	B	A	A		A	B	B		B	A	A		A	A	A	
ApproachDel:	10.1				10.3				10.4				9.0			
Delay Adj:	1.00				1.00				1.00				1.00			
ApprAdjDel:	10.1				10.3				10.4				9.0			
LOS by Appr:	B				B				B				A			
AllWayAvgQ:	0.2	0.1	0.1		0.0	0.3	0.4		0.3	0.2	0.2		0.0	0.1	0.1	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 French Camp/Wolfe

Cycle (sec): 90 | Critical Vol./Cap.(X): 0.725
Loss Time (sec): 16 (Y+R=4.0 sec) | Average Delay (sec/veh): 33.1
Optimal Cycle: 70 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Ovl			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	1	1 0	1	0	1	1 0	1	0	2	1 0	1	0	2	1 0
Volume Module:																
Base Vol:	60	660	45		373	570	90		10	723	190		14	566	136	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	60	660	45		373	570	90		10	723	190		14	566	136	
Added Vol:	0	0	2		2	0	0		0	3	0		1	1	1	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	60	660	47		375	570	90		10	726	190		15	567	137	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	60	660	47		375	570	90		10	726	190		15	567	137	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	60	660	47		375	570	90		10	726	190		15	567	137	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	60	660	47		375	570	90		10	726	190		15	567	137	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.94	0.94		0.95	0.93	0.93		0.95	0.88	0.88		0.95	0.88	0.88	
Lanes:	1.00	1.87	0.13		1.00	1.73	0.27		1.00	2.38	0.62		1.00	2.42	0.58	
Final Sat.:	1805	3336	238		1805	3055	482		1805	3984	1043		1805	4056	980	
Capacity Analysis Module:																
Vol/Sat:	0.03	0.20	0.20		0.21	0.19	0.19		0.01	0.18	0.18		0.01	0.14	0.14	
Crit Moves:		****			****					****			****			
Green/Cycle:	0.15	0.25	0.25		0.26	0.36	0.36		0.11	0.23	0.23		0.08	0.20	0.46	
Volume/Cap:	0.22	0.79	0.79		0.79	0.51	0.51		0.05	0.79	0.79		0.11	0.71	0.30	
Delay/Veh:	33.9	36.3	36.3		39.5	22.8	22.8		35.9	36.3	36.3		38.9	35.9	15.3	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	33.9	36.3	36.3		39.5	22.8	22.8		35.9	36.3	36.3		38.9	35.9	15.3	
LOS by Move:	C	D	D		D	C	C		D	D	D		D	D	B	
HCM2kAvgQ:	2	12	12		12	8	8		0	11	11		0	8	4	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 Without Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 French Camp/McDougald

Cycle (sec): 90 Critical Vol./Cap.(X): 0.668
Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 26.1
Optimal Cycle: 54 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Split Phase				Split Phase				Protected				Permitted			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	0 0	0	0	0	1 0	0	0	1	1 0	3	0	0	0 0	2	1	0
Volume Module:																
Base Vol:	0	0	0		611	0	60		160	982	0		0	656	104	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		611	0	60		160	982	0		0	656	104	
Added Vol:	0	0	0		2	0	0		0	6	0		0	3	1	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		613	0	60		160	988	0		0	659	105	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	0	0	0		613	0	60		160	988	0		0	659	105	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		613	0	60		160	988	0		0	659	105	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	0	0	0		613	0	60		160	988	0		0	659	105	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	1.00	1.00	1.00		0.95	1.00	0.85		0.95	0.91	1.00		1.00	0.89	0.89	
Lanes:	0.00	0.00	0.00		1.00	0.00	1.00		1.00	3.00	0.00		0.00	2.59	0.41	
Final Sat.:	0	0	0		1805	0	1615		1805	5187	0		0	4380	698	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.34	0.00	0.04		0.09	0.19	0.00		0.00	0.15	0.15	
Crit Moves:					****				****					****		
Green/Cycle:	0.00	0.00	0.00		0.51	0.00	0.51		0.13	0.36	0.00		0.00	0.23	0.23	
Volume/Cap:	0.00	0.00	0.00		0.67	0.00	0.07		0.67	0.53	0.00		0.00	0.67	0.67	
Delay/Veh:	0.0	0.0	0.0		18.4	0.0	11.3		44.2	23.2	0.0		0.0	33.3	33.3	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		18.4	0.0	11.3		44.2	23.2	0.0		0.0	33.3	33.3	
LOS by Move:	A	A	A		B	A	B		D	C	A		A	C	C	
HCM2kAvgQ:	0	0	0		13	0	1		6	8	0		0	8	8	

Note: Queue reported is the number of cars per lane.

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CORSIM LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2035 No Project **PHF:** 1
TOD: AM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: French Camp Road & Manthey Road **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	70	68	97	6	53.0	D	--
	T	47	48	102	8	47.6	D	--
	R	210	210	100	10	14.1	B	--
	Subtotal	**327**	**325**	**99**	**--**	**27.1**	**C**	**--**
SB	L	353	357	101	10	46.1	D	--
	T	173	170	98	12	39.6	D	--
	R	24	20	83	3	30.1	C	--
	Subtotal	**550**	**546**	**99**	**--**	**43.5**	**D**	**--**
EB	L	48	43	90	6	52.5	D	--
	T	1272	1286	101	8	23.1	C	--
	R	80	82	103	8	24.9	C	--
	Subtotal	**1400**	**1410**	**101**	**--**	**24.1**	**C**	**--**
WB	L	300	298	99	27	48.5	D	--
	T	848	859	101	47	11.2	B	--
	R	91	90	99	7	5.5	A	--
	Subtotal	**1239**	**1246**	**101**	**--**	**19.7**	**B**	**--**
	Total	**3516**	**3528**	**100**	**--**	**25.8**	**C**	**--**

Intersection: French Camp Road & I-5 SB Ramps **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	1430	1398	98	19	30.5	C	--
	R	396	399	101	19	30.6	C	--
	Subtotal	**1826**	**1797**	**98**	**--**	**30.5**	**C**	**--**
EB	T	1049	1162	111	11	19.1	B	--
	R	636	693	109	16	14.3	B	--
	Subtotal	**1685**	**1855**	**110**	**--**	**17.3**	**B**	**--**
WB	T	843	850	101	24	22.8	C	--
	Subtotal	**843**	**850**	**101**	**--**	**22.8**	**C**	**--**
	Total	**4354**	**4502**	**103**	**--**	**23.6**	**C**	**--**

FEHR & PEERS
TRANSPORTATION CONSULTANTS

CORSIM LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2035 No Project **PHF:** 1
TOD: AM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: French Camp Road & I-5 NB Ramps **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	187	185	99	8	36.1	D	--
	R	1120	1120	100	9	7.8	A	--
	Subtotal	**1307**	**1305**	**100**	**--**	**11.8**	**B**	**--**
EB	T	1714	1736	101	25	16.6	B	--
	Subtotal	**1714**	**1736**	**101**	**--**	**16.6**	**B**	**--**
WB	T	3156	3145	100	18	16.7	B	--
	Subtotal	**3156**	**3145**	**100**	**--**	**16.7**	**B**	**--**
	Total	**6177**	**6186**	**100**	**--**	**15.6**	**B**	**--**

Intersection: French Camp Road & Val Dervin Parkway **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	821	826	101	15	49.4	D	--
	T	80	72	90	11	31.5	C	--
	R	60	59	98	9	19.9	B	--
	Subtotal	**961**	**956**	**99**	**--**	**46.2**	**D**	**--**
SB	L	80	74	93	6	55.4	E	--
	T	70	68	97	11	50.1	D	--
	R	555	561	101	11	11.6	B	--
	Subtotal	**705**	**703**	**100**	**--**	**20.0**	**B**	**--**
EB	L	328	324	99	19	60.3	E	--
	T	2203	2237	102	29	23.0	C	--
	R	303	311	103	18	8.5	A	--
	Subtotal	**2834**	**2871**	**101**	**--**	**25.6**	**C**	**--**
WB	L	180	186	103	16	58.8	E	--
	T	1781	1772	99	19	41.3	D	--
	R	30	43	143	6	11.7	B	--
	Subtotal	**1991**	**2001**	**101**	**--**	**42.3**	**D**	**--**
	Total	**6491**	**6532**	**101**	**--**	**33.1**	**C**	**--**

FEHR & PEERS
TRANSPORTATION CONSULTANTS


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------------------------------------------------------------------------------
                        Weston Ranch Towne Center EIR
                         Future 2035 Without Project
                               AM Peak Hour
------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Operations Method (Future Volume Alternative)
******************************************************************************
Intersection #16 Yettner/Manthey
******************************************************************************
Cycle (sec):          60                Critical Vol./Cap.(X):         0.499
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):        19.9
Optimal Cycle:        50                Level Of Service:                 B
******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     7   10   10     7   10   10     7   10   10     7   10   10
Lanes:        1  0  1  1  0    1  0  1  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      60  207   50    50  410  230   110   50   60    50  100   50
Growth Adj:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Initial Bse:   60  207   50    50  410  230   110   50   60    50  100   50
Added Vol:      0    7    0     0    3    0     0    0    0     0    0    0
PasserByVol:    0    0    0     0    0    0     0    0    0     0    0    0
Initial Fut:   60  214   50    50  413  230   110   50   60    50  100   50
User Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Volume:    60  214   50    50  413  230   110   50   60    50  100   50
Reduct Vol:     0    0    0     0    0    0     0    0    0     0    0    0
Reduced Vol:   60  214   50    50  413  230   110   50   60    50  100   50
PCE Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
MLF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
FinalVolume:   60  214   50    50  413  230   110   50   60    50  100   50
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900
Adjustment:  0.95 0.92 0.92  0.95 0.90 0.90  0.95 0.92 0.92  0.95 0.95 0.95
Lanes:       1.00 1.62 0.38  1.00 1.28 0.72  1.00 0.45 0.55  1.00 0.67 0.33
Final Sat.:  1805 2844  665  1805 2193 1222  1805  793  951  1805 1203  602
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.08 0.08  0.03 0.19 0.19  0.06 0.06 0.06  0.03 0.08 0.08
Crit Moves:  ****                ****        ****                ****
Green/Cycle: 0.12 0.26 0.26  0.19 0.33 0.33  0.12 0.17 0.17  0.12 0.17 0.17
Volume/Cap:  0.28 0.28 0.28  0.15 0.56 0.56  0.52 0.38 0.38  0.24 0.50 0.50
Delay/Veh:   25.0 17.7 17.7  20.7 17.1 17.1  27.3 23.1 23.1  24.7 24.0 24.0
User DelAdj: 1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
AdjDel/Veh:  25.0 17.7 17.7  20.7 17.1 17.1  27.3 23.1 23.1  24.7 24.0 24.0
LOS by Move:   C    B    B     C    B    B     C    C    C     C    C    C
HCM2kAvgQ:     1    2    2     1    6    6     3    2    2     1    3    3
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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HCM Signalized Intersection Capacity Analysis
17: Mathews Rd. & Manthey Rd.

2035 Cumulative Without Project
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.86		1.00	0.86	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.94		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	6386		1770	6408	1583	1770	3334		1770	3235	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	6386		1770	6408	1583	1770	3334		1770	3235	
Volume (vph)	118	2180	50	80	1750	131	90	269	170	121	59	79
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	118	2180	50	80	1750	131	90	269	170	121	59	79
RTOR Reduction (vph)	0	2	0	0	0	62	0	97	0	0	74	0
Lane Group Flow (vph)	118	2228	0	80	1750	69	90	342	0	121	64	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	12.4	67.5		8.0	63.1	63.1	20.9	16.7		11.8	7.6	
Effective Green, g (s)	12.4	67.5		8.0	63.1	63.1	20.9	16.7		11.8	7.6	
Actuated g/C Ratio	0.10	0.56		0.07	0.53	0.53	0.17	0.14		0.10	0.06	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	183	3592		118	3370	832	308	464		174	205	
v/s Ratio Prot	0.07	c0.35		0.05	c0.27		0.05	c0.10		c0.07	0.02	
v/s Ratio Perm						0.04						
v/c Ratio	0.64	0.62		0.68	0.52	0.08	0.29	0.74		0.70	0.31	
Uniform Delay, d1	51.7	17.6		54.7	18.6	14.1	43.1	49.5		52.4	53.7	
Progression Factor	1.00	1.00		0.80	0.73	0.69	1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.6	0.8		13.2	0.5	0.2	0.5	6.0		11.4	0.9	
Delay (s)	59.3	18.5		56.9	14.1	9.9	43.6	55.5		63.8	54.6	
Level of Service	E	B		E	B	A	D	E		E	D	
Approach Delay (s)		20.5			15.5			53.5			58.9	
Approach LOS		C			B			D			E	

Intersection Summary			
HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
18: Mathews Rd. & I-5 Sb Ramps

2035 Cumulative Without Project
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0		4.0
Lane Util. Factor		0.91	1.00	1.00	0.95					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		5085	1583	1770	3539					3433		2787
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		5085	1583	1770	3539					3433		2787
Volume (vph)	0	2059	412	400	1501	0	0	0	0	400	0	460
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	2059	412	400	1501	0	0	0	0	400	0	460
RTOR Reduction (vph)	0	0	178	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2059	234	400	1501	0	0	0	0	400	0	460
Turn Type			Perm	Prot						Prot		Free
Protected Phases		4		3	8					1		
Permitted Phases			4									Free
Actuated Green, G (s)		56.9	56.9	34.0	94.9					17.1		120.0
Effective Green, g (s)		56.9	56.9	34.0	94.9					17.1		120.0
Actuated g/C Ratio		0.47	0.47	0.28	0.79					0.14		1.00
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0		
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		
Lane Grp Cap (vph)		2411	751	502	2799					489		2787
v/s Ratio Prot		c0.40		c0.23	0.42					c0.12		
v/s Ratio Perm			0.15									0.17
v/c Ratio		0.85	0.31	0.80	0.54					0.82		0.17
Uniform Delay, d1		27.9	19.5	39.8	4.6					49.9		0.0
Progression Factor		0.46	0.05	0.66	1.07					1.00		1.00
Incremental Delay, d2		3.3	0.9	0.8	0.1					10.2		0.1
Delay (s)		16.2	1.8	27.2	5.0					60.2		0.1
Level of Service		B	A	C	A					E		A
Approach Delay (s)		13.8			9.6			0.0			28.1	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	106.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Util. Factor	0.97	0.95			0.95	1.00	0.97		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	3433	3539			3539	1583	3433		1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	3433	3539			3539	1583	3433		1583			
Volume (vph)	1330	1129	0	0	1204	340	698	0	840	0	0	0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1330	1129	0	0	1204	340	698	0	840	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	177	0	0	0	0	0	0
Lane Group Flow (vph)	1330	1129	0	0	1204	163	698	0	840	0	0	0
Turn Type	Prot					Perm	Prot		Free			
Protected Phases	7	4			8		5					
Permitted Phases						8			Free			
Actuated Green, G (s)	45.0	88.0			39.0	39.0	24.0		120.0			
Effective Green, g (s)	45.0	88.0			39.0	39.0	24.0		120.0			
Actuated g/C Ratio	0.38	0.73			0.32	0.32	0.20		1.00			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0					
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0					
Lane Grp Cap (vph)	1287	2595			1150	514	687		1583			
v/s Ratio Prot	c0.39	0.32			c0.34		c0.20					
v/s Ratio Perm						0.10			0.53			
v/c Ratio	1.03	0.44			1.05	0.32	1.02		0.53			
Uniform Delay, d1	37.5	6.3			40.5	30.5	48.0		0.0			
Progression Factor	0.85	0.00			1.00	1.00	1.00		1.00			
Incremental Delay, d2	27.2	0.3			39.7	1.6	38.4		1.3			
Delay (s)	59.3	0.3			80.2	32.1	86.4		1.3			
Level of Service	E	A			F	C	F		A			
Approach Delay (s)		32.2			69.6			39.9			0.0	
Approach LOS		C			E			D			A	

Intersection Summary			
HCM Average Control Delay	44.8	HCM Level of Service	D
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	106.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			


```
Cumulative w/o Proj AM     Wed Apr 9, 2008 16:35:27                  Page 15-1
-------------------------------------------------------------------------------
                          Weston Ranch Towne Center EIR
                           Future 2035 Without Project
                                 AM Peak Hour
-------------------------------------------------------------------------------
                       Level Of Service Computation Report
              2000 HCM Operations Method (Future Volume Alternative)
*******************************************************************************
Intersection #20 Howard/Wolfe
*******************************************************************************
Cycle (sec):          100                 Critical Vol./Cap.(X):          0.937
Loss Time (sec):        0 (Y+R=4.0 sec)  Average Delay (sec/veh):         44.0
Optimal Cycle:        120                 Level Of Service:                  D
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     7   10    10     7   10    10     7   10    10     7   10    10
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      60  220   870   100  300    69    48  388    60   390  289    70
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   60  220   870   100  300    69    48  388    60   390  289    70
Added Vol:      0    0     0     0    0     1     2    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   60  220   870   100  300    70    50  388    60   390  289    70
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    60  220   870   100  300    70    50  388    60   390  289    70
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   60  220   870   100  300    70    50  388    60   390  289    70
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   60  220   870   100  300    70    50  388    60   390  289    70
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.95 0.95  0.85  0.95 0.93  0.93  0.95 0.92  0.92
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.73  0.27  1.00 1.61  0.39
Final Sat.:  1805 3610  1615  1805 3610  1615  1805 3064   474  1805 2822   683
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.06  0.54  0.06 0.08  0.04  0.03 0.13  0.13  0.22 0.10  0.10
Crit Moves:              ****  ****                 ****        ****
Green/Cycle: 0.26 0.57  0.57  0.07 0.38  0.38  0.15 0.13  0.13  0.23 0.21  0.21
Volume/Cap:  0.13 0.11  0.95  0.79 0.22  0.12  0.19 0.95  0.95  0.95 0.48  0.48
Delay/Veh:   28.2  9.9  38.5  73.6 21.3  20.5  37.8 71.5  71.5  69.2 34.8  34.8
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  28.2  9.9  38.5  73.6 21.3  20.5  37.8 71.5  71.5  69.2 34.8  34.8
LOS by Move:   C    A     D     E    C     C     D    E     E     E    C     C
HCM2kAvgQ:      1    2    30     5    3     1     1   11    11    16    5     5
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************

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Weston Ranch Towne Center EIR
Future 2035 Without Project
PM Peak Hour

Scenario Report

Scenario:	Cumulative w/o Proj PM
Command:	Cumulative w/o Proj PM
Volume:	Cumulative PM WO
Geometry:	Cumulative
Impact Fee:	Default Impact Fee
Trip Generation:	No Project PM
Trip Distribution:	Peak Hour
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Future 2035 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Carolyn Weston/McDougald

Cycle (sec): 120 Critical Vol./Cap.(X): 0.844
Loss Time (sec): 16 (Y+R=4.0 sec) Average Delay (sec/veh): 41.0
Optimal Cycle: 106 Level Of Service: D

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Protected						Protected						Protected						Protected					
Rights:	Include						Include						Include						Include					
Min. Green:	7	10	10				7	10	10				7	10	10				7	10	10			
Lanes:	1	0	1	0	1		1	0	0	1	0		1	0	1	1	0		1	0	1	1	0	
Volume Module:																								
Base Vol:	153	60	293				100	60	20				60	1063	73				313	923	70			
Growth Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
Initial Bse:	153	60	293				100	60	20				60	1063	73				313	923	70			
Added Vol:	0	0	0				0	0	0				0	13	0				0	15	0			
PasserByVol:	0	0	0				0	0	0				0	0	0				0	0	0			
Initial Fut:	153	60	293				100	60	20				60	1076	73				313	938	70			
User Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
PHF Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
PHF Volume:	153	60	293				100	60	20				60	1076	73				313	938	70			
Reduct Vol:	0	0	0				0	0	0				0	0	0				0	0	0			
Reduced Vol:	153	60	293				100	60	20				60	1076	73				313	938	70			
PCE Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
MLF Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
FinalVolume:	153	60	293				100	60	20				60	1076	73				313	938	70			
Saturation Flow Module:																								
Sat/Lane:	1900	1900	1900				1900	1900	1900				1900	1900	1900				1900	1900	1900			
Adjustment:	0.95	1.00	0.85				0.95	0.96	0.96				0.95	0.94	0.94				0.95	0.94	0.94			
Lanes:	1.00	1.00	1.00				1.00	0.75	0.25				1.00	1.87	0.13				1.00	1.86	0.14			
Final Sat.:	1805	1900	1615				1805	1372	457				1805	3347	227				1805	3326	248			
Capacity Analysis Module:																								
Vol/Sat:	0.08	0.03	0.18				0.06	0.04	0.04				0.03	0.32	0.32				0.17	0.28	0.28			
Crit Moves:			****				****							****					****					
Green/Cycle:	0.14	0.21	0.21				0.07	0.14	0.14				0.10	0.38	0.38				0.21	0.49	0.49			
Volume/Cap:	0.60	0.15	0.84				0.84	0.31	0.31				0.33	0.84	0.84				0.84	0.58	0.58			
Delay/Veh:	52.2	38.4	62.2				95.0	47.2	47.2				51.3	38.9	38.9				61.9	22.6	22.6			
User DelAdj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
AdjDel/Veh:	52.2	38.4	62.2				95.0	47.2	47.2				51.3	38.9	38.9				61.9	22.6	22.6			
LOS by Move:	D	D	E				F	D	D				D	D	D				E	C	C			
HCM2kAvgQ:	6	2	13				6	3	3				2	23	23				14	14	14			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Carolyn Weston/S. Manthey

Cycle (sec): 120 | Critical Vol./Cap.(X): 0.783
Loss Time (sec): 16 (Y+R=4.0 sec) | Average Delay (sec/veh): 42.8
Optimal Cycle: 88 | Level Of Service: D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Protected				Protected				Protected				Protected			
Rights:		Ovl				Ovl				Include				Include		
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	2	0	1	1 0	2	0	1	1 0	1	1	0	2 0	1	1	0
Volume Module:																
Base Vol:	233	140	219		240	120	220		250	1123	83		469	853	200	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	233	140	219		240	120	220		250	1123	83		469	853	200	
Added Vol:	15	0	128		0	0	0		0	0	13		112	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	248	140	347		240	120	220		250	1123	96		581	853	200	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	248	140	347		240	120	220		250	1123	96		581	853	200	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	248	140	347		240	120	220		250	1123	96		581	853	200	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	248	140	347		240	120	220		250	1123	96		581	853	200	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.95	0.85		0.95	0.95	0.85		0.95	0.94	0.94		0.92	0.92	0.92	
Lanes:	1.00	2.00	1.00		1.00	2.00	1.00		1.00	1.84	0.16		2.00	1.62	0.38	
Final Sat.:	1805	3610	1615		1805	3610	1615		1805	3286	281		3502	2842	666	
Capacity Analysis Module:																
Vol/Sat:	0.14	0.04	0.21		0.13	0.03	0.14		0.14	0.34	0.34		0.17	0.30	0.30	
Crit Moves:	****					****				****			****			
Green/Cycle:	0.17	0.10	0.30		0.15	0.08	0.28		0.19	0.42	0.42		0.20	0.42	0.42	
Volume/Cap:	0.82	0.40	0.72		0.86	0.40	0.49		0.71	0.82	0.82		0.82	0.71	0.71	
Delay/Veh:	64.8	51.7	43.0		73.0	53.0	37.1		51.8	35.1	35.1		53.7	30.3	30.3	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	64.8	51.7	43.0		73.0	53.0	37.1		51.8	35.1	35.1		53.7	30.3	30.3	
LOS by Move:	E	D	D		E	D	D		D	D	D		D	C	C	
HCM2kAvgQ:	11	3	13		11	3	7		10	23	23		13	18	18	

Note: Queue reported is the number of cars per lane.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.91	1.00	1.00	0.95						1.00	0.88
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539						1770	2787
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		5085	1583	1770	3539						1770	2787
Volume (vph)	0	1501	210	120	672	0	0	0	0	420	0	981
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1501	210	120	672	0	0	0	0	420	0	981
RTOR Reduction (vph)	0	0	120	0	0	0	0	0	0	0	0	255
Lane Group Flow (vph)	0	1501	90	120	672	0	0	0	0	0	420	726
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		34.4	34.4	8.1	46.5						25.5	25.5
Effective Green, g (s)		34.4	34.4	8.1	46.5						25.5	25.5
Actuated g/C Ratio		0.43	0.43	0.10	0.58						0.32	0.32
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		2187	681	179	2057						564	888
v/s Ratio Prot		c0.30		c0.07	0.19							
v/s Ratio Perm			0.06								0.24	c0.26
v/c Ratio		0.69	0.13	0.67	0.33						0.74	0.82
Uniform Delay, d1		18.4	13.8	34.7	8.7						24.3	25.1
Progression Factor		1.00	1.00	0.71	1.07						1.00	1.00
Incremental Delay, d2		1.8	0.4	4.7	0.2						5.3	5.9
Delay (s)		20.2	14.2	29.2	9.5						29.6	31.0
Level of Service		C	B	C	A						C	C
Approach Delay (s)		19.5			12.5			0.0			30.6	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	22.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	111.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Util. Factor	0.97	1.00			0.95			1.00	1.00			
Frt	1.00	1.00			0.93			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	3433	1863			3293			1770	1583			
Flt Permitted	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	3433	1863			3293			1770	1583			
Volume (vph)	1406	515	0	0	462	400	330	0	90	0	0	0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1406	515	0	0	462	400	330	0	90	0	0	0
RTOR Reduction (vph)	0	0	0	0	191	0	0	0	70	0	0	0
Lane Group Flow (vph)	1406	515	0	0	671	0	0	330	20	0	0	0
Turn Type	Prot						Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases							2		2			
Actuated Green, G (s)	32.0	54.4			18.4			17.6	17.6			
Effective Green, g (s)	32.0	54.4			18.4			17.6	17.6			
Actuated g/C Ratio	0.40	0.68			0.23			0.22	0.22			
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	1373	1267			757			389	348			
v/s Ratio Prot	c0.41	0.28			c0.20							
v/s Ratio Perm								0.19	0.01			
v/c Ratio	1.02	0.41			0.89			0.85	0.06			
Uniform Delay, d1	24.0	5.7			29.8			29.9	24.6			
Progression Factor	0.57	0.30			1.00			1.00	1.00			
Incremental Delay, d2	27.2	0.7			14.5			15.7	0.1			
Delay (s)	40.8	2.4			44.3			45.6	24.7			
Level of Service	D	A			D			D	C			
Approach Delay (s)		30.5			44.3			41.1			0.0	
Approach LOS		C			D			D			A	

Intersection Summary			
HCM Average Control Delay	35.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	111.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			


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Cumulative w/o Proj PM     Wed Apr 9, 2008 16:35:52                    Page 7-1
-------------------------------------------------------------------------------
                          Weston Ranch Towne Center EIR
                           Future 2035 Without Project
                                 PM Peak Hour
-------------------------------------------------------------------------------
                       Level Of Service Computation Report
            2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #5 Downing/Turnpike
*******************************************************************************
Average Delay (sec/veh):    288.3       Worst Case Level Of Service: F[1293.4]
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     280   20    60    60   10   150   180  266   140    60  365    60
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  280   20    60    60   10   150   180  266   140    60  365    60
Added Vol:      0    0     0     0    0     0     0   19     0     0   17     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  280   20    60    60   10   150   180  285   140    60  382    60
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   280   20    60    60   10   150   180  285   140    60  382    60
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:  280   20    60    60   10   150   180  285   140    60  382    60
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1327 1277   355  1287 1317   412   442 xxxx xxxxx   425 xxxx xxxxx
Potent Cap.:  134  168   693   142  159   644  1129 xxxx xxxxx  1145 xxxx xxxxx
Move Cap.:     81  134   693    98  127   644  1129 xxxx xxxxx  1145 xxxx xxxxx
Volume/Cap:  3.44 0.15  0.09  0.61 0.08  0.23  0.16 xxxx  xxxx  0.05 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.6 xxxx xxxxx   0.2 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.8 xxxx xxxxx   8.3 xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     A    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx   98 xxxxx  xxxx  237 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx 36.5 xxxxx xxxxx  8.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 1293 xxxxx xxxxx 84.9 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    F     *     *    F     *     *    *     *     *    *     *
ApproachDel:    1293.4             84.9           xxxxxx           xxxxxx
ApproachLOS:        F                F                *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************


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Weston Ranch Towne Center EIR
Future 2035 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 William Moss/McDougald

Cycle (sec): 60 | Critical Vol./Cap.(X): 0.564
Loss Time (sec): 16 (Y+R=4.0 sec) | Average Delay (sec/veh): 23.3
Optimal Cycle: 50 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	1	1	0	1 0	1	1	0	1 0	1	1	0	1 0	1	1	0
Volume Module:																
Base Vol:	43	673	160		123	233	460		30	150	53		80	150	43	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	43	673	160		123	233	460		30	150	53		80	150	43	
Added Vol:	0	0	0		0	0	0		0	13	0		0	15	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	43	673	160		123	233	460		30	163	53		80	165	43	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	43	673	160		123	233	460		30	163	53		80	165	43	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	43	673	160		123	233	460		30	163	53		80	165	43	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	43	673	160		123	233	460		30	163	53		80	165	43	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.92	0.92		0.95	0.86	0.86		0.95	0.91	0.91		0.95	0.92	0.92	
Lanes:	1.00	1.62	0.38		1.00	1.00	1.00		1.00	1.51	0.49		1.00	1.59	0.41	
Final Sat.:	1805	2832	673		1805	1625	1625		1805	2623	853		1805	2775	723	
Capacity Analysis Module:																
Vol/Sat:	0.02	0.24	0.24		0.07	0.14	0.28		0.02	0.06	0.06		0.04	0.06	0.06	
Crit Moves:	****						****			****			****			
Green/Cycle:	0.12	0.30	0.30		0.15	0.33	0.33		0.12	0.17	0.17		0.12	0.17	0.17	
Volume/Cap:	0.20	0.79	0.79		0.46	0.43	0.85		0.14	0.37	0.37		0.38	0.36	0.36	
Delay/Veh:	24.5	23.2	23.2		24.6	15.8	27.0		24.1	22.6	22.6		25.6	22.5	22.5	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	24.5	23.2	23.2		24.6	15.8	27.0		24.1	22.6	22.6		25.6	22.5	22.5	
LOS by Move:	C	C	C		C	B	C		C	C	C		C	C	C	
HCM2kAvgQ:	1	10	10		3	4	12		1	2	2		2	2	2	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 William Moss/S. Manthey

Cycle (sec): 60 | Critical Vol./Cap.(X): 0.454
Loss Time (sec): 12 (Y+R=4.0 sec) | Average Delay (sec/veh): 19.9
Optimal Cycle: 46 | Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	2	0	0	0 0	1	1	0	1 0	0	0	1	0 0	0	0	0
Volume Module:																
Base Vol:	113	312	0		0	241	130		270	0	163		0	0	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	113	312	0		0	241	130		270	0	163		0	0	0	
Added Vol:	15	143	0		0	125	0		0	0	13		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	128	455	0		0	366	130		270	0	176		0	0	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	128	455	0		0	366	130		270	0	176		0	0	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	128	455	0		0	366	130		270	0	176		0	0	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	128	455	0		0	366	130		270	0	176		0	0	0	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.95	1.00		1.00	0.91	0.91		0.95	1.00	0.85		1.00	1.00	1.00	
Lanes:	1.00	2.00	0.00		0.00	1.48	0.52		1.00	0.00	1.00		0.00	0.00	0.00	
Final Sat.:	1805	3610	0		0	2560	909		1805	0	1615		0	0	0	
Capacity Analysis Module:																
Vol/Sat:	0.07	0.13	0.00		0.00	0.14	0.14		0.15	0.00	0.11		0.00	0.00	0.00	
Crit Moves:	****					****			****							
Green/Cycle:	0.16	0.47	0.00		0.00	0.31	0.31		0.33	0.00	0.13		0.00	0.00	0.00	
Volume/Cap:	0.45	0.27	0.00		0.00	0.45	0.45		0.45	0.00	0.87		0.00	0.00	0.00	
Delay/Veh:	24.2	9.7	0.0		0.0	16.7	16.7		16.4	0.0	57.0		0.0	0.0	0.0	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	24.2	9.7	0.0		0.0	16.7	16.7		16.4	0.0	57.0		0.0	0.0	0.0	
LOS by Move:	C	A	A		A	B	B		B	A	E		A	A	A	
HCM2kAvgQ:	3	3	0		0	4	4		4	0	6		0	0	0	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 McDougald/Henry Long

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.536
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): 13.2
Optimal Cycle: 0 | Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	1	1	0	1 0	1	1	0	1 0	0	1	0	1 0	0	1	0
Volume Module:																
Base Vol:	100	606	20		20	106	100		90	10	160		10	10	10	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	100	606	20		20	106	100		90	10	160		10	10	10	
Added Vol:	5	0	0		0	0	0		0	0	4		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	105	606	20		20	106	100		90	10	164		10	10	10	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	105	606	20		20	106	100		90	10	164		10	10	10	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	105	606	20		20	106	100		90	10	164		10	10	10	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	105	606	20		20	106	100		90	10	164		10	10	10	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	1.00	1.94	0.06		1.00	1.03	0.97		1.00	0.06	0.94		1.00	0.50	0.50	
Final Sat.:	534	1130	37		456	506	523		471	32	525		432	241	241	
Capacity Analysis Module:																
Vol/Sat:	0.20	0.54	0.53	0.04	0.21	0.19	0.19	0.31	0.31	0.02	0.04	0.04				
Crit Moves:		****			****				****		****					
Delay/Veh:	10.8	15.3	15.2	10.5	11.4	10.4	11.6	11.4	11.4	10.6	9.8	9.8				
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
AdjDel/Veh:	10.8	15.3	15.2	10.5	11.4	10.4	11.6	11.4	11.4	10.6	9.8	9.8				
LOS by Move:	B	C	C	B	B	B	B	B	B	B	A	A				
ApproachDel:	14.6				10.9			11.5			10.1					
Delay Adj:	1.00				1.00			1.00			1.00					
ApprAdjDel:	14.6				10.9			11.5			10.1					
LOS by Appr:	B				B			B			B					
AllWayAvgQ:	0.2	1.1	1.1	0.0	0.2	0.2	0.2	0.4	0.4	0.0	0.0	0.0				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 Without Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 French Camp/Wolfe

Cycle (sec): 90 | Critical Vol./Cap.(X): 0.694
Loss Time (sec): 16 (Y+R=4.0 sec) | Average Delay (sec/veh): 30.2
Optimal Cycle: 66 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Ovl			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	1	1	0	1 0	1	1	0	1 0	2	1	0	1 0	2	1	0
Volume Module:																
Base Vol:	120	660	125		213	700	60		60	423	60		146	623	333	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	120	660	125		213	700	60		60	423	60		146	623	333	
Added Vol:	0	0	4		4	0	0		0	8	0		5	10	5	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	120	660	129		217	700	60		60	431	60		151	633	338	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	120	660	129		217	700	60		60	431	60		151	633	338	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	120	660	129		217	700	60		60	431	60		151	633	338	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	120	660	129		217	700	60		60	431	60		151	633	338	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.93	0.93		0.95	0.94	0.94		0.95	0.89	0.89		0.95	0.86	0.86	
Lanes:	1.00	1.67	0.33		1.00	1.84	0.16		1.00	2.63	0.37		1.00	2.00	1.00	
Final Sat.:	1805	2947	576		1805	3285	282		1805	4471	622		1805	3278	1639	
Capacity Analysis Module:																
Vol/Sat:	0.07	0.22	0.22	0.12	0.21	0.21	0.03	0.10	0.10	0.08	0.19	0.21				
Crit Moves:		****			****			****			****					
Green/Cycle:	0.13	0.31	0.31	0.17	0.35	0.35	0.08	0.20	0.20	0.15	0.27	0.43				
Volume/Cap:	0.52	0.72	0.72	0.72	0.61	0.61	0.43	0.49	0.49	0.56	0.72	0.47				
Delay/Veh:	38.8	30.0	30.0	43.8	25.1	25.1	41.7	32.5	32.5	38.4	31.9	18.3				
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
AdjDel/Veh:	38.8	30.0	30.0	43.8	25.1	25.1	41.7	32.5	32.5	38.4	31.9	18.3				
LOS by Move:	D	C	C	D	C	C	D	C	C	D	C	B				
HCM2kAvgQ:	4	12	12	7	10	10	2	5	5	5	10	8				

Note: Queue reported is the number of cars per lane.

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Cumulative w/o Proj PM     Wed Apr 9, 2008 16:35:52                 Page 13-1
--------------------------------------------------------------------------------
                         Weston Ranch Towne Center EIR
                          Future 2035 Without Project
                                PM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
              2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #11 French Camp/McDougald
********************************************************************************
Cycle (sec):          90                 Critical Vol./Cap.(X):         0.504
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        16.1
Optimal Cycle:        49                 Level Of Service:                 B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected         Permitted
Rights:           Include          Include          Include           Include
Min. Green:     7   10    10     7   10    10     7   10    10     7   10    10
Lanes:        0  0  0  0  0    1  0  0  0  1    1  0  3  0  0    0  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   156    0   250    40  721     0     0  852   406
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   156    0   250    40  721     0     0  852   406
Added Vol:      0    0     0     4    0     0     0   17     0     0   19     5
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0   160    0   250    40  738     0     0  871   411
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   160    0   250    40  738     0     0  871   411
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   160    0   250    40  738     0     0  871   411
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0   160    0   250    40  738     0     0  871   411
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 1.00  1.00  0.95 1.00  0.85  0.95 0.91  1.00  1.00 0.87  0.87
Lanes:       0.00 0.00  0.00  1.00 0.00  1.00  1.00 3.00  0.00  0.00 2.04  0.96
Final Sat.:     0    0     0  1805    0  1615  1805 5187     0     0 3355  1583
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.09 0.00  0.15  0.02 0.14  0.00  0.00 0.26  0.26
Crit Moves:                                ****  ****                  ****
Green/Cycle: 0.00 0.00  0.00  0.29 0.00  0.29  0.08 0.57  0.00  0.00 0.49  0.49
Volume/Cap:  0.00 0.00  0.00  0.30 0.00  0.53  0.28 0.25  0.00  0.00 0.53  0.53
Delay/Veh:    0.0  0.0   0.0  24.9  0.0  27.6  40.3  9.7   0.0   0.0 15.8  15.8
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  24.9  0.0  27.6  40.3  9.7   0.0   0.0 15.8  15.8
LOS by Move:    A    A     A     C    A     C     D    A     A     A    B     B
HCM2kAvgQ:      0    0     0     4    0     6     1    4     0     0    9     9
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************

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CORSIM LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: *Weston Ranch Alternatives Analysis* ***HCM:*** *2000*
Scenario: *2035 No Project* ***PHF:*** *1*
TOD: *PM* ***Analysis Period:*** *Hourly* ***# of Runs:*** *10*

Intersection: *French Camp Road & Manthey Road* ***Type:*** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	80	78	98	10	47.1	D	--
	T	289	291	101	16	55.1	E	--
	R	330	335	102	19	8.3	A	--
	Subtotal	**699**	**704**	**101**	**--**	**31.9**	**C**	**--**
SB	L	223	226	101	5	56.6	E	--
	T	52	51	98	6	59.7	E	--
	R	34	33	97	6	26.3	C	--
	Subtotal	**309**	**310**	**100**	**--**	**53.9**	**D**	**--**
EB	L	141	135	96	14	58.6	E	--
	T	661	645	98	14	40.5	D	--
	R	60	61	102	7	39.5	D	--
	Subtotal	**862**	**841**	**98**	**--**	**43.3**	**D**	**--**
WB	L	520	542	104	38	25.9	C	--
	T	1436	1464	102	57	14.9	B	--
	R	307	323	105	19	7.3	A	--
	Subtotal	**2263**	**2329**	**103**	**--**	**16.4**	**B**	**--**
	Total	**4133**	**4183**	**101**	**--**	**27.2**	**C**	**--**

Intersection: *French Camp Road & I-5 SB Ramps* ***Type:*** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	1500	1503	100	25	35.3	D	--
	R	634	648	102	26	37.6	D	--
	Subtotal	**2134**	**2151**	**101**	**--**	**36.0**	**D**	**--**
EB	T	968	958	99	21	9.1	A	--
	R	246	250	102	17	6.8	A	--
	Subtotal	**1214**	**1208**	**100**	**--**	**8.6**	**A**	**--**
WB	T	1629	1670	103	17	27.5	C	--
	Subtotal	**1629**	**1670**	**103**	**--**	**27.5**	**C**	**--**
	Total	**4977**	**5030**	**101**	**--**	**26.6**	**C**	**--**

CORSIM LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2035 No Project **PHF:** 1
TOD: PM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: French Camp Road & I-5 NB Ramps **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	415	420	101	17	52.1	D	--
	R	1010	1009	100	19	8.2	A	--
	Subtotal	**1425**	**1429**	**100**	**--**	**21.1**	**C**	**--**
EB	T	2015	2005	100	23	4.9	A	--
	Subtotal	**2015**	**2005**	**100**	**--**	**4.9**	**A**	**--**
WB	T	3624	3621	100	28	5.6	A	--
	Subtotal	**3624**	**3621**	**100**	**--**	**5.6**	**A**	**--**
	Total	**7064**	**7055**	**100**	**--**	**8.5**	**A**	**--**

Intersection: French Camp Road & Val Dervin Parkway **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	667	681	102	15	64.9	E	--
	T	100	96	96	11	41.1	D	--
	R	60	61	102	13	27.6	C	--
	Subtotal	**827**	**837**	**101**	**--**	**59.5**	**E**	**--**
SB	L	110	103	94	7	188.0	F	--
	T	130	132	102	13	91.7	F	--
	R	605	604	100	18	18.4	B	--
	Subtotal	**845**	**839**	**99**	**--**	**50.6**	**D**	**--**
EB	L	269	264	98	12	43.1	D	--
	T	1972	1942	98	28	27.9	C	--
	R	784	774	99	18	13.8	B	--
	Subtotal	**3025**	**2979**	**98**	**--**	**25.6**	**C**	**--**
WB	L	140	138	99	10	45.8	D	--
	T	2351	2312	98	12	42.8	D	--
	R	80	73	91	9	22.7	C	--
	Subtotal	**2571**	**2522**	**98**	**--**	**42.4**	**D**	**--**
	Total	**7268**	**7177**	**99**	**--**	**38.4**	**D**	**--**

FEHR & PEERS
TRANSPORTATION CONSULTANTS


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------------------------------------------------------------------------------
                        Weston Ranch Towne Center EIR
                         Future 2035 Without Project
                               PM Peak Hour
------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Operations Method (Future Volume Alternative)
******************************************************************************
Intersection #16 Yettner/Manthey
******************************************************************************
Cycle (sec):          60                Critical Vol./Cap.(X):         0.656
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):        27.0
Optimal Cycle:        55                Level Of Service:                 C
******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     7   10   10     7   10   10     7   10   10     7   10   10
Lanes:        1  0  1  1  0    1  0  1  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      60  484   50    50  405  250   300  100   60    50  100   50
Growth Adj:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Initial Bse:   60  484   50    50  405  250   300  100   60    50  100   50
Added Vol:      0   19    0     0   22    0     0    0    0     0    0    0
PasserByVol:    0    0    0     0    0    0     0    0    0     0    0    0
Initial Fut:   60  503   50    50  427  250   300  100   60    50  100   50
User Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Volume:    60  503   50    50  427  250   300  100   60    50  100   50
Reduct Vol:     0    0    0     0    0    0     0    0    0     0    0    0
Reduced Vol:   60  503   50    50  427  250   300  100   60    50  100   50
PCE Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
MLF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
FinalVolume:   60  503   50    50  427  250   300  100   60    50  100   50
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900
Adjustment:  0.95 0.94 0.94  0.95 0.90 0.90  0.95 0.94 0.94  0.95 0.95 0.95
Lanes:       1.00 1.82 0.18  1.00 1.26 0.74  1.00 0.62 0.38  1.00 0.67 0.33
Final Sat.:  1805 3241  322  1805 2152 1260  1805 1121  673  1805 1203  602
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.16 0.16  0.03 0.20 0.20  0.17 0.09 0.09  0.03 0.08 0.08
Crit Moves:  ****                ****        ****                ****
Green/Cycle: 0.12 0.21 0.21  0.15 0.24 0.24  0.21 0.22 0.22  0.15 0.17 0.17
Volume/Cap:  0.28 0.73 0.73  0.19 0.81 0.81  0.81 0.41 0.41  0.18 0.50 0.50
Delay/Veh:   25.0 25.6 25.6  22.7 27.3 27.3  35.3 20.8 20.8  22.4 24.0 24.0
User DelAdj: 1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
AdjDel/Veh:  25.0 25.6 25.6  22.7 27.3 27.3  35.3 20.8 20.8  22.4 24.0 24.0
LOS by Move:   C    C    C     C    C    C     D    C    C     C    C    C
HCM2kAvgQ:     1    7    7     1    9    9     8    3    3     1    3    3
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************

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HCM Signalized Intersection Capacity Analysis
17: Mathews Rd. & Manthey Rd.

2035 Cumulative Without Project
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.86		1.00	0.86	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.93		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	6383		1770	6408	1583	1770	3282		1770	3274	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	6383		1770	6408	1583	1770	3282		1770	3274	
Volume (vph)	286	2260	60	80	2380	123	60	85	80	105	76	76
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	286	2260	60	80	2380	123	60	85	80	105	76	76
RTOR Reduction (vph)	0	2	0	0	0	46	0	72	0	0	67	0
Lane Group Flow (vph)	286	2318	0	80	2380	77	60	93	0	105	85	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	20.8	73.5		9.6	62.3	62.3	7.0	12.3		8.6	13.9	
Effective Green, g (s)	20.8	73.5		9.6	62.3	62.3	7.0	12.3		8.6	13.9	
Actuated g/C Ratio	0.17	0.61		0.08	0.52	0.52	0.06	0.10		0.07	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	307	3910		142	3327	822	103	336		127	379	
v/s Ratio Prot	c0.16	0.36		0.05	c0.37		c0.03	c0.03		c0.06	0.03	
v/s Ratio Perm						0.05						
v/c Ratio	0.93	0.59		0.56	0.72	0.09	0.58	0.28		0.83	0.22	
Uniform Delay, d1	48.9	14.1		53.2	22.1	14.6	55.1	49.7		55.0	48.2	
Progression Factor	1.00	1.00		1.01	0.78	0.52	1.00	1.00		1.00	1.00	
Incremental Delay, d2	33.8	0.7		4.3	1.1	0.2	8.1	0.5		33.6	0.3	
Delay (s)	82.7	14.8		58.0	18.4	7.8	63.2	50.2		88.6	48.5	
Level of Service	F	B		E	B	A	E	D		F	D	
Approach Delay (s)		22.3			19.1			53.7			64.9	
Approach LOS		C			B			D			E	

Intersection Summary			
HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
18: Mathews Rd. & I-5 Sb Ramps

2035 Cumulative Without Project
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0		4.0
Lane Util. Factor		0.91	1.00	1.00	0.95					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		5085	1583	1770	3539					3433		2787
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		5085	1583	1770	3539					3433		2787
Volume (vph)	0	1806	638	500	783	0	0	0	0	640	0	1800
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1806	638	500	783	0	0	0	0	640	0	1800
RTOR Reduction (vph)	0	0	315	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1806	323	500	783	0	0	0	0	640	0	1800
Turn Type			Perm	Prot						Prot		Free
Protected Phases		4		3	8					1		
Permitted Phases			4									Free
Actuated Green, G (s)		46.8	46.8	36.8	87.6					24.4		120.0
Effective Green, g (s)		46.8	46.8	36.8	87.6					24.4		120.0
Actuated g/C Ratio		0.39	0.39	0.31	0.73					0.20		1.00
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0		
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		
Lane Grp Cap (vph)		1983	617	543	2583					698		2787
v/s Ratio Prot		c0.36		c0.28	0.22					c0.19		
v/s Ratio Perm			0.20									0.65
v/c Ratio		0.91	0.52	0.92	0.30					0.92		0.65
Uniform Delay, d1		34.6	28.1	40.2	5.6					46.8		0.0
Progression Factor		0.62	1.21	1.07	0.02					1.00		1.00
Incremental Delay, d2		6.5	2.6	18.7	0.3					16.8		1.2
Delay (s)		28.0	36.6	61.7	0.4					63.6		1.2
Level of Service		C	D	E	A					E		A
Approach Delay (s)		30.2			24.3			0.0			17.5	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Util. Factor	0.97	0.95			0.95	1.00	0.97		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	3433	3539			3539	1583	3433		1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	3433	3539			3539	1583	3433		1583			
Volume (vph)	550	1896	0	0	1045	680	237	0	930	0	0	0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	550	1896	0	0	1045	680	237	0	930	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	209	0	0	0	0	0	0
Lane Group Flow (vph)	550	1896	0	0	1045	471	237	0	930	0	0	0
Turn Type	Prot					Perm	Prot		Free			
Protected Phases	7	4			8		5					
Permitted Phases						8			Free			
Actuated Green, G (s)	32.0	98.6			62.6	62.6	13.4		120.0			
Effective Green, g (s)	32.0	98.6			62.6	62.6	13.4		120.0			
Actuated g/C Ratio	0.27	0.82			0.52	0.52	0.11		1.00			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0					
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0					
Lane Grp Cap (vph)	915	2908			1846	826	383		1583			
v/s Ratio Prot	0.16	c0.54			0.30		0.07					
v/s Ratio Perm						0.30			c0.59			
v/c Ratio	0.60	0.65			0.57	0.57	0.62		0.59			
Uniform Delay, d1	38.4	4.1			19.5	19.5	50.9		0.0			
Progression Factor	0.56	0.67			1.00	1.00	1.00		1.00			
Incremental Delay, d2	0.5	0.5			1.3	2.8	3.0		1.6			
Delay (s)	21.9	3.2			20.7	22.4	53.8		1.6			
Level of Service	C	A			C	C	D		A			
Approach Delay (s)		7.4			21.4			12.2			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM Average Control Delay	13.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			


```
Cumulative w/o Proj PM     Wed Apr 9, 2008 16:35:52                 Page 15-1
-------------------------------------------------------------------------------
                          Weston Ranch Towne Center EIR
                           Future 2035 Without Project
                                 PM Peak Hour
-------------------------------------------------------------------------------
                       Level Of Service Computation Report
              2000 HCM Operations Method (Future Volume Alternative)
*******************************************************************************
Intersection #20 Howard/Wolfe
*******************************************************************************
Cycle (sec):          100                 Critical Vol./Cap.(X):          0.945
Loss Time (sec):        0 (Y+R=4.0 sec)  Average Delay (sec/veh):         46.7
Optimal Cycle:        120                 Level Of Service:                  D
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     7   10    10     7   10    10     7   10    10     7   10    10
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      60  200   410   220   80   116   196  406    60   790  376   340
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   60  200   410   220   80   116   196  406    60   790  376   340
Added Vol:      0    0     0     0    0     5     4    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   60  200   410   220   80   121   200  406    60   790  376   340
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    60  200   410   220   80   121   200  406    60   790  376   340
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   60  200   410   220   80   121   200  406    60   790  376   340
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   60  200   410   220   80   121   200  406    60   790  376   340
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.95 0.95  0.85  0.95 0.93  0.93  0.95 0.88  0.88
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.74  0.26  1.00 1.05  0.95
Final Sat.:  1805 3610  1615  1805 3610  1615  1805 3085   456  1805 1761  1593
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.06  0.25  0.12 0.02  0.07  0.11 0.13  0.13  0.44 0.21  0.21
Crit Moves:                ****  ****                 ****        ****
Green/Cycle: 0.16 0.27  0.27  0.13 0.23  0.23  0.21 0.14  0.14  0.46 0.40  0.40
Volume/Cap:  0.20 0.21  0.95  0.95 0.09  0.32  0.54 0.95  0.95  0.95 0.54  0.54
Delay/Veh:   36.5 28.4  65.4  87.0 30.1  32.2  37.0 69.9  69.9  44.7 23.6  23.6
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  36.5 28.4  65.4  87.0 30.1  32.2  37.0 69.9  69.9  44.7 23.6  23.6
LOS by Move:   D    C     E     F    C     C     D    E     E     D    C     C
HCM2kAvgQ:      2    3    17    11    1     3     6   11    11    28    9     9
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************

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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Scenario Report

Scenario:	Exist+App AM
Command:	Ex+App AM
Volume:	Existing + Approved AM
Geometry:	Existing Plus Approved
Impact Fee:	Default Impact Fee
Trip Generation:	No Project
Trip Distribution:	Existing
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 5 Downing Avenue/French Camp Turnpike	??? / ???	Yes / No
# 8 Henry Long Boulevard/McDougald Boul	???	No
# 9 Henry Long Boulevard/Manthey Road	???	No
# 11 French Camp Road/McDougald Boulevar	??? / ???	No / No
# 12 Manthey Road/French Camp Road	???	Yes
# 15 French Camp Road/Val Dervin Parkway	??? / ???	Yes / No
# 16 Yettner Road/ S. Manthey Road	??? / ???	No / No
# 17 Mathews Road/South Manthey Road	???	No
# 18 Mathews Road/I-5 SB Ramps	??? / ???	No / Yes
# 19 Mathews Road/I-5 NB Ramps	??? / ???	Yes / Yes
# 20 Howard Road/ Wolfe Road	??? / ???	No / No

Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #5 Downing Avenue/French Camp Turnpike

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	110		10		10	30		10		90	150		270		140	100		320		20
ApproachDel:	254.7					29.0					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=9.2]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=130]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1260]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=130]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1260]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #5 Downing Avenue/French Camp Turnpike

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	110		10		10	30		10		90	150		270		140	100		320		20

Major Street Volume: 1000
Minor Approach Volume: 130
Minor Approach Volume Threshold: 285

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #8 Henry Long Boulevard/McDougald Boulevard

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	90		50		10	10		50		110	110		10		160	10		10		30

Major Street Volume: 330
Minor Approach Volume: 170
Minor Approach Volume Threshold: 851

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #9 Henry Long Boulevard/Manthey Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	1	0	0	0	0	1	0	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	0		60		0	0		160		0	0		0		0	0		0		0

Major Street Volume: 220
Minor Approach Volume: 0
Minor Approach Volume Threshold: 623

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #11 French Camp Road/McDougald Boulevard

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	1	0	1
Initial Vol:	0		0		0	170		0		10	20		470		0	0		270		120
ApproachDel:	xxxxxx					25.6					xxxxxx					xxxxxx				

Approach[southbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.3]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=180]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1060]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #11 French Camp Road/McDougald Boulevard

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	1	0	1
Initial Vol:	0		0		0	170		0		10	20		470		0	0		270		120

Major Street Volume: 880
Minor Approach Volume: 180
Minor Approach Volume Threshold: 429

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #12 Manthey Road/French Camp Road

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0	0	1	0	0 1
Initial Vol:	20		30	160	120		30	10	10		600	30	250		360	20

Major Street Volume: 1270
Minor Approach Volume: 210
Minor Approach Volume Threshold: 202

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #15 French Camp Road/Val Dervin Parkway

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	1	0	1	1 0	0	1	0	1 0
Initial Vol:	50		30	10	30		20	60	250		430	110	330		400	0
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				xxxxxx			

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=OVERFLOW]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=90]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1720]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=OVERFLOW]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=110]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1720]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #15 French Camp Road/Val Dervin Parkway

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	1	1	0	0	1	0	1	0
Initial Vol:	50		30		10	30		20		60	250		430		110	330		400		0

Major Street Volume: 1520
Minor Approach Volume: 110
Minor Approach Volume Threshold: 141

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #16 Yettner Road/ S. Manthey Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	10	200			0	0	300			10	10		0		10	0		0		0
ApproachDel:	xxxxxx					xxxxxx					11.4					xxxxxx				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=20]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=540]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #16 Yettner Road/ S. Manthey Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	10	200			0		0	300		10	10		0		10	0		0		0

Major Street Volume: 520
Minor Approach Volume: 20
Minor Approach Volume Threshold: 394

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #17 Mathews Road/South Manthey Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	1!	0	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0
Initial Vol:	20		20		20	20		10		30	10		170		20	30		740		90

Major Street Volume: 1060
Minor Approach Volume: 60
Minor Approach Volume Threshold: 265

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #18 Mathews Road/I-5 SB Ramps

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	1	0	1	0	0
Initial Vol:	0		0		0	140		0		410	0		170		40	60		450		0
ApproachDel:	xxxxxx					23.8					xxxxxx					xxxxxx				

Approach[southbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=3.6]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=550]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1270]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #18 Mathews Road/I-5 SB Ramps

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	1	0	1	0	0
Initial Vol:	0		0		0	140		0		410	0		170		40	60		450		0

Major Street Volume: 720
Minor Approach Volume: 550
Minor Approach Volume Threshold: 515

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #19 Mathews Road/I-5 NB Ramps

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	1	0	0	1 0	0	0	0	0 0	1	0	2	0 0	0	0	0	1 0
Initial Vol:	280		0	1050	0		0	0	120		190	0	0		230	290
ApproachDel:	94.8				xxxxxx				xxxxxx				xxxxxx			

Approach[northbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=35.0]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=1330]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2160]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #19 Mathews Road/I-5 NB Ramps

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	1	0	0	1 0	0	0	0	0 0	1	0	2	0 0	0	0	0	1 0
Initial Vol:	280		0	1050	0		0	0	120		190	0	0		230	290

Major Street Volume: 830
Minor Approach Volume: 1330
Minor Approach Volume Threshold: 454

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #20 Howard Road/ Wolfe Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	10		20		40	100		20		60	10		60		10	10		240		10
ApproachDel:	10.5					14.0					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=70]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=590]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.7]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=180]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=590]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #20 Howard Road/ Wolfe Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	10		20		40	100		20		60	10		60		10	10		240		10

Major Street Volume: 340
Minor Approach Volume: 180
Minor Approach Volume Threshold: 507

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Scenario Report

Scenario:	Exist+App PM
Command:	Ex+App PM
Volume:	Existing + Approved PM
Geometry:	Existing Plus Approved
Impact Fee:	Default Impact Fee
Trip Generation:	No Project
Trip Distribution:	Existing
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 5 Downing Avenue/French Camp Turnpike	??? / ???	Yes / No
# 8 Henry Long Boulevard/McDougald Boul	???	No
# 9 Henry Long Boulevard/Manthey Road	???	No
# 11 French Camp Road/McDougald Boulevar	??? / ???	No / No
# 12 Manthey Road/French Camp Road	???	Yes
# 15 French Camp Road/Val Dervin Parkway	??? / ???	Yes / Yes
# 16 Yettner Road/ S. Manthey Road	??? / ???	No / No
# 17 Mathews Road/South Manthey Road	???	No
# 18 Mathews Road/I-5 SB Ramps	??? / ???	No / No
# 19 Mathews Road/I-5 NB Ramps	??? / ???	Yes / Yes
# 20 Howard Road/ Wolfe Road	??? / ???	No / No

Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #5 Downing Avenue/French Camp Turnpike

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	230		10		10	10		10		100	150		250		120	10		350		10
ApproachDel:	441.7					15.7					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=30.7]
   SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=250]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1260]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.5]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=120]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1260]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #5 Downing Avenue/French Camp Turnpike

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	230		10		10	10		10		100	150		250		120	10		350		10

Major Street Volume: 890
Minor Approach Volume: 250
Minor Approach Volume Threshold: 325

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #8 Henry Long Boulevard/McDougald Boulevard

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	70	130		20		20	40		60		170	10		90		10	10		10	

Major Street Volume: 340
Minor Approach Volume: 270
Minor Approach Volume Threshold: 838

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #9 Henry Long Boulevard/Manthey Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	1	0	0	0	0	1	0	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	0	200		0		0	230		0		0	0		0		0	0		0	

Major Street Volume: 430
Minor Approach Volume: 0
Minor Approach Volume Threshold: 444

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #11 French Camp Road/McDougald Boulevard

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	1	0	1
Initial Vol:	0		0		0	140		0		20	90		270		0	0		440		220
ApproachDel:	xxxxxx					30.2					xxxxxx					xxxxxx				

Approach[southbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.3]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=160]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1180]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #11 French Camp Road/McDougald Boulevard

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	1	0	1
Initial Vol:	0		0		0	140		0		20	90		270		0	0		440		220

Major Street Volume: 1020
Minor Approach Volume: 160
Minor Approach Volume Threshold: 366

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #12 Manthey Road/French Camp Road

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	0	1	0	0	1
Initial Vol:	30		90		280	80		50		10	10		390		10	90		620		100

Major Street Volume: 1220
Minor Approach Volume: 400
Minor Approach Volume Threshold: 216

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #15 French Camp Road/Val Dervin Parkway

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	1	1	0	0	1	0	1	0
Initial Vol:	70		10		10	60		10		210	90		490		80	90		450		0
ApproachDel:	165.1					56.8					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=4.1]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=90]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1570]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=4.4]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=280]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1570]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #15 French Camp Road/Val Dervin Parkway

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	1	1	0	0	1	0	1	0
Initial Vol:	70		10		10	60		10		210	90		490		80	90		450		0

Major Street Volume: 1200
Minor Approach Volume: 280
Minor Approach Volume Threshold: 222

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #16 Yettner Road/ S. Manthey Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	10		390		0	0		140		10	10		0		10	0		0		0
ApproachDel:	xxxxxx					xxxxxx					11.0					xxxxxx				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=20]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=570]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #16 Yettner Road/ S. Manthey Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	10	390			0	0	140		10		10		0		10	0		0		0

Major Street Volume: 550
Minor Approach Volume: 20
Minor Approach Volume Threshold: 379

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #17 Mathews Road/South Manthey Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	1!	0	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0
Initial Vol:	10	40		30		80	30		20		30	590		10		30	310		50	

Major Street Volume: 1020
Minor Approach Volume: 130
Minor Approach Volume Threshold: 366

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #18 Mathews Road/I-5 SB Ramps

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	1	0	1	0	0
Initial Vol:	0		0		0	120		0		160	0		600		100	50		230		0
ApproachDel:	xxxxxx					13.7					xxxxxx					xxxxxx				

Approach[southbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.1]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=280]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1260]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #18 Mathews Road/I-5 SB Ramps

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	1	0	1	0	0
Initial Vol:	0		0		0	120		0		160	0		600		100	50		230		0

Major Street Volume: 980
Minor Approach Volume: 280
Minor Approach Volume Threshold: 383

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #19 Mathews Road/I-5 NB Ramps

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	1	0	0	1	0	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Initial Vol:	130		0		280	0		0		0	470		250		0	0		150		630
ApproachDel:	312.7					xxxxxx					xxxxxx					xxxxxx				

Approach[northbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=35.6]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=410]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1910]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #19 Mathews Road/I-5 NB Ramps

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	1	0	0	1	0	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Initial Vol:	130		0		280	0		0		0	470		250		0	0		150		630

Major Street Volume: 1500
Minor Approach Volume: 410
Minor Approach Volume Threshold: 200

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #20 Howard Road/ Wolfe Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	10	150			20	20		10		10	150	340			10	10	100			20
ApproachDel:	38.3					29.1					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.9]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=180]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=850]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=40]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=850]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Near-Term Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #20 Howard Road/ Wolfe Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	10	150			20	20		10		10	150	340			10	10	100			20

Major Street Volume: 630
Minor Approach Volume: 180
Minor Approach Volume Threshold: 343

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Scenario Report

Scenario:	Cumulative w/o Proj AM
Command:	Cumulative w/o Proj AM
Volume:	Cumulative AM
Geometry:	Cumulative
Impact Fee:	Default Impact Fee
Trip Generation:	No Project AM
Trip Distribution:	Peak Hour
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 5 Downing/Turnpike	??? / ???	No / No
# 8 McDougald/Henry Long	???	No
# 9 Manthey/Henry Long	???	No
# 16 Yettner/Manthey	??? / ???	No / No
# 17 Mathews/S. Manthey	???	No
# 18 Mathews/I5 SB Ramps	??? / ???	Yes / Yes
# 19 Mathews/I5 NB Ramps	??? / ???	No / No
# 20 Howard/Wolfe	??? / ???	No / No

Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #5 Downing/Turnpike

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	60		20		50	10		10		50	81		471		30	10		190		70
ApproachDel:	26.5					14.0					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.0]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=130]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1052]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=70]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1052]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #5 Downing/Turnpike

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	60		20		50	10		10		50	81		471		30	10		190		70

Major Street Volume: 852
Minor Approach Volume: 130
Minor Approach Volume Threshold: 340

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #8 McDougald/Henry Long

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	51		80		10	10		370		130	140		10		110	10		10		30

Major Street Volume: 651
Minor Approach Volume: 260
Minor Approach Volume Threshold: 559

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #9 Manthey/Henry Long

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
Initial Vol:	0		0		0	0		0		212	104		0		0	0		0		0

Major Street Volume: 212
Minor Approach Volume: 104
Minor Approach Volume Threshold: 633

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #16 Yettner/Manthey

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	20	164			10	10	616			20	10	10			30	10	10			20
ApproachDel:	xxxxxx					xxxxxx					16.3					14.9				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=50]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=930]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=40]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=930]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #16 Yettner/Manthey

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	20	164			10	10	616			20	10	10			30	10	10			20

Major Street Volume: 840
Minor Approach Volume: 50
Minor Approach Volume Threshold: 345

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #17 Mathews/S. Manthey

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	1!	0	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0
Initial Vol:	20		21		30	64		32		30	60		210		20	70		550		163

Major Street Volume: 1073
Minor Approach Volume: 126
Minor Approach Volume Threshold: 344

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #18 Mathews/I5 SB Ramps

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	1	0	1	0	0
Initial Vol:	0		0		0	410		0		470	0		232		72	30		313		0
ApproachDel:	xxxxxx					24.2					xxxxxx					xxxxxx				

Approach[southbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=5.9]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=880]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1527]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #18 Mathews/I5 SB Ramps

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	1	0	1	0	0
Initial Vol:	0		0		0	410		0		470	0		232		72	30		313		0

Major Street Volume: 647
Minor Approach Volume: 880
Minor Approach Volume Threshold: 561

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #19 Mathews/I5 NB Ramps

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	1	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Initial Vol:	152		0		30	0		0		0	180		462		0	0		191		120
ApproachDel:	45.0					xxxxxx					xxxxxx					xxxxxx				

Approach[northbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=2.3]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=182]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1135]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #19 Mathews/I5 NB Ramps

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	1	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Initial Vol:	152		0		30	0		0		0	180		462		0	0		191		120

Major Street Volume: 953
Minor Approach Volume: 182
Minor Approach Volume Threshold: 395

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #20 Howard/Wolfe

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	10		10		10	10		10		45	12		270		30	20		150		60
ApproachDel:	12.8					11.0					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=30]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=637]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=65]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=637]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2025 Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #20 Howard/Wolfe

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	1	0	0	1 0	1	0	0	1 0
Initial Vol:	10		10	10	10		10	45	12		270	30	20		150	60

Major Street Volume: 542
Minor Approach Volume: 65
Minor Approach Volume Threshold: 496

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Scenario Report

Scenario:	Cumulative w/o Proj PM
Command:	Cumulative w/o Proj PM
Volume:	Cumulative PM
Geometry:	Cumulative
Impact Fee:	Default Impact Fee
Trip Generation:	No Project PM
Trip Distribution:	Peak Hour
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 5 Downing/Turnpike	??? / ???	No / No
# 8 McDougald/Henry Long	???	No
# 9 Manthey/Henry Long	???	No
# 16 Yettner/Manthey	??? / ???	No / No
# 17 Mathews/S. Manthey	???	No
# 18 Mathews/I5 SB Ramps	??? / ???	No / No
# 19 Mathews/I5 NB Ramps	??? / ???	No / No
# 20 Howard/Wolfe	??? / ???	No / No

Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****
Intersection #5 Downing/Turnpike
****
Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0	1! 0	0	0 0	1! 0	0	1 0	0 1	0	1 0	0 1	0
Initial Vol:	70	10	10	60	50	71	31	281	130	10	391	10
ApproachDel:	31.0			25.4			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.8]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=90]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1124]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.3]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=181]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1124]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #5 Downing/Turnpike

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	1	0	0	1 0	1	0	0	1 0
Initial Vol:	70		10	10	60		50	71	31		281	130	10		391	10

Major Street Volume: 853
Minor Approach Volume: 181
Minor Approach Volume Threshold: 340

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #8 McDougald/Henry Long

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Lanes:	1	0	0	1 0	1	0	0	1 0	1	0	0	1 0	1	0	0	1 0
Initial Vol:	100		460	20	20		370	132	62		10	91	10		10	10

Major Street Volume: 1102
Minor Approach Volume: 163
Minor Approach Volume Threshold: 332

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #9 Manthey/Henry Long

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
Initial Vol:	0		0		0	0		0		256	570		0		0	0		0		0

Major Street Volume: 570
Minor Approach Volume: 256
Minor Approach Volume Threshold: 369

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #16 Yettner/Manthey

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	30	534		10		10	194		20		20	10		20		10	10		20	
ApproachDel:	xxxxxx					xxxxxx					16.0					15.9				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=50]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=888]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=40]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=888]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #16 Yettner/Manthey

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	30		534		10	10		194		20	20		10		20	10		10		20

Major Street Volume: 798
Minor Approach Volume: 50
Minor Approach Volume Threshold: 363

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #17 Mathews/S. Manthey

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	1!	0	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0
Initial Vol:	10		44		30	111		43		70	40		720		20	40		280		111

Major Street Volume: 1211
Minor Approach Volume: 224
Minor Approach Volume Threshold: 292

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #18 Mathews/I5 SB Ramps

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	1	0	1	0	0
Initial Vol:	0		0		0	120		0		170	0		733		127	30		261		0
ApproachDel:	xxxxxx					13.7					xxxxxx					xxxxxx				

Approach[southbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.1]
   FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=290]
   SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1441]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #18 Mathews/I5 SB Ramps

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	1	0	1	0	0
Initial Vol:	0		0		0	120		0		170	0		733		127	30		261		0

Major Street Volume: 1151
Minor Approach Volume: 290
Minor Approach Volume Threshold: 314

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #19 Mathews/I5 NB Ramps

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	1	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Initial Vol:	47		0		20	0		0		0	500		353		0	0		244		380
ApproachDel:	149.9					xxxxxx					xxxxxx					xxxxxx				

Approach[northbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=2.8]
   FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=67]
   FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1544]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #19 Mathews/I5 NB Ramps

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	1	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Initial Vol:	47		0		20	0		0		0	500		353		0	0		244		380

Major Street Volume: 1477
Minor Approach Volume: 67
Minor Approach Volume Threshold: 206

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #20 Howard/Wolfe

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	10		10		10	10		10		15	177		400		10	20		130		10
ApproachDel:	19.4					17.4					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=30]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=812]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=35]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=812]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #20 Howard/Wolfe

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	10		10		10	10		10		15	177		400		10	20		130		10

Major Street Volume: 747
Minor Approach Volume: 35
Minor Approach Volume Threshold: 385

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2035 Without Project
AM Peak Hour

Scenario Report

Scenario:	Cumulative w/o Proj AM
Command:	Cumulative w/o Proj AM
Volume:	Cumulative AM WO
Geometry:	Cumulative
Impact Fee:	Default Impact Fee
Trip Generation:	No Project AM
Trip Distribution:	Peak Hour
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Future 2035 Without Project
AM Peak Hour

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 5 Downing/Turnpike	??? / ???	Yes / Yes
# 8 McDougald/Henry Long	???	No

Weston Ranch Towne Center EIR
Future 2035 Without Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #5 Downing/Turnpike

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	110	320			60	80	100			140	150	385			240	150	263			70
ApproachDel:	xxxxxx					xxxxxx					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=OVERFLOW]
   SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=490]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2068]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=OVERFLOW]
   SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=320]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2068]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2035 Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #5 Downing/Turnpike

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	110	320			60	80	100			140	150	385			240	150	263			70

Major Street Volume: 1258
Minor Approach Volume: 490
Minor Approach Volume Threshold: 206

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2035 Without Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****
Intersection #8 McDougald/Henry Long
****
Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Lanes:	1	0	1	1 0	1	0	1	1 0	1	0	0	1 0	1	0	0	1 0
Initial Vol:	91	104		10	10	151		190	140	10		122	10	10		30

Major Street Volume: 556
Minor Approach Volume: 272
Minor Approach Volume Threshold: 627

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2035 Without Project
PM Peak Hour

Scenario Report

Scenario:	Cumulative w/o Proj PM
Command:	Cumulative w/o Proj PM
Volume:	Cumulative PM WO
Geometry:	Cumulative
Impact Fee:	Default Impact Fee
Trip Generation:	No Project PM
Trip Distribution:	Peak Hour
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Future 2035 Without Project
PM Peak Hour

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 5 Downing/Turnpike	??? / ???	Yes / Yes
# 8 McDougald/Henry Long	???	No

Weston Ranch Towne Center EIR
Future 2035 Without Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****
Intersection #5 Downing/Turnpike
****
Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	280		20		60	60		10		150	180		285		140	60		382		60
ApproachDel:	1293.4					84.9					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=129.3]
   SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=360]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1687]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=5.2]
   SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=220]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1687]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2035 Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #5 Downing/Turnpike

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	280		20		60	60		10		150	180		285		140	60		382		60

Major Street Volume: 1107
Minor Approach Volume: 360
Minor Approach Volume Threshold: 250

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Future 2035 Without Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #8 McDougald/Henry Long

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	1	0	1	1	0	1	0	1	1	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	105		606		20	20		106		100	90		10		164	10		10		10

Major Street Volume: 957
Minor Approach Volume: 264
Minor Approach Volume Threshold: 393

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Scenario Report

Scenario:	Exist+App+Proj AM
Command:	Ex+App+Proj AM
Volume:	Existing + Approved + Project AM
Geometry:	Existing Plus Approved Plus Project
Impact Fee:	Default Impact Fee
Trip Generation:	Project AM
Trip Distribution:	Existing
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Carolyn Weston Boulevard/McDougald Boulevard

Cycle (sec): 60 Critical Vol./Cap.(X): 0.648
Loss Time (sec): 16 (Y+R=5.0 sec) Average Delay (sec/veh): 24.5
Optimal Cycle: 54 Level Of Service: C

Street Name:	McDougald Boulevard						Carolyn Weston Boulevard					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0 1	0 1		1 0	0 1	0	1 0 1	1 0		1 0 1	1 0	
Volume Module:745-845												
Base Vol:	130	20	250	40	20	10	5	620	70	140	340	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	130	20	250	40	20	10	5	620	70	140	340	10
Added Vol:	3	0	0	0	0	0	0	5	5	0	3	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	133	20	250	40	20	10	5	625	75	140	343	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	140	21	263	42	21	11	5	658	79	147	361	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	140	21	263	42	21	11	5	658	79	147	361	11
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	140	21	263	42	21	11	5	658	79	147	361	11
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	0.95	0.95	0.95	0.93	0.93	0.95	0.95	0.95
Lanes:	1.00	1.00	1.00	1.00	0.67	0.33	1.00	1.79	0.21	1.00	1.94	0.06
Final Sat.:	1805	1900	1615	1805	1203	602	1805	3172	381	1805	3494	102
Capacity Analysis Module:												
Vol/Sat:	0.08	0.01	0.16	0.02	0.02	0.02	0.00	0.21	0.21	0.08	0.10	0.10
Crit Moves:			****	****				****		****		
Green/Cycle:	0.14	0.22	0.22	0.12	0.20	0.20	0.16	0.28	0.28	0.12	0.23	0.23
Volume/Cap:	0.56	0.05	0.74	0.20	0.09	0.09	0.02	0.74	0.74	0.70	0.44	0.44
Delay/Veh:	27.0	18.5	29.9	24.4	19.7	19.7	21.1	22.6	22.6	35.5	20.0	20.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.0	18.5	29.9	24.4	19.7	19.7	21.1	22.6	22.6	35.5	20.0	20.0
LOS by Move:	C	B	C	C	B	B	C	C	C	D	C	C
HCM2kAvgQ:	3	0	6	1	0	0	0	8	8	4	3	3

Note: Queue reported is the number of cars per lane.

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Exist+App+Proj AM          Tue Apr 8, 2008 16:14:32                  Page 7-1
--------------------------------------------------------------------------------
                         Weston Ranch Towne Center EIR
                            Near-Term With Project
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #2 Carolyn Weston Boulevard/S. Manthey Road
********************************************************************************
Cycle (sec):          90                 Critical Vol./Cap.(X):         0.459
Loss Time (sec):      16 (Y+R=5.0 sec)   Average Delay (sec/veh):        21.5
Optimal Cycle:        50                 Level Of Service:                 C
********************************************************************************
Street Name:         S. Manthey Road               Carolyn Weston Boulevard
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Protected        Protected        Protected        Protected
Rights:            Ovl              Include          Include          Include
Min. Green:     7   10    10     7   10    10     7   10    10     7   10    10
Lanes:        1  0  1  0  1    1  0  1  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:745-845
Base Vol:     100   30    50    30   20    30    50  830    30    60  360    50
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  100   30    50    30   20    30    50  830    30    60  360    50
Added Vol:      3    0    12     0    0     0     0    0     5    15    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  103   30    62    30   20    30    50  830    35    75  360    50
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:   108   32    65    32   21    32    53  874    37    79  379    53
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  108   32    65    32   21    32    53  874    37    79  379    53
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  108   32    65    32   21    32    53  874    37    79  379    53
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 1.00  0.85  0.95 1.00  0.85  0.95 0.94  0.94  0.95 0.93  0.93
Lanes:       1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.92  0.08  1.00 1.76  0.24
Final Sat.:  1805 1900  1615  1805 1900  1615  1805 3443   145  1805 3113   432
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.02  0.04  0.02 0.01  0.02  0.03 0.25  0.25  0.04 0.12  0.12
Crit Moves:  ****                      ****        ****        ****
Green/Cycle: 0.12 0.14  0.22  0.09 0.11  0.11  0.23 0.50  0.50  0.09 0.36  0.36
Volume/Cap:  0.50 0.12  0.18  0.18 0.10  0.18  0.13 0.50  0.50  0.50 0.34  0.34
Delay/Veh:   39.0 34.4  28.6  38.0 36.2  36.7  27.6 15.0  15.0  41.8 21.1  21.1
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  39.0 34.4  28.6  38.0 36.2  36.7  27.6 15.0  15.0  41.8 21.1  21.1
LOS by Move:   D    C     C     D    D     D     C    B     B     D    C     C
HCM2kAvgQ:      3    1     1     1    1     1     1    7     7     3    4     4
********************************************************************************
Note: Queue reported is the number of cars per lane.

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HCM Signalized Intersection Capacity Analysis
3: Downing Avenue & I-5 SB Ramps

Near-Term Plus Project
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.91	1.00	1.00	0.95						1.00	0.88
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539						1770	2787
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		5085	1583	1770	3539						1770	2787
Volume (vph)	0	802	140	30	250	0	0	0	0	430	0	345
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	844	147	32	263	0	0	0	0	453	0	363
RTOR Reduction (vph)	0	0	79	0	0	0	0	0	0	0	0	247
Lane Group Flow (vph)	0	844	68	32	263	0	0	0	0	0	453	116
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		32.5	32.5	3.2	39.7						22.3	22.3
Effective Green, g (s)		32.5	32.5	3.2	39.7						22.3	22.3
Actuated g/C Ratio		0.46	0.46	0.05	0.57						0.32	0.32
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		2361	735	81	2007						564	888
v/s Ratio Prot		c0.17		c0.02	0.07							
v/s Ratio Perm			0.04								0.26	0.04
v/c Ratio		0.36	0.09	0.40	0.13						0.80	0.13
Uniform Delay, d1		12.0	10.5	32.5	7.1						21.8	17.0
Progression Factor		1.00	1.00	0.72	0.67						1.00	1.00
Incremental Delay, d2		0.4	0.3	3.1	0.1						8.1	0.1
Delay (s)		12.5	10.7	26.5	4.9						30.0	17.0
Level of Service		B	B	C	A						C	B
Approach Delay (s)		12.2			7.2			0.0			24.2	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Util. Factor	0.97	1.00			0.95			1.00	1.00			
Frt	1.00	1.00			0.90			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.96	1.00			
Satd. Flow (prot)	3433	1863			3202			1783	1583			
Flt Permitted	0.95	1.00			1.00			0.96	1.00			
Satd. Flow (perm)	3433	1863			3202			1783	1583			
Volume (vph)	702	530	0	0	190	330	90	10	30	0	0	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	739	558	0	0	200	347	95	11	32	0	0	0
RTOR Reduction (vph)	0	0	0	0	188	0	0	0	28	0	0	0
Lane Group Flow (vph)	739	558	0	0	359	0	0	106	4	0	0	0
Turn Type	Prot						Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases							2		2			
Actuated Green, G (s)	18.0	54.0			32.0			8.0	8.0			
Effective Green, g (s)	18.0	54.0			32.0			8.0	8.0			
Actuated g/C Ratio	0.26	0.77			0.46			0.11	0.11			
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	883	1437			1464			204	181			
v/s Ratio Prot	c0.22	c0.30			0.11							
v/s Ratio Perm								0.06	0.00			
v/c Ratio	0.84	0.39			0.24			0.52	0.02			
Uniform Delay, d1	24.6	2.6			11.6			29.2	27.5			
Progression Factor	1.12	2.25			1.00			1.00	1.00			
Incremental Delay, d2	6.4	0.7			0.4			2.2	0.0			
Delay (s)	34.0	6.6			12.0			31.4	27.6			
Level of Service	C	A			B			C	C			
Approach Delay (s)		22.2			12.0			30.5			0.0	
Approach LOS		C			B			C			A	

Intersection Summary			
HCM Average Control Delay	20.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			


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--------------------------------------------------------------------------------
                          Weston Ranch Towne Center EIR
                             Near-Term With Project
                                  AM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
            2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #5 Downing Avenue/French Camp Turnpike
********************************************************************************
Average Delay (sec/veh):     30.9       Worst Case Level Of Service: F[254.7]
********************************************************************************
Street Name:       French Camp Turnpike                 Downing Avenue
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:730-830
Base Vol:     110   10    10    30   10    90   150  270   140   100  320    20
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  110   10    10    30   10    90   150  270   140   100  320    20
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  110   10    10    30   10    90   150  270   140   100  320    20
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:   116   11    11    32   11    95   158  284   147   105  337    21
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:  116   11    11    32   11    95   158  284   147   105  337    21
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1284 1242   358  1242 1305   347   358 xxxx xxxxx   432 xxxx xxxxx
Potent Cap.:  143  176   691   153  162   700  1212 xxxx xxxxx  1139 xxxx xxxxx
Move Cap.:     97  139   691   119  127   700  1212 xxxx xxxxx  1139 xxxx xxxxx
Volume/Cap:  1.19 0.08  0.02  0.27 0.08  0.14  0.13 xxxx  xxxx  0.09 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.4 xxxx xxxxx   0.3 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.4 xxxx xxxxx   8.5 xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     A    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  107 xxxxx  xxxx  283 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  9.3 xxxxx xxxxx  2.5 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx  255 xxxxx xxxxx 29.0 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    F     *     *    D     *     *    *     *     *    *     *
ApproachDel:     254.7             29.0           xxxxxx           xxxxxx
ApproachLOS:         F                D                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************

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Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 William Moss Boulevard/McDougald Boulevard

Cycle (sec): 60 Critical Vol./Cap.(X): 0.316
Loss Time (sec): 16 (Y+R=5.0 sec) Average Delay (sec/veh): 20.1
Optimal Cycle: 50 Level Of Service: C

Street Name:	McDougald Boulevard						William Moss Boulevard					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0
Volume Module:745-845												
Base Vol:	20	180	100	60	80	110	70	50	10	70	120	90
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	180	100	60	80	110	70	50	10	70	120	90
Added Vol:	3	0	0	5	0	0	0	0	5	0	0	3
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	23	180	100	65	80	110	70	50	15	70	120	93
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	24	189	105	68	84	116	74	53	16	74	126	98
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	189	105	68	84	116	74	53	16	74	126	98
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	24	189	105	68	84	116	74	53	16	74	126	98
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.90	0.90	0.95	0.87	0.87	0.95	0.92	0.92	0.95	0.89	0.89
Lanes:	1.00	1.29	0.71	1.00	1.00	1.00	1.00	1.54	0.46	1.00	1.13	0.87
Final Sat.:	1805	2195	1220	1805	1648	1648	1805	2680	804	1805	1900	1472
Capacity Analysis Module:												
Vol/Sat:	0.01	0.09	0.09	0.04	0.05	0.07	0.04	0.02	0.02	0.04	0.07	0.07
Crit Moves:		****		****			****				****	
Green/Cycle:	0.16	0.27	0.27	0.12	0.23	0.23	0.13	0.20	0.20	0.14	0.21	0.21
Volume/Cap:	0.08	0.32	0.32	0.32	0.22	0.30	0.32	0.10	0.10	0.29	0.32	0.32
Delay/Veh:	21.5	17.5	17.5	25.0	18.8	19.3	24.5	19.6	19.6	23.8	20.3	20.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.5	17.5	17.5	25.0	18.8	19.3	24.5	19.6	19.6	23.8	20.3	20.3
LOS by Move:	C	B	B	C	B	B	C	B	B	C	C	C
HCM2kAvgQ:	0	2	2	1	1	2	2	1	1	1	2	2

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 William Moss Boulevard/S. Manthey Road

Cycle (sec): 60 Critical Vol./Cap.(X): 0.201
Loss Time (sec): 12 (Y+R=5.0 sec) Average Delay (sec/veh): 14.9
Optimal Cycle: 39 Level Of Service: B

Street Name:							William Moss Boulevard					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Permitted			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0	1	0 0	0 0	0	1 0	1 0	0	1	0 0	0	0 0
Volume Module:7-8												
Base Vol:	50	10	0	0	80	30	170	0	80	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	10	0	0	80	30	170	0	80	0	0	0
Added Vol:	3	15	0	0	20	0	0	0	5	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	53	25	0	0	100	30	170	0	85	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	56	26	0	0	105	32	179	0	89	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	56	26	0	0	105	32	179	0	89	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	56	26	0	0	105	32	179	0	89	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	1.00	0.97	0.97	0.95	1.00	0.85	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	0.77	0.23	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1805	1900	0	0	1416	425	1805	0	1615	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.03	0.01	0.00	0.00	0.07	0.07	0.10	0.00	0.06	0.00	0.00	0.00
Crit Moves:	****				****				****			
Green/Cycle:	0.12	0.41	0.00	0.00	0.29	0.29	0.39	0.00	0.39	0.00	0.00	0.00
Volume/Cap:	0.26	0.03	0.00	0.00	0.26	0.26	0.26	0.00	0.14	0.00	0.00	0.00
Delay/Veh:	24.5	10.5	0.0	0.0	16.5	16.5	12.7	0.0	12.0	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	24.5	10.5	0.0	0.0	16.5	16.5	12.7	0.0	12.0	0.0	0.0	0.0
LOS by Move:	C	B	A	A	B	B	B	A	B	A	A	A
HCM2kAvgQ:	1	0	0	0	2	2	2	0	1	0	0	0

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 Henry Long Boulevard/McDougald Boulevard

Cycle (sec): 100 Critical Vol./Cap.(X): 0.257
Loss Time (sec): 0 (Y+R=5.0 sec) Average Delay (sec/veh): 9.3
Optimal Cycle: 0 Level Of Service: A

Street Name:	McDougald Boulevard						Henry Long Boulevard					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0
Volume Module:												
Base Vol:	90	50	10	10	50	110	110	10	160	10	10	30
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	90	50	10	10	50	110	110	10	160	10	10	30
Added Vol:	0	3	0	0	5	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	90	53	10	10	55	110	110	10	160	10	10	30
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	95	56	11	11	58	116	116	11	168	11	11	32
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	95	56	11	11	58	116	116	11	168	11	11	32
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	95	56	11	11	58	116	116	11	168	11	11	32
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.84	0.16	1.00	0.33	0.67	1.00	0.06	0.94	1.00	0.25	0.75
Final Sat.:	569	529	100	569	225	450	583	42	676	545	161	484
Capacity Analysis Module:												
Vol/Sat:	0.17	0.11	0.11	0.02	0.26	0.26	0.20	0.25	0.25	0.02	0.07	0.07
Crit Moves:	****					****		****			****	
Delay/Veh:	9.9	8.8	8.8	8.9	9.4	9.4	10.1	9.0	9.0	9.0	8.2	8.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.9	8.8	8.8	8.9	9.4	9.4	10.1	9.0	9.0	9.0	8.2	8.2
LOS by Move:	A	A	A	A	A	A	B	A	A	A	A	A
ApproachDel:	9.4			9.4			9.4			8.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.4			9.4			9.4			8.4		
LOS by Appr:	A			A			A			A		
AllWayAvgQ:	0.2	0.1	0.1	0.0	0.3	0.3	0.2	0.3	0.3	0.0	0.1	0.1

Weston Ranch Towne Center EIR
Near-Term With Project
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Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #9 Henry Long Boulevard/Manthey Road

Cycle (sec): 100 Critical Vol./Cap.(X): 0.192
Loss Time (sec): 0 (Y+R=5.0 sec) Average Delay (sec/veh): 7.5
Optimal Cycle: 0 Level Of Service: A

Street Name:	Manthey Road						Henry Long Boulevard					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	0 1	0 0	0	0 0	0 0	1	1 0	0 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	0	0	0	0	0	160	60	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	160	60	0	0	0	0	0
Added Vol:	0	0	0	0	0	25	18	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	185	78	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	0	0	195	82	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	195	82	0	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	0	0	195	82	0	0	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Final Sat.:	0	825	0	0	0	1014	782	0	0	0	0	0
Capacity Analysis Module:												
Vol/Sat:	xxxx	0.00	xxxx	xxxx	xxxx	0.19	0.10	xxxx	xxxx	xxxx	xxxx	xxxx
Crit Moves:		****				****	****					
Delay/Veh:	0.0	0.0	0.0	0.0	0.0	7.3	7.9	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	0.0	0.0	7.3	7.9	0.0	0.0	0.0	0.0	0.0
LOS by Move:	*	*	*	*	*	A	A	*	*	*	*	*
ApproachDel:	xxxxxx			7.3			7.9			xxxxxx		
Delay Adj:	xxxxx			1.00			1.00			xxxxx		
ApprAdjDel:	xxxxxx			7.3			7.9			xxxxxx		
LOS by Appr:	*			A			A			*		
AllWayAvgQ:	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0

Weston Ranch Towne Center EIR
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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 Wolfe Road / French Camp Road

Cycle (sec): 70 Critical Vol./Cap.(X): 0.605
Loss Time (sec): 16 (Y+R=5.0 sec) Average Delay (sec/veh): 24.2
Optimal Cycle: 53 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	0	0	1!	0 0	1	0	1	0 1	1	0	0	1 0	1	0	0	1 0
Volume Module:																
Base Vol:	10	20	10		130	80	40		30	350	140		20	140	120	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	10	20	10		130	80	40		30	350	140		20	140	120	
Added Vol:	0	0	1		2	0	0		0	7	0		1	5	2	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	10	20	11		132	80	40		30	357	140		21	145	122	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95	
PHF Volume:	11	21	12		139	84	42		32	376	147		22	153	128	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	11	21	12		139	84	42		32	376	147		22	153	128	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	11	21	12		139	84	42		32	376	147		22	153	128	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.95	0.95		0.95	1.00	0.85		0.95	0.96	0.96		0.95	0.93	0.93	
Lanes:	0.24	0.49	0.27		1.00	1.00	1.00		1.00	0.72	0.28		1.00	0.54	0.46	
Final Sat.:	441	883	486		1805	1900	1615		1805	1307	513		1805	961	808	
Capacity Analysis Module:																
Vol/Sat:	0.02	0.02	0.02		0.08	0.04	0.03		0.02	0.29	0.29		0.01	0.16	0.16	
Crit Moves:		****				****				****			****			
Green/Cycle:	0.14	0.14	0.14		0.14	0.14	0.14		0.19	0.39	0.39		0.10	0.30	0.30	
Volume/Cap:	0.17	0.17	0.17		0.54	0.31	0.18		0.09	0.75	0.75		0.12	0.53	0.53	
Delay/Veh:	26.6	26.6	26.6		30.1	27.6	26.8		23.6	22.9	22.9		29.0	21.6	21.6	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	26.6	26.6	26.6		30.1	27.6	26.8		23.6	22.9	22.9		29.0	21.6	21.6	
LOS by Move:	C	C	C		C	C	C		C	C	C		C	C	C	
HCM2kAvgQ:	1	1	1		4	2	1		1	11	11		1	5	5	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 French Camp Road/McDougald Boulevard

Average Delay (sec/veh): 4.8 Worst Case Level Of Service: D[27.4]

Street Name:	McDougald Boulevard								French Camp Road							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	1	0	0	0 1	0	1	0	0 0	0	0	1	0 1
Volume Module:7-8																
Base Vol:	0	0	0		170	0	10		20	470	0		0	270	120	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		170	0	10		20	470	0		0	270	120	
Added Vol:	0	0	0		5	0	0		0	11	0		0	7	3	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		175	0	10		20	481	0		0	277	123	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95	
PHF Volume:	0	0	0		184	0	11		21	506	0		0	292	129	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	0	0	0		184	0	11		21	506	0		0	292	129	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		6.4	xxxx	6.2		4.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	xxxxx	xxxx	xxxxx		3.5	xxxx	3.3		2.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		840	xxxx	292		421	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	xxxx	xxxx	xxxxx		338	xxxx	752		1149	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	xxxx	xxxx	xxxxx		333	xxxx	752		1149	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	xxxx	xxxx	xxxx		0.55	xxxx	0.01		0.02	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		3.2	xxxx	0.0		0.1	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		28.4	xxxx	9.9		8.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		D	*	A		A	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		0.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		8.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		*	*	*		A	*	*		*	*	*	
ApproachDel:	xxxxxx				27.4				xxxxxx				xxxxxx			
ApproachLOS:	*				D				*				*			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #12 Manthey Road/French Camp Road

Cycle (sec): 100 | Critical Vol./Cap.(X): 1.711
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): 308.7
Optimal Cycle: 0 | Level Of Service: F

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	0	0	1!	0 0	0	0	0	0 0	0	0	0	1 0	0	1	0	0 1
Volume Module:																
Base Vol:	50	0	160		0	0	0		0	720	60		250	380	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	50	0	160		0	0	0		0	720	60		250	380	0	
Added Vol:	9	0	0		0	0	0		0	250	6		0	325	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	59	0	160		0	0	0		0	970	66		250	705	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95	
PHF Volume:	62	0	168		0	0	0		0	1021	69		263	742	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	62	0	168		0	0	0		0	1021	69		263	742	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	62	0	168		0	0	0		0	1021	69		263	742	0	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.26	0.01	0.73		0.00	0.00	0.00		0.00	0.94	0.06		0.26	0.74	1.00	
Final Sat.:	152	0	412		0	0	0		0	598	41		154	434	680	
Capacity Analysis Module:																
Vol/Sat:	0.41	0.00	0.41		xxxx	xxxx	xxxx		xxxx	1.71	1.71		1.71	1.71	0.00	
Crit Moves:	****									****			****			
Delay/Veh:	13.7	13.7	13.7		0.0	0.0	0.0		0.0	340	339.8		342.7	343	0.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	13.7	13.7	13.7		0.0	0.0	0.0		0.0	340	339.8		342.7	343	0.0	
LOS by Move:	B	B	B		*	*	*		*	F	F		F	F	*	
ApproachDel:	13.7				xxxxxx				339.8				342.7			
Delay Adj:	1.00				xxxxx				1.00				1.00			
ApprAdjDel:	13.7				xxxxxx				339.8				342.7			
LOS by Appr:	B				*				F				F			
AllWayAvgQ:	0.7	0.7	0.7		0.0	0.0	0.0		58.8	58.8	58.8		54.5	54.5	0.0	

Note: Queue reported is the number of cars per lane.

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.91	0.91	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3390	1441	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3390	1441	3433	1583
Volume (vph)	27	885	571	155	151	9
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	28	932	601	163	159	9
RTOR Reduction (vph)	0	0	0	49	0	8
Lane Group Flow (vph)	28	932	601	114	159	1
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		1	
Permitted Phases				8		1
Actuated Green, G (s)	3.1	63.2	56.1	56.1	8.8	8.8
Effective Green, g (s)	3.1	63.2	56.1	56.1	8.8	8.8
Actuated g/C Ratio	0.04	0.79	0.70	0.70	0.11	0.11
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	69	2796	2377	1011	378	174
v/s Ratio Prot	0.02	c0.26	0.18		c0.05	
v/s Ratio Perm				0.08		0.00
v/c Ratio	0.41	0.33	0.25	0.11	0.42	0.01
Uniform Delay, d1	37.6	2.4	4.3	3.9	33.2	31.7
Progression Factor	1.06	0.50	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.3	0.3	0.3	0.2	0.8	0.0
Delay (s)	43.2	1.5	4.6	4.1	34.0	31.7
Level of Service	D	A	A	A	C	C
Approach Delay (s)		2.7	4.5		33.9	
Approach LOS		A	A		C	

Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Existing + Approved + Project
13: French Camp Rd. & I-5 SB Ramps

AM Peak Hour
4/9/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3539	1583	1770	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3539	1583	1770	3539					1681	1681	1583
Volume (vph)	0	603	557	90	499	0	0	0	0	480	0	456
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	635	586	95	525	0	0	0	0	505	0	480
RTOR Reduction (vph)	0	0	283	0	0	0	0	0	0	0	0	234
Lane Group Flow (vph)	0	635	303	95	525	0	0	0	0	253	252	246
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		41.4	41.4	7.6	53.0					19.0	19.0	19.0
Effective Green, g (s)		41.4	41.4	7.6	53.0					19.0	19.0	19.0
Actuated g/C Ratio		0.52	0.52	0.10	0.66					0.24	0.24	0.24
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1831	819	168	2345					399	399	376
v/s Ratio Prot		0.18		c0.05	0.15							
v/s Ratio Perm			c0.19							0.15	0.15	c0.16
v/c Ratio		0.35	0.37	0.57	0.22					0.63	0.63	0.65
Uniform Delay, d1		11.3	11.5	34.6	5.3					27.4	27.4	27.5
Progression Factor		1.00	1.00	1.48	0.09					1.00	1.00	1.00
Incremental Delay, d2		0.5	1.3	4.2	0.2					3.3	3.2	4.1
Delay (s)		11.9	12.8	55.4	0.7					30.7	30.6	31.6
Level of Service		B	B	E	A					C	C	C
Approach Delay (s)		12.3			9.1			0.0			31.1	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Existing + Approved + Project
14: French Camp Rd. & I-5 NB Ramps

AM Peak Hour
4/9/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)	1770	3539			3539	1583	1681	1681	1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	1770	3539			3539	1583	1681	1681	1583			
Volume (vph)	387	696	0	0	281	270	308	0	120	0	0	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	407	733	0	0	296	284	324	0	126	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	193	0	0	106	0	0	0
Lane Group Flow (vph)	407	733	0	0	296	91	162	162	20	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Actuated Green, G (s)	29.6	59.2			25.6	25.6	12.8	12.8	12.8			
Effective Green, g (s)	29.6	59.2			25.6	25.6	12.8	12.8	12.8			
Actuated g/C Ratio	0.37	0.74			0.32	0.32	0.16	0.16	0.16			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	655	2619			1132	507	269	269	253			
v/s Ratio Prot	c0.23	c0.21			0.08							
v/s Ratio Perm						0.06	c0.10	0.10	0.01			
v/c Ratio	0.62	0.28			0.26	0.18	0.60	0.60	0.08			
Uniform Delay, d1	20.6	3.4			20.2	19.6	31.2	31.2	28.6			
Progression Factor	0.66	0.28			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	1.7	0.3			0.6	0.8	3.8	3.8	0.1			
Delay (s)	15.3	1.2			20.7	20.4	35.0	35.0	28.7			
Level of Service	B	A			C	C	D	D	C			
Approach Delay (s)		6.3			20.6			33.2			0.0	
Approach LOS		A			C			C			A	

Intersection Summary			
HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 French Camp Road/Val Dervin Parkway

Average Delay (sec/veh): OVERFLOW Worst Case Level Of Service: F[xxxxx]

Street Name:	Val Dervin Parkway									French Camp Road								
Approach:	North Bound				South Bound					East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	1	1	0	0	1	0	1	0
Volume Module:																				
Base Vol:	50	30		10		30	20		60		250	430		110		330	400		0	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	50	30		10		30	20		60		250	430		110		330	400		0	
Added Vol:	0	0		0		0	0		0		0	26		0		0	41		0	
PasserByVol:	0	0		0		0	0		0		0	0		0		0	0		0	
Initial Fut:	50	30		10		30	20		60		250	456		110		330	441		0	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95	
PHF Volume:	53	32		11		32	21		63		263	480		116		347	464		0	
Reduct Vol:	0	0		0		0	0		0		0	0		0		0	0		0	
FinalVolume:	53	32		11		32	21		63		263	480		116		347	464		0	
Critical Gap Module:																				
Critical Gp:	7.5	6.5		6.9		7.5	6.5		6.9		4.1	xxxx	xxxxx			4.1	xxxx	xxxxx		
FollowUpTim:	3.5	4.0		3.3		3.5	4.0		3.3		2.2	xxxx	xxxxx			2.2	xxxx	xxxxx		
Capacity Module:																				
Cnflict Vol:	2002	2223		298		1941	2281		232		464	xxxx	xxxxx			596	xxxx	xxxxx		
Potent Cap.:	36	44		704		40	40		776		1108	xxxx	xxxxx			991	xxxx	xxxxx		
Move Cap.:	0	19		704		0	17		776		1108	xxxx	xxxxx			991	xxxx	xxxxx		
Volume/Cap:	xxxx	1.67		0.01		xxxx	1.21		0.08		0.24	xxxx	xxxx			0.35	xxxx	xxxx		
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		0.9	xxxx	xxxxx			1.6	xxxx	xxxxx		
Control Del:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		9.3	xxxx	xxxxx			10.6	xxxx	xxxxx		
LOS by Move:	*	*		*		*	*		*		A	*		*		B	*		*	
Movement:	LT -	LTR -		RT		LT -	LTR -		RT		LT -	LTR -		RT		LT -	LTR -		RT	
Shared Cap.:	xxxx	0		xxxxx		xxxx	0		xxxxx		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
SharedQueue:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		1.6	xxxx	xxxxx		
Shrd ConDel:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		10.6	xxxx	xxxxx		
Shared LOS:	*	*		*		*	*		*		*	*		*		B	*		*	
ApproachDel:	xxxxxx					xxxxxx					xxxxxx					xxxxxx				
ApproachLOS:	F					F					*					*				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #16 Yettner Road/ S. Manthey Road

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B[11.5]

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Volume Module:																				
Base Vol:	10	200		0		0	300		10		10	0		10		0	0		0	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	10	200		0		0	300		10		10	0		10		0	0		0	
Added Vol:	0	9		0		0	6		0		0	0		0		0	0		0	
PasserByVol:	0	0		0		0	0		0		0	0		0		0	0		0	
Initial Fut:	10	209		0		0	306		10		10	0		10		0	0		0	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95	
PHF Volume:	11	220		0		0	322		11		11	0		11		0	0		0	
Reduct Vol:	0	0		0		0	0		0		0	0		0		0	0		0	
FinalVolume:	11	220		0		0	322		11		11	0		11		0	0		0	
Critical Gap Module:																				
Critical Gp:	4.1	xxxx	xxxxx			xxxxx	xxxx	xxxxx			6.4	6.5		6.2	xxxxx	xxxx	xxxxx			
FollowUpTim:	2.2	xxxx	xxxxx			xxxxx	xxxx	xxxxx			3.5	4.0		3.3	xxxxx	xxxx	xxxxx			
Capacity Module:																				
Cnflict Vol:	333	xxxx	xxxxx			xxxx	xxxx	xxxxx			568	568		327	xxxx	xxxx	xxxxx			
Potent Cap.:	1238	xxxx	xxxxx			xxxx	xxxx	xxxxx			487	435		719	xxxx	xxxx	xxxxx			
Move Cap.:	1238	xxxx	xxxxx			xxxx	xxxx	xxxxx			484	431		719	xxxx	xxxx	xxxxx			
Volume/Cap:	0.01	xxxx	xxxx			xxxx	xxxx	xxxx			0.02	0.00		0.01	xxxx	xxxx	xxxx			
Level Of Service Module:																				
2Way95thQ:	0.0	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
Control Del:	7.9	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
LOS by Move:	A	*		*		*	*		*		*	*		*		*	*		*	
Movement:	LT -	LTR -		RT		LT -	LTR -		RT		LT -	LTR -		RT		LT -	LTR -		RT	
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	579	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	0.0	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	0.1	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	7.9	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	11.5	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	A	*		*		*	*		*		*	B		*		*	*		*	
ApproachDel:	xxxxxx					xxxxxx					11.5					xxxxxx				
ApproachLOS:	*					*					B					*				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #17 Mathews Road/South Manthey Road

Cycle (sec): 100 Critical Vol./Cap.(X): 0.663
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 14.8
Optimal Cycle: 0 Level Of Service: B

Street Name:	South Manthey Road						Mathews Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	0 0	1! 0	0	1 0	1 0	1	0 1	0 1	0	0 1	0 1	0
Volume Module:715-815												
Base Vol:	20	20	20	20	10	30	10	170	20	30	740	90
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	20	20	20	10	30	10	170	20	30	740	90
Added Vol:	0	2	0	4	2	1	1	0	0	0	0	5
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	20	22	20	24	12	31	11	170	20	30	740	95
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	21	23	21	25	13	33	12	179	21	32	779	100
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	21	23	21	25	13	33	12	179	21	32	779	100
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	21	23	21	25	13	33	12	179	21	32	779	100
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.32	0.36	0.32	1.00	1.00	1.00	0.11	1.69	0.20	0.07	1.71	0.22
Final Sat.:	169	186	169	456	486	537	64	1002	120	48	1195	156
Capacity Analysis Module:												
Vol/Sat:	0.12	0.12	0.12	0.06	0.03	0.06	0.18	0.18	0.18	0.66	0.65	0.64
Crit Moves:		****				****	****			****		
Delay/Veh:	10.4	10.4	10.4	10.5	9.8	9.2	9.9	9.8	9.6	17.4	16.8	16.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.4	10.4	10.4	10.5	9.8	9.2	9.9	9.8	9.6	17.4	16.8	16.0
LOS by Move:	B	B	B	B	A	A	A	A	A	C	C	C
ApproachDel:	10.4			9.8			9.8			16.7		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.4			9.8			9.8			16.7		
LOS by Appr:	B			A			A			C		
AllWayAvgQ:	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.2	0.2	1.8	1.6	1.6

Weston Ranch Towne Center EIR
Near-Term With Project
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 Mathews Road/I-5 SB Ramps

Average Delay (sec/veh): 10.8 Worst Case Level Of Service: C[24.2]

Street Name:	I-5 SB Ramps									Mathews Road					
Approach:	North Bound					South Bound				East Bound			West Bound		
Movement:	L - T - R					L - T - R				L - T - R			L - T - R		
Control:	Stop Sign					Stop Sign				Uncontrolled			Uncontrolled		
Rights:	Include					Include				Include			Include		
Lanes:	0 0	0	0	0	0	1 0	0	1	0	0 0	1	1	0	1 0	1 0 0
Volume Module:715-815															
Base Vol:	0	0	0			140	0	410		0	170	40		60	450 0
Growth Adj:	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00 1.00
Initial Bse:	0	0	0			140	0	410		0	170	40		60	450 0
Added Vol:	0	0	0			0	0	0		0	2	2		0	5 0
PasserByVol:	0	0	0			0	0	0		0	0	0		0	0 0
Initial Fut:	0	0	0			140	0	410		0	172	42		60	455 0
User Adj:	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00 1.00
PHF Adj:	0.95	0.95	0.95			0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95 0.95
PHF Volume:	0	0	0			147	0	432		0	181	44		63	479 0
Reduct Vol:	0	0	0			0	0	0		0	0	0		0	0 0
FinalVolume:	0	0	0			147	0	432		0	181	44		63	479 0
Critical Gap Module:															
Critical Gp:	xxxxx	xxxx	xxxxx			6.4	6.5	6.2	xxxxx	xxxx	xxxxx			4.1	xxxx xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx			3.5	4.0	3.3	xxxxx	xxxx	xxxxx			2.2	xxxx xxxxx
Capacity Module:															
Cnflict Vol:	xxxx	xxxx	xxxxx			696	831	479	xxxx	xxxx	xxxxx			225	xxxx xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx			411	308	591	xxxx	xxxx	xxxxx			1355	xxxx xxxxx
Move Cap.:	xxxx	xxxx	xxxxx			396	293	591	xxxx	xxxx	xxxxx			1355	xxxx xxxxx
Volume/Cap:	xxxx	xxxx	xxxx			0.37	0.00	0.73	xxxx	xxxx	xxxx			0.05	xxxx xxxx
Level Of Service Module:															
2Way95thQ:	xxxx	xxxx	xxxxx			1.7	xxxx	xxxxx	xxxx	xxxx	xxxxx			0.1	xxxx xxxxx
Control Del:	xxxxx	xxxx	xxxxx			19.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx			7.8	xxxx xxxxx
LOS by Move:	*	*	*			C	*	*	*	*	*			A	* *
Movement:	LT - LTR - RT					LT - LTR - RT			LT - LTR - RT					LT - LTR - RT	
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx	xxxx	591	xxxx	xxxx	xxxxx			xxxx	xxxx xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx			xxxxx	xxxx xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	25.8	xxxxx	xxxx	xxxxx			xxxxx	xxxx xxxxx
Shared LOS:	*	*	*			*	*	D	*	*	*			*	* *
ApproachDel:	xxxxxx					24.2			xxxxxx					xxxxxx	
ApproachLOS:	*					C			*					*	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 Mathews Road/I-5 NB Ramps

Average Delay (sec/veh): 59.7 Worst Case Level Of Service: F[96.2]

Street Name:	I-5 NB Ramps									Mathews Road									
Approach:	North Bound					South Bound				East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	1	0	0	1	0	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Volume Module:	715-815																			
Base Vol:	280		0	1050		0		0		0	120	190		0		0	230		290	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	280		0	1050		0		0		0	120	190		0		0	230		290	
Added Vol:	3		0		0	0		0		0	0	2		0		0	2		0	
PasserByVol:	0		0		0	0		0		0	0	0		0		0	0		0	
Initial Fut:	283		0	1050		0		0		0	120	192		0		0	232		290	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95	
PHF Volume:	298		0	1105		0		0		0	126	202		0		0	244		305	
Reduct Vol:	0		0		0	0		0		0	0	0		0		0	0		0	
FinalVolume:	298		0	1105		0		0		0	126	202		0		0	244		305	
Critical Gap Module:																				
Critical Gp:	6.4	6.5		6.2	xxxxx	xxxx	xxxxx				4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
FollowUpTim:	3.5	4.0		3.3	xxxxx	xxxx	xxxxx				2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
Capacity Module:																				
Cnflict Vol:	852	1004		101	xxxx	xxxx	xxxxx				549	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Potent Cap.:	333	244		960	xxxx	xxxx	xxxxx				1030	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Move Cap.:	302	214		960	xxxx	xxxx	xxxxx				1030	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Volume/Cap:	0.99	0.00		1.15	xxxx	xxxx	xxxx				0.12	xxxx	xxxx	xxxx	xxxx	xxxx				
Level Of Service Module:																				
2Way95thQ:	10.3	xxxx	xxxxx	xxxx	xxxx	xxxxx					0.4	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Control Del:	87.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx					9.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
LOS by Move:	F	*		*	*	*					A	*		*	*	*				
Movement:	LT - LTR - RT					LT - LTR - RT					LT - LTR - RT					LT - LTR - RT				
Shared Cap.:	xxxx	xxxx		960	xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
SharedQueue:	xxxxx	xxxx		31.4	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
Shrd ConDel:	xxxxx	xxxx		98.6	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
Shared LOS:	*	*		F	*	*	*	*	*	*	*	*		*	*	*				
ApproachDel:	96.2				xxxxxx			xxxxxx				xxxxxx								
ApproachLOS:	F				*			*				*								

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #20 Howard Road/ Wolfe Road

Average Delay (sec/veh): 5.8 Worst Case Level Of Service: B[14.1]

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	10		20		40	100		20		60	10		60		10	10		240		10
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	10		20		40	100		20		60	10		60		10	10		240		10
Added Vol:	0		0		0	0		0		1	1		1		0	0		1		0
PasserByVol:	0		0		0	0		0		0	0		0		0	0		0		0
Initial Fut:	10		20		40	100		20		61	11		61		10	10		241		10
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95	
PHF Volume:	11		21		42	105		21		64	12		64		11	11		254		11
Reduct Vol:	0		0		0	0		0		0	0		0		0	0		0		0
FinalVolume:	11		21		42	105		21		64	12		64		11	11		254		11
Critical Gap Module:																				
Critical Gp:	7.1		6.5		6.2	7.1		6.5		6.2	4.1	xxxx	xxxxx			4.1	xxxx	xxxxx		
FollowUpTim:	3.5		4.0		3.3	3.5		4.0		3.3	2.2	xxxx	xxxxx			2.2	xxxx	xxxxx		
Capacity Module:																				
Cnflict Vol:	415		378		69	404		378		259	264	xxxx	xxxxx			75	xxxx	xxxxx		
Potent Cap.:	551		557		999	560		557		785	1312	xxxx	xxxxx			1537	xxxx	xxxxx		
Move Cap.:	485		548		999	515		548		785	1312	xxxx	xxxxx			1537	xxxx	xxxxx		
Volume/Cap:	0.02	0.04		0.04		0.20	0.04		0.08		0.01	xxxx		xxxx		0.01	xxxx		xxxx	
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx					0.0	xxxx	xxxxx			0.0	xxxx	xxxxx		
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx					7.8	xxxx	xxxxx			7.4	xxxx	xxxxx		
LOS by Move:	*	*		*	*	*					A	*		*	*	A	*		*	
Movement:	LT - LTR - RT					LT - LTR - RT					LT - LTR - RT					LT - LTR - RT				
Shared Cap.:	xxxx	721	xxxxx	xxxx	587	xxxxx	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx	0.3	xxxxx	xxxxx	1.4	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx	10.6	xxxxx	xxxxx	14.1	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*	B		*	*	B	*		*		*	*		*		*	*		*	
ApproachDel:	10.6				14.1				xxxxxx					xxxxxx						
ApproachLOS:	B				B				*					*						

Note: Queue reported is the number of cars per lane.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583
Volume (vph)	42	614	380	200	298	20
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	44	646	400	211	314	21
RTOR Reduction (vph)	0	0	0	95	0	16
Lane Group Flow (vph)	44	646	400	116	314	5
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	5.4	53.4	44.0	44.0	18.6	18.6
Effective Green, g (s)	5.4	53.4	44.0	44.0	18.6	18.6
Actuated g/C Ratio	0.07	0.67	0.55	0.55	0.23	0.23
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	119	1244	1025	871	412	368
v/s Ratio Prot	0.02	c0.35	0.21		c0.18	
v/s Ratio Perm				0.07		0.00
v/c Ratio	0.37	0.52	0.39	0.13	0.76	0.01
Uniform Delay, d1	35.7	6.8	10.3	8.7	28.6	23.6
Progression Factor	0.93	0.85	0.65	0.52	1.00	1.00
Incremental Delay, d2	1.8	1.4	1.1	0.3	8.1	0.0
Delay (s)	35.1	7.2	7.8	4.9	36.8	23.6
Level of Service	D	A	A	A	D	C
Approach Delay (s)		9.0	6.8		35.9	
Approach LOS		A	A		D	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Weston Ranch Towne Center EIR
Near-Term With Project
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Scenario Report

Scenario:	Exist+App+Proj PM
Command:	Ex+App+Proj PM
Volume:	Existing + Approved + Project PM
Geometry:	Existing Plus Approved Plus Project
Impact Fee:	Default Impact Fee
Trip Generation:	Project PM
Trip Distribution:	Existing
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Carolyn Weston Boulevard/McDougald Boulevard

Cycle (sec): 60 Critical Vol./Cap.(X): 0.593
Loss Time (sec): 16 (Y+R=5.0 sec) Average Delay (sec/veh): 28.3
Optimal Cycle: 50 Level Of Service: C

Street Name:	McDougald Boulevard						Carolyn Weston Boulevard					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0	1	0 1	1 0	0 1	0	1 0	1 1	0	1 0	1 1	0
Volume Module:5-6												
Base Vol:	50	10	150	50	5	5	10	550	30	300	1000	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	10	150	50	5	5	10	550	30	300	1000	20
Added Vol:	12	0	0	0	0	0	0	11	11	0	12	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	62	10	150	50	5	5	10	561	41	300	1012	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	65	11	158	53	5	5	11	591	43	316	1065	21
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	65	11	158	53	5	5	11	591	43	316	1065	21
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	65	11	158	53	5	5	11	591	43	316	1065	21
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	0.93	0.93	0.95	0.94	0.94	0.95	0.95	0.95
Lanes:	1.00	1.00	1.00	1.00	0.50	0.50	1.00	1.86	0.14	1.00	1.96	0.04
Final Sat.:	1805	1900	1615	1805	879	879	1805	3330	243	1805	3529	70
Capacity Analysis Module:												
Vol/Sat:	0.04	0.01	0.10	0.03	0.01	0.01	0.01	0.18	0.18	0.17	0.30	0.30
Crit Moves:			****	****			****				****	
Green/Cycle:	0.12	0.17	0.17	0.12	0.17	0.17	0.12	0.23	0.23	0.22	0.33	0.33
Volume/Cap:	0.31	0.03	0.59	0.25	0.04	0.04	0.05	0.78	0.78	0.78	0.91	0.91
Delay/Veh:	25.1	21.0	26.4	24.7	21.0	21.0	23.6	26.8	26.8	31.5	29.0	29.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	25.1	21.0	26.4	24.7	21.0	21.0	23.6	26.8	26.8	31.5	29.0	29.0
LOS by Move:	C	C	C	C	C	C	C	C	C	C	C	C
HCM2kAvgQ:	1	0	4	1	0	0	0	8	8	8	14	14

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Carolyn Weston Boulevard/S. Manthey Road

Cycle (sec): 90 Critical Vol./Cap.(X): 0.846
Loss Time (sec): 16 (Y+R=5.0 sec) Average Delay (sec/veh): 36.9
Optimal Cycle: 93 Level Of Service: D

Street Name:	S. Manthey Road						Carolyn Weston Boulevard					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0	1	0 1	1 0	1	0 1	1 0	1	0	1 0	1 1	0
Volume Module:5-6												
Base Vol:	200	90	130	190	70	170	200	500	50	300	950	200
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	200	90	130	190	70	170	200	500	50	300	950	200
Added Vol:	12	0	41	0	0	0	0	0	11	40	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	212	90	171	190	70	170	200	500	61	340	950	200
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	223	95	180	200	74	179	211	526	64	358	1000	211
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	223	95	180	200	74	179	211	526	64	358	1000	211
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	223	95	180	200	74	179	211	526	64	358	1000	211
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.93	0.93	0.95	0.93	0.93
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.78	0.22	1.00	1.65	0.35
Final Sat.:	1805	1900	1615	1805	1900	1615	1805	3166	386	1805	2905	612
Capacity Analysis Module:												
Vol/Sat:	0.12	0.05	0.11	0.11	0.04	0.11	0.12	0.17	0.17	0.20	0.34	0.34
Crit Moves:	****					****	****				****	
Green/Cycle:	0.15	0.14	0.44	0.14	0.13	0.13	0.14	0.25	0.25	0.30	0.41	0.41
Volume/Cap:	0.85	0.36	0.26	0.80	0.30	0.85	0.85	0.67	0.67	0.67	0.85	0.85
Delay/Veh:	58.9	36.0	16.3	54.2	36.0	63.9	60.4	32.5	32.5	31.0	29.0	29.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	58.9	36.0	16.3	54.2	36.0	63.9	60.4	32.5	32.5	31.0	29.0	29.0
LOS by Move:	E	D	B	D	D	E	E	C	C	C	C	C
HCM2kAvgQ:	9	3	3	8	2	7	8	9	9	9	18	18

Note: Queue reported is the number of cars per lane.

HCM Signalized Intersection Capacity Analysis
3: Downing Avenue & I-5 SB Ramps

Near-Term Plus Project
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.91	1.00	1.00	0.95						1.00	0.88
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539						1770	2787
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		5085	1583	1770	3539						1770	2787
Volume (vph)	0	751	160	20	590	0	0	0	0	370	0	840
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	791	168	21	621	0	0	0	0	389	0	884
RTOR Reduction (vph)	0	0	95	0	0	0	0	0	0	0	0	135
Lane Group Flow (vph)	0	791	73	21	621	0	0	0	0	0	389	749
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		30.5	30.5	2.4	36.9						25.1	25.1
Effective Green, g (s)		30.5	30.5	2.4	36.9						25.1	25.1
Actuated g/C Ratio		0.44	0.44	0.03	0.53						0.36	0.36
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		2216	690	61	1866						635	999
v/s Ratio Prot		0.16		0.01	c0.18							
v/s Ratio Perm			0.05								0.22	c0.27
v/c Ratio		0.36	0.11	0.34	0.33						0.61	0.75
Uniform Delay, d1		13.2	11.7	33.0	9.5						18.5	19.7
Progression Factor		1.00	1.00	0.75	1.37						1.00	1.00
Incremental Delay, d2		0.5	0.3	2.9	0.4						1.8	3.2
Delay (s)		13.6	12.0	27.6	13.4						20.2	22.9
Level of Service		B	B	C	B						C	C
Approach Delay (s)		13.4			13.9			0.0			22.1	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	17.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Downing Avenue & I-5 NB Ramps

Near-Term Plus Project
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Util. Factor	0.97	1.00			0.95			1.00	1.00			
Frt	1.00	1.00			0.92			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	3433	1863			3266			1777	1583			
Flt Permitted	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	3433	1863			3266			1777	1583			
Volume (vph)	641	480	0	0	330	350	280	10	40	0	0	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	675	505	0	0	347	368	295	11	42	0	0	0
RTOR Reduction (vph)	0	0	0	0	240	0	0	0	32	0	0	0
Lane Group Flow (vph)	675	505	0	0	475	0	0	306	10	0	0	0
Turn Type	Prot						Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases							2		2			
Actuated Green, G (s)	17.4	45.7			24.3			16.3	16.3			
Effective Green, g (s)	17.4	45.7			24.3			16.3	16.3			
Actuated g/C Ratio	0.25	0.65			0.35			0.23	0.23			
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	853	1216			1134			414	369			
v/s Ratio Prot	c0.20	c0.27			0.15							
v/s Ratio Perm								0.17	0.01			
v/c Ratio	0.79	0.42			0.42			0.74	0.03			
Uniform Delay, d1	24.6	5.8			17.5			24.9	20.7			
Progression Factor	1.10	0.98			1.00			1.00	1.00			
Incremental Delay, d2	4.8	1.0			1.1			6.8	0.0			
Delay (s)	32.0	6.7			18.6			31.7	20.8			
Level of Service	C	A			B			C	C			
Approach Delay (s)		21.1			18.6			30.3			0.0	
Approach LOS		C			B			C			A	

Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 Downing Avenue/French Camp Turnpike

Average Delay (sec/veh): 90.2 Worst Case Level Of Service: F[441.7]

Street Name:	French Camp Turnpike									Downing Avenue							
Approach:	North Bound				South Bound				East Bound				West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Volume Module:4-5																				
Base Vol:	230	10		10		10	10		100		150	250		120		10	350		10	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	230	10		10		10	10		100		150	250		120		10	350		10	
Added Vol:	0	0		0		0	0		0		0	0		0		0	0		0	
PasserByVol:	0	0		0		0	0		0		0	0		0		0	0		0	
Initial Fut:	230	10		10		10	10		100		150	250		120		10	350		10	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95	
PHF Volume:	242	11		11		11	11		105		158	263		126		11	368		11	
Reduct Vol:	0	0		0		0	0		0		0	0		0		0	0		0	
FinalVolume:	242	11		11		11	11		105		158	263		126		11	368		11	
Critical Gap Module:																				
Critical Gp:	7.1	6.5		6.2		7.1	6.5		6.2		4.1	xxxx	xxxxx			4.1	xxxx	xxxxx		
FollowUpTim:	3.5	4.0		3.3		3.5	4.0		3.3		2.2	xxxx	xxxxx			2.2	xxxx	xxxxx		
Capacity Module:																				
Cnflict Vol:	1095	1042		326		1047	1100		374		379	xxxx	xxxxx			389	xxxx	xxxxx		
Potent Cap.:	193	231		720		208	214		677		1191	xxxx	xxxxx			1180	xxxx	xxxxx		
Move Cap.:	139	199		720		176	184		677		1191	xxxx	xxxxx			1180	xxxx	xxxxx		
Volume/Cap:	1.74	0.05		0.01		0.06	0.06		0.16		0.13	xxxx	xxxx			0.01	xxxx	xxxx		
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		0.5	xxxx	xxxxx			0.0	xxxx	xxxxx		
Control Del:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		8.5	xxxx	xxxxx			8.1	xxxx	xxxxx		
LOS by Move:	*	*		*		*	*		*		A	*	*			A	*	*		
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	146		xxxxx		xxxx	463		xxxxx		xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx	19.7		xxxxx		xxxxx	1.1		xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx	442		xxxxx		xxxxx	15.7		xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*	F		*		*	C		*		*	*	*			*	*	*		
ApproachDel:	441.7					15.7					xxxxxx					xxxxxx				
ApproachLOS:	F					C					*					*				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 William Moss Boulevard/McDougald Boulevard

Cycle (sec): 60 Critical Vol./Cap.(X): 0.446
Loss Time (sec): 16 (Y+R=5.0 sec) Average Delay (sec/veh): 21.4
Optimal Cycle: 50 Level Of Service: C

Street Name:	McDougald Boulevard									William Moss Boulevard							
Approach:	North Bound				South Bound				East Bound				West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Protected					Protected					Protected				
Rights:	Include					Include					Include					Include				
Min. Green:	7	10		10		7	10		10		7	10		10		7	10		10	
Lanes:	1	0	1	1	0	1	0	1	1	0	1	0	1	1	0	1	0	1	1	0
Volume Module:445-545																				
Base Vol:	10	200		170		120	10		70		80	240		20		50	230		50	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	10	200		170		120	10		70		80	240		20		50	230		50	
Added Vol:	12	0		0		11	0		0		0	0		11		0	0		12	
PasserByVol:	0	0		0		0	0		0		0	0		0		0	0		0	
Initial Fut:	22	200		170		131	10		70		80	240		31		50	230		62	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95	
PHF Volume:	23	211		179		138	11		74		84	253		33		53	242		65	
Reduct Vol:	0	0		0		0	0		0		0	0		0		0	0		0	
Reduced Vol:	23	211		179		138	11		74		84	253		33		53	242		65	
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
FinalVolume:	23	211		179		138	11		74		84	253		33		53	242		65	
Saturation Flow Module:																				
Sat/Lane:	1900	1900		1900		1900	1900		1900		1900	1900		1900		1900	1900		1900	
Adjustment:	0.95	0.88		0.88		0.95	0.83		0.83		0.95	0.93		0.93		0.95	0.92		0.92	
Lanes:	1.00	1.08		0.92		1.00	1.00		1.00		1.00	1.77		0.23		1.00	1.58		0.42	
Final Sat.:	1805	1817		1544		1805	1569		1569		1805	3143		406		1805	2753		742	
Capacity Analysis Module:																				
Vol/Sat:	0.01	0.12		0.12		0.08	0.01		0.05		0.05	0.08		0.08		0.03	0.09		0.09	
Crit Moves:		****				****					****						****			
Green/Cycle:	0.17	0.26		0.26		0.17	0.25		0.25		0.12	0.18		0.18		0.13	0.19		0.19	
Volume/Cap:	0.07	0.45		0.45		0.45	0.03		0.19		0.40	0.44		0.44		0.23	0.45		0.45	
Delay/Veh:	20.8	19.2		19.2		23.6	17.0		18.0		25.8	22.3		22.3		24.0	21.9		21.9	
User DelAdj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
AdjDel/Veh:	20.8	19.2		19.2		23.6	17.0		18.0		25.8	22.3		22.3		24.0	21.9		21.9	
LOS by Move:	C	B		B		C	B		B		C	C		C		C	C		C	
HCM2kAvgQ:	0	3		3		3	0		1		2	3		3		1	3		3	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 William Moss Boulevard/S. Manthey Road

Cycle (sec):	60	Critical Vol./Cap.(X):	0.484
Loss Time (sec):	12 (Y+R=5.0 sec)	Average Delay (sec/veh):	16.7
Optimal Cycle:	39	Level Of Service:	B

Street Name:	William Moss Boulevard											
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Permitted					Split Phase					Split Phase				
Rights:	Include					Include					Include					Include				
Min. Green:	7	10	10			7	10	10			7	10	10			7	10	10		
Lanes:	1	0	1	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0
Volume Module:5-6																				
Base Vol:	130	100		0		0	90	170			190		0	170		0		0		0
Growth Adj:	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00		
Initial Bse:	130	100		0		0	90	170			190		0	170		0		0		0
Added Vol:	12	53		0		0	51	0			0		0	11		0		0		0
PasserByVol:	0	0		0		0	0	0			0		0	0		0		0		0
Initial Fut:	142	153		0		0	141	170			190		0	181		0		0		0
User Adj:	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00		
PHF Adj:	0.95	0.95	0.95	0.95		0.95	0.95	0.95			0.95	0.95	0.95	0.95		0.95	0.95	0.95		
PHF Volume:	149	161		0		0	148	179			200		0	191		0		0		0
Reduct Vol:	0	0		0		0	0	0			0		0	0		0		0		0
Reduced Vol:	149	161		0		0	148	179			200		0	191		0		0		0
PCE Adj:	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00		
MLF Adj:	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00		
FinalVolume:	149	161		0		0	148	179			200		0	191		0		0		0
Saturation Flow Module:																				
Sat/Lane:	1900	1900	1900	1900		1900	1900	1900			1900	1900	1900	1900		1900	1900	1900		
Adjustment:	0.95	1.00	1.00	1.00		0.93	0.93	0.95			1.00	0.85	1.00	1.00		1.00	1.00	1.00		
Lanes:	1.00	1.00	0.00	0.00		0.45	0.55	1.00			0.00	1.00	0.00	0.00		0.00	0.00	0.00		
Final Sat.:	1805	1900		0		0	798	962			1805		0	1615		0		0		0
Capacity Analysis Module:																				
Vol/Sat:	0.08	0.08	0.00	0.00		0.19	0.19	0.11			0.00	0.12	0.00	0.00		0.00				
Crit Moves:	****					****						****								
Green/Cycle:	0.17	0.56	0.00	0.00		0.38	0.38	0.24			0.00	0.24	0.00	0.00		0.00				
Volume/Cap:	0.48	0.15	0.00	0.00		0.48	0.48	0.45			0.00	0.48	0.00	0.00		0.00				
Delay/Veh:	23.7	6.5	0.0	0.0		14.5	14.5	20.0			0.0	20.4	0.0	0.0		0.0				
User DelAdj:	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00	1.00	1.00	1.00		1.00				
AdjDel/Veh:	23.7	6.5	0.0	0.0		14.5	14.5	20.0			0.0	20.4	0.0	0.0		0.0				
LOS by Move:	C		A		A		B	B		C		A	C		A		A		A	
HCM2kAvgQ:	3		1		0		4	4		3		0	3		0		0		0	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 Henry Long Boulevard/McDougald Boulevard

Cycle (sec):	100	Critical Vol./Cap.(X):	0.310
Loss Time (sec):	0 (Y+R=5.0 sec)	Average Delay (sec/veh):	9.8
Optimal Cycle:	0	Level Of Service:	A

Street Name:	McDougald Boulevard								Henry Long Boulevard							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Min. Green:	7	10	10			7	10	10			7	10	10			7	10	10		
Lanes:	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0
Volume Module:																				
Base Vol:	70	130		20		20	40	60			170	10		90		10	10	10		
Growth Adj:	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00		
Initial Bse:	70	130		20		20	40	60			170	10		90		10	10	10		
Added Vol:	0	12		0		0	11	0			0	0		0		0	0	0		
PasserByVol:	0	0		0		0	0	0			0	0		0		0	0	0		
Initial Fut:	70	142		20		20	51	60			170	10		90		10	10	10		
User Adj:	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00		
PHF Adj:	0.95	0.95	0.95	0.95		0.95	0.95	0.95			0.95	0.95	0.95	0.95		0.95	0.95	0.95		
PHF Volume:	74	149		21		21	54	63			179	11		95		11	11	11		
Reduct Vol:	0	0		0		0	0	0			0	0		0		0	0	0		
Reduced Vol:	74	149		21		21	54	63			179	11		95		11	11	11		
PCE Adj:	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00		
MLF Adj:	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00		
FinalVolume:	74	149		21		21	54	63			179	11		95		11	11	11		
Saturation Flow Module:																				
Adjustment:	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00		
Lanes:	1.00	0.88	0.12	1.00		0.46	0.54	1.00			0.10	0.90	1.00	0.50		0.50				
Final Sat.:	579	562		79		563	301	354			577	70		632		534	306	306		
Capacity Analysis Module:																				
Vol/Sat:	0.13	0.27	0.27	0.04		0.18	0.18	0.31			0.15	0.15	0.02	0.03		0.03				
Crit Moves:		****				****		****						****						
Delay/Veh:	9.5	10.0	10.0	9.1		9.0	9.0	11.3			8.4	8.4	9.2	8.4		8.4				
Delay Adj:	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00	1.00	1.00	1.00		1.00				
AdjDel/Veh:	9.5	10.0	10.0	9.1		9.0	9.0	11.3			8.4	8.4	9.2	8.4		8.4				
LOS by Move:	A	A	A	A		A	A	B			A	A	A	A		A				
ApproachDel:	9.8					9.0					10.2					8.6				
Delay Adj:	1.00					1.00					1.00					1.00				
ApprAdjDel:	9.8					9.0					10.2					8.6				
LOS by Appr:	A					A					B					A				
AllWayAvgQ:	0.1	0.3	0.3	0.0		0.2	0.2	0.4			0.2	0.2	0.0	0.0		0.0				

Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #9 Henry Long Boulevard/Manthey Road

Cycle (sec): 100 Critical Vol./Cap.(X): 0.360
Loss Time (sec): 0 (Y+R=5.0 sec) Average Delay (sec/veh): 9.2
Optimal Cycle: 0 Level Of Service: A

Street Name:	Manthey Road						Henry Long Boulevard					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	0 1	0	0 0	0 0	0	1	1 0	0	0 0	0 0	0	0
Volume Module:												
Base Vol:	0	0	0	0	0	140	200	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	140	200	0	0	0	0	0
Added Vol:	0	0	0	0	0	62	65	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	202	265	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	0	0	213	279	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	213	279	0	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	0	0	213	279	0	0	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Final Sat.:	0	709	0	0	0	868	774	0	0	0	0	0
Capacity Analysis Module:												
Vol/Sat:	xxxx	0.00	xxxx	xxxx	xxxx	0.24	0.36	xxxx	xxxx	xxxx	xxxx	xxxx
Crit Moves:		****				****	****					
Delay/Veh:	0.0	0.0	0.0	0.0	0.0	8.1	9.9	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	0.0	0.0	8.1	9.9	0.0	0.0	0.0	0.0	0.0
LOS by Move:	*	*	*	*	*	A	A	*	*	*	*	*
ApproachDel:	xxxxxx			8.1			9.9			xxxxxx		
Delay Adj:	xxxxx			1.00			1.00			xxxxx		
ApprAdjDel:	xxxxxx			8.1			9.9			xxxxxx		
LOS by Appr:	*			A			A			*		
AllWayAvgQ:	0.0	0.0	0.0	0.3	0.3	0.3	0.5	0.5	0.5	0.0	0.0	0.0

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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 Wolfe Road / French Camp Road

Cycle (sec): 70 Critical Vol./Cap.(X): 0.800
Loss Time (sec): 16 (Y+R=5.0 sec) Average Delay (sec/veh): 37.8
Optimal Cycle: 74 Level Of Service: D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L - T - R				L - T - R				L - T - R				L - T - R			
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	0 0	1! 0	0		1 0	1 0	1		1 0	0 1	0		1 0	0 1	0	
Volume Module:																
Base Vol:	30	210	80		60	20	10		10	110	10		10	240	210	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	30	210	80		60	20	10		10	110	10		10	240	210	
Added Vol:	0	0	3		6	0	0		0	17	0		3	18	6	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	30	210	83		66	20	10		10	127	10		13	258	216	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95	
PHF Volume:	32	221	87		69	21	11		11	134	11		14	272	227	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	32	221	87		69	21	11		11	134	11		14	272	227	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	32	221	87		69	21	11		11	134	11		14	272	227	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.96	0.96	0.96		0.95	1.00	0.85		0.95	0.99	0.99		0.95	0.93	0.93	
Lanes:	0.09	0.65	0.26		1.00	1.00	1.00		1.00	0.93	0.07		1.00	0.54	0.46	
Final Sat.:	169	1186	469		1805	1900	1615		1805	1742	137		1805	964	807	
Capacity Analysis Module:																
Vol/Sat:	0.19	0.19	0.19		0.04	0.01	0.01		0.01	0.08	0.08		0.01	0.28	0.28	
Crit Moves:	****					****			****					****		
Green/Cycle:	0.21	0.21	0.21		0.14	0.14	0.14		0.10	0.25	0.25		0.17	0.32	0.32	
Volume/Cap:	0.89	0.89	0.89		0.27	0.08	0.05		0.06	0.31	0.31		0.04	0.89	0.89	
Delay/Veh:	47.9	47.9	47.9		27.3	26.1	26.0		28.7	21.9	21.9		24.2	38.2	38.2	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	47.9	47.9	47.9		27.3	26.1	26.0		28.7	21.9	21.9		24.2	38.2	38.2	
LOS by Move:	D	D	D		C	C	C		C	C	C		C	D	D	
HCM2kAvgQ:	11	11	11		2	0	0		0	3	3		0	14	14	

Note: Queue reported is the number of cars per lane.

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------------------------------------------------------------------------------
                        Weston Ranch Towne Center EIR
                           Near-Term With Project
                                PM Peak Hour
------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
******************************************************************************
Intersection #11 French Camp Road/McDougald Boulevard
******************************************************************************
Average Delay (sec/veh):      5.8       Worst Case Level Of Service: E[ 37.8]
******************************************************************************
Street Name:       McDougald Boulevard                 French Camp Road
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0    1  0  0  0  1    0  1  0  0  0    0  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 21 May 2003 << 5-6
Base Vol:       0    0    0  140    0   20   90  270    0    0  440  220
Growth Adj:  1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:    0    0    0  140    0   20   90  270    0    0  440  220
Added Vol:      0    0    0   11    0    0    0   26    0    0   27   12
PasserByVol:    0    0    0    0    0    0    0    0    0    0    0    0
Initial Fut:    0    0    0  151    0   20   90  296    0    0  467  232
User Adj:    1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:     0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume:     0    0    0  159    0   21   95  312    0    0  492  244
Reduct Vol:     0    0    0    0    0    0    0    0    0    0    0    0
FinalVolume:    0    0    0  159    0   21   95  312    0    0  492  244
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   993 xxxx   492   736 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   275 xxxx   581   879 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   251 xxxx   581   879 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.63 xxxx  0.04  0.11 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   3.9 xxxx   0.1   0.4 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx  41.3 xxxx  11.4   9.6 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:   *    *     *     E    *     B     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.4 xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   9.6 xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     *    *     *     A    *     *     *    *     *
ApproachDel:    xxxxxx              37.8            xxxxxx            xxxxxx
ApproachLOS:        *                 E               *                 *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Volume (vph)	33	942	1187	425	480	46
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	35	992	1249	447	505	48
RTOR Reduction (vph)	0	0	0	178	0	38
Lane Group Flow (vph)	35	992	1249	269	505	10
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		1	
Permitted Phases				8		1
Actuated Green, G (s)	3.1	55.3	48.2	48.2	16.7	16.7
Effective Green, g (s)	3.1	55.3	48.2	48.2	16.7	16.7
Actuated g/C Ratio	0.04	0.69	0.60	0.60	0.21	0.21
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	69	2446	2132	954	717	330
v/s Ratio Prot	0.02	c0.28	c0.35		c0.15	
v/s Ratio Perm				0.17		0.01
v/c Ratio	0.51	0.41	0.59	0.28	0.70	0.03
Uniform Delay, d1	37.7	5.3	9.8	7.6	29.4	25.2
Progression Factor	1.12	0.61	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.9	0.4	1.2	0.7	3.2	0.0
Delay (s)	47.0	3.7	11.0	8.4	32.5	25.2
Level of Service	D	A	B	A	C	C
Approach Delay (s)		5.1	10.3		31.9	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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Exist+App+Proj PM          Tue Apr 8, 2008 16:15:14                 Page 15-1
--------------------------------------------------------------------------------
                         Weston Ranch Towne Center EIR
                            Near-Term With Project
                                 PM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
              2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #12 Manthey Road/French Camp Road
********************************************************************************
Cycle (sec):         100                 Critical Vol./Cap.(X):         3.360
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):       831.8
Optimal Cycle:         0                 Level Of Service:                  F
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     7   10    10     7   10    10     7   10    10     7   10    10
Lanes:        0  0  1! 0  0    0  0  0  0  0    0  0  0  1  0    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     120    0   280     0    0     0     0  470    60    90  720     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  120    0   280     0    0     0     0  470    60    90  720     0
Added Vol:     22    0     0     0    0     0     0  869    23     0  840     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  142    0   280     0    0     0     0 1339    83    90 1560     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:   149    0   295     0    0     0     0 1409    87    95 1642     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  149    0   295     0    0     0     0 1409    87    95 1642     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  149    0   295     0    0     0     0 1409    87    95 1642     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.34 0.00  0.66  0.00 0.00  0.00  0.00 0.94  0.06  0.05 0.95  1.00
Final Sat.:   188    0   371     0    0     0     0  524    32    28  489   577
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.79 xxxx  0.79  xxxx xxxx  xxxx  xxxx 2.69  2.69  3.36 3.36  0.00
Crit Moves:  ****                                      ****  ****
Delay/Veh:   29.7  0.0  29.7   0.0  0.0   0.0   0.0  780 779.9  1082 1082   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  29.7  0.0  29.7   0.0  0.0   0.0   0.0  780 779.9  1082 1082   0.0
LOS by Move:   D    *     D     *    *     *     *    F     F     F    F     *
ApproachDel:       29.7           xxxxxx            779.9           1081.6
Delay Adj:         1.00            xxxxx             1.00             1.00
ApprAdjDel:        29.7           xxxxxx            779.9           1081.6
LOS by Appr:         D                *                F                F
AllWayAvgQ:   3.2  3.2   3.2   0.0  0.0   0.0   119  119 119.1   154  154   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.

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Existing + Approved + Project
13: French Camp Rd. & I-5 SB Ramps

PM Peak Hour
4/9/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3539	1583	1770	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3539	1583	1770	3539					1681	1681	1583
Volume (vph)	0	1059	569	90	1064	0	0	0	0	380	0	586
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1115	599	95	1120	0	0	0	0	400	0	617
RTOR Reduction (vph)	0	0	349	0	0	0	0	0	0	0	0	28
Lane Group Flow (vph)	0	1115	250	95	1120	0	0	0	0	200	200	589
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		35.9	35.9	6.3	46.2					35.8	35.8	35.8
Effective Green, g (s)		35.9	35.9	6.3	46.2					35.8	35.8	35.8
Actuated g/C Ratio		0.40	0.40	0.07	0.51					0.40	0.40	0.40
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1412	631	124	1817					669	669	630
v/s Ratio Prot		c0.32		0.05	c0.32							
v/s Ratio Perm			0.16							0.12	0.12	c0.37
v/c Ratio		0.79	0.40	0.77	0.62					0.30	0.30	0.93
Uniform Delay, d1		23.7	19.3	41.1	15.6					18.5	18.5	26.0
Progression Factor		1.00	1.00	1.12	1.45					1.00	1.00	1.00
Incremental Delay, d2		4.6	1.9	15.5	0.9					0.3	0.3	21.1
Delay (s)		28.3	21.2	61.4	23.6					18.8	18.8	47.1
Level of Service		C	C	E	C					B	B	D
Approach Delay (s)		25.8			26.5			0.0			35.9	
Approach LOS		C			C			A			D	

Intersection Summary			
HCM Average Control Delay	28.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Existing + Approved + Project
14: French Camp Rd. & I-5 NB Ramps

PM Peak Hour
4/9/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)	1770	3539			3539	1583	1681	1681	1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	1770	3539			3539	1583	1681	1681	1583			
Volume (vph)	797	643	0	0	447	380	707	0	120	0	0	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	839	677	0	0	471	400	744	0	126	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	323	0	0	95	0	0	0
Lane Group Flow (vph)	839	677	0	0	471	77	372	372	31	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Actuated Green, G (s)	38.5	59.9			17.4	17.4	22.1	22.1	22.1			
Effective Green, g (s)	38.5	59.9			17.4	17.4	22.1	22.1	22.1			
Actuated g/C Ratio	0.43	0.67			0.19	0.19	0.25	0.25	0.25			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	757	2355			684	306	413	413	389			
v/s Ratio Prot	c0.47	0.19			c0.13							
v/s Ratio Perm						0.05	c0.22	0.22	0.02			
v/c Ratio	1.11	0.29			0.69	0.25	0.90	0.90	0.08			
Uniform Delay, d1	25.8	6.2			33.8	30.8	32.9	32.9	26.1			
Progression Factor	1.11	0.44			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	62.9	0.2			5.6	2.0	22.2	22.2	0.1			
Delay (s)	91.5	3.0			39.4	32.8	55.1	55.1	26.2			
Level of Service	F	A			D	C	E	E	C			
Approach Delay (s)		52.0			36.3			50.9			0.0	
Approach LOS		D			D			D			A	

Intersection Summary			
HCM Average Control Delay	47.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			


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Exist+App+Proj PM          Tue Apr 8, 2008 16:15:14                  Page 16-1
-------------------------------------------------------------------------------
                          Weston Ranch Towne Center EIR
                             Near-Term With Project
                                  PM Peak Hour
-------------------------------------------------------------------------------
                       Level Of Service Computation Report
            2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #15 French Camp Road/Val Dervin Parkway
*******************************************************************************
Average Delay (sec/veh):     38.1       Worst Case Level Of Service: F[339.1]
*******************************************************************************
Street Name:         Val Dervin Parkway                 French Camp Road
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:         0  0  1! 0  0    0  0  1! 0  0    1  0  1  1  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      70   10    10    60   10   210    90  490    80    90  450     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   70   10    10    60   10   210    90  490    80    90  450     0
Added Vol:      0    0     0     0    0     0     0  103     0     0   97     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   70   10    10    60   10   210    90  593    80    90  547     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:    74   11    11    63   11   221    95  624    84    95  576     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   74   11    11    63   11   221    95  624    84    95  576     0
Critical Gap Module:
Critical Gp:  7.5  6.5   6.9   7.5  6.5   6.9   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1338 1621   354  1272 1663   288   576 xxxx xxxxx   708 xxxx xxxxx
Potent Cap.:  113  104   648   127   98   715  1008 xxxx xxxxx   900 xxxx xxxxx
Move Cap.:     60   84   648    96   79   715  1008 xxxx xxxxx   900 xxxx xxxxx
Volume/Cap:  1.23 0.13  0.02  0.66 0.13  0.31  0.09 xxxx  xxxx  0.11 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.3 xxxx xxxxx   0.4 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.9 xxxx xxxxx   9.5 xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     A    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx   69 xxxxx  xxxx  268 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  7.8 xxxxx xxxxx 12.3 xxxxx xxxxx xxxx xxxxx   0.4 xxxx xxxxx
Shrd ConDel:xxxxx  339 xxxxx xxxxx  126 xxxxx xxxxx xxxx xxxxx   9.5 xxxx xxxxx
Shared LOS:    *    F     *     *    F     *     *    *     *     A    *     *
ApproachDel:     339.1            125.6           xxxxxx           xxxxxx
ApproachLOS:         F                F                *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************

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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #16 Yettner Road/ S. Manthey Road

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: B[11.3]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Volume Module:																				
Base Vol:	10	390		0		0	140		10		10		0		10		0		0	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	10	390		0		0	140		10		10		0		10		0		0	
Added Vol:	0	22		0		0	23		0		0		0		0		0		0	
PasserByVol:	0	0		0		0	0		0		0		0		0		0		0	
Initial Fut:	10	412		0		0	163		10		10		0		10		0		0	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	0.95	0.95		0.95		0.95	0.95		0.95		0.95		0.95		0.95		0.95		0.95	
PHF Volume:	11	434		0		0	172		11		11		0		11		0		0	
Reduct Vol:	0	0		0		0	0		0		0		0		0		0		0	
FinalVolume:	11	434		0		0	172		11		11		0		11		0		0	
Critical Gap Module:																				
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx					6.4		6.5		6.2	xxxxx	xxxx	xxxxx		
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx					3.5		4.0		3.3	xxxxx	xxxx	xxxxx		
Capacity Module:																				
Cnflict Vol:	182	xxxx	xxxxx	xxxx	xxxx	xxxxx					632		632		177	xxxx	xxxx	xxxxx		
Potent Cap.:	1405	xxxx	xxxxx	xxxx	xxxx	xxxxx					448		400		871	xxxx	xxxx	xxxxx		
Move Cap.:	1405	xxxx	xxxxx	xxxx	xxxx	xxxxx					445		397		871	xxxx	xxxx	xxxxx		
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx					0.02		0.00		0.01	xxxx	xxxx	xxxx		
Level Of Service Module:																				
2Way95thQ:	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx							
Control Del:	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx							
LOS by Move:	A	*		*		*	*		*		*		*			*		*		
Movement:	LT - LTR - RT																			
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	589	xxxxx		xxxx	xxxx	xxxxx							
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx		xxxxx	xxxx	xxxxx							
Shrd ConDel:	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	11.3	xxxxx		xxxxx	xxxx	xxxxx							
Shared LOS:	A	*		*		*	*		*		B		*			*		*		
ApproachDel:	xxxxxx					xxxxxx					11.3					xxxxxx				
ApproachLOS:		*					*				B						*			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #17 Mathews Road/South Manthey Road

Cycle (sec): 100 Critical Vol./Cap.(X): 0.561
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 13.8
Optimal Cycle: 0 Level Of Service: B

Street Name:	South Manthey Road								Mathews Road							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Min. Green:	7	10		10		7	10		10		7	10		10		7	10		10	
Lanes:	0	0	1!	0	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0
Volume Module:430-530																				
Base Vol:	10	40		30		80	30		20		30	590		10		30	310		50	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	10	40		30		80	30		20		30	590		10		30	310		50	
Added Vol:	0	6		0		14	6		3		3	0		0		0	0		14	
PasserByVol:	0	0		0		0	0		0		0	0		0		0	0		0	
Initial Fut:	10	46		30		94	36		23		33	590		10		30	310		64	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95	
PHF Volume:	11	48		32		99	38		24		35	621		11		32	326		67	
Reduct Vol:	0	0		0		0	0		0		0	0		0		0	0		0	
Reduced Vol:	11	48		32		99	38		24		35	621		11		32	326		67	
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
FinalVolume:	11	48		32		99	38		24		35	621		11		32	326		67	
Saturation Flow Module:																				
Adjustment:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Lanes:	0.12	0.53		0.35		1.00	1.00		1.00		0.10	1.87		0.03		0.15	1.53		0.32	
Final Sat.:	56	256		167		444	471		519		62	1113		19		83	874		185	
Capacity Analysis Module:																				
Vol/Sat:	0.19	0.19		0.19		0.22	0.08		0.05		0.56	0.56		0.55		0.38	0.37		0.36	
Crit Moves:	****					****					****					****				
Delay/Veh:	11.5	11.5		11.5		12.4	10.4		9.4		15.8	15.6		15.4		12.6	12.3		11.9	
Delay Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
AdjDel/Veh:	11.5	11.5		11.5		12.4	10.4		9.4		15.8	15.6		15.4		12.6	12.3		11.9	
LOS by Move:	B	B		B		B	B		A		C	C		C		B	B		B	
ApproachDel:	11.5					11.5					15.6					12.3				
Delay Adj:	1.00					1.00					1.00					1.00				
ApprAdjDel:	11.5					11.5					15.6					12.3				
LOS by Appr:	B					B					C					B				
AllWayAvgQ:	0.2	0.2		0.2		0.2	0.1		0.0		1.2	1.1		1.1		0.6	0.5		0.5	

Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 Mathews Road/I-5 SB Ramps

Average Delay (sec/veh): 3.4 Worst Case Level Of Service: B[13.9]

Street Name:	I-5 SB Ramps									Mathews Road								
Approach:	North Bound				South Bound				East Bound				West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	1	0	1	0	0
Volume Module:445-545																				
Base Vol:	0	0	0			120	0		160		0	600		100		50	230		0	
Growth Adj:	1.00	1.00	1.00			1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	0	0	0			120	0		160		0	600		100		50	230		0	
Added Vol:	0	0	0			0	0		0		0	6		8		0	14		0	
PasserByVol:	0	0	0			0	0		0		0	0		0		0	0		0	
Initial Fut:	0	0	0			120	0		160		0	606		108		50	244		0	
User Adj:	1.00	1.00	1.00			1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.95	0.95	0.95			0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95	
PHF Volume:	0	0	0			126	0		168		0	638		114		53	257		0	
Reduct Vol:	0	0	0			0	0		0		0	0		0		0	0		0	
FinalVolume:	0	0	0			126	0		168		0	638		114		53	257		0	
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx			6.4	6.5		6.2		xxxxx	xxxx		xxxxx		4.1	xxxx		xxxxx	
FollowUpTim:	xxxxx	xxxx	xxxxx			3.5	4.0		3.3		xxxxx	xxxx		xxxxx		2.2	xxxx		xxxxx	
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx			681	1114		257		xxxx	xxxx		xxxxx		752	xxxx		xxxxx	
Potent Cap.:	xxxx	xxxx	xxxxx			419	210		787		xxxx	xxxx		xxxxx		867	xxxx		xxxxx	
Move Cap.:	xxxx	xxxx	xxxxx			400	197		787		xxxx	xxxx		xxxxx		867	xxxx		xxxxx	
Volume/Cap:	xxxx	xxxx	xxxx			0.32	0.00		0.21		xxxx	xxxx		xxxx		0.06	xxxx		xxxx	
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx			1.3	xxxx		xxxxx		xxxx	xxxx		xxxxx		0.2	xxxx		xxxxx	
Control Del:	xxxxx	xxxx	xxxxx			18.1	xxxx		xxxxx		xxxxx	xxxx		xxxxx		9.4	xxxx		xxxxx	
LOS by Move:	*	*	*			C	*		*		*	*		*		A	*		*	
Movement:	LT - LTR - RT					LT - LTR - RT					LT - LTR - RT					LT - LTR - RT				
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx	xxxx		787		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx				0.8		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx				10.8		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
Shared LOS:	*	*	*	*	*	B			*		*	*		*		*	*		*	
ApproachDel:	xxxxxx					13.9					xxxxxx					xxxxxx				
ApproachLOS:	*					B					*					*				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 Mathews Road/I-5 NB Ramps

Average Delay (sec/veh): 82.1 Worst Case Level Of Service: F[360.9]

Street Name:	I-5 NB Ramps									Mathews Road								
Approach:	North Bound				South Bound				East Bound				West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	1	0	0	1	0	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Volume Module:415-515																				
Base Vol:	130	0		280		0	0		0		470	250		0		0	150		630	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	130	0		280		0	0		0		470	250		0		0	150		630	
Added Vol:	8	0		0		0	0		0		0	6		0		0	6		0	
PasserByVol:	0	0		0		0	0		0		0	0		0		0	0		0	
Initial Fut:	138	0		280		0	0		0		470	256		0		0	156		630	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95		0.95	0.95		0.95	
PHF Volume:	145	0		295		0	0		0		495	269		0		0	164		663	
Reduct Vol:	0	0		0		0	0		0		0	0		0		0	0		0	
FinalVolume:	145	0		295		0	0		0		495	269		0		0	164		663	
Critical Gap Module:																				
Critical Gp:	6.4	6.5		6.2		xxxxx	xxxx		xxxxx		4.1	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
FollowUpTim:	3.5	4.0		3.3		xxxxx	xxxx		xxxxx		2.2	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
Capacity Module:																				
Cnflict Vol:	1755	2086		135		xxxx	xxxx		xxxxx		827	xxxx		xxxxx		xxxx	xxxx		xxxxx	
Potent Cap.:	95	54		920		xxxx	xxxx		xxxxx		813	xxxx		xxxxx		xxxx	xxxx		xxxxx	
Move Cap.:	49	21		920		xxxx	xxxx		xxxxx		813	xxxx		xxxxx		xxxx	xxxx		xxxxx	
Volume/Cap:	2.98	0.00		0.32		xxxx	xxxx		xxxx		0.61	xxxx		xxxx		xxxx	xxxx		xxxx	
Level Of Service Module:																				
2Way95thQ:	15.6	xxxx		xxxxx		xxxx	xxxx		xxxxx		4.2	xxxx		xxxxx		xxxx	xxxx		xxxxx	
Control Del:	1071	xxxx		xxxxx		xxxxx	xxxx		xxxxx		16.1	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
LOS by Move:	F	*		*		*	*		*		C	*		*		*	*		*	
Movement:	LT - LTR - RT					LT - LTR - RT					LT - LTR - RT					LT - LTR - RT				
Shared Cap.:	xxxx	xxxx		920		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
SharedQueue:	xxxxx	xxxx		1.4		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
Shrd ConDel:	xxxxx	xxxx		10.8		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
Shared LOS:	*	*		B		*	*		*		*	*		*		*	*		*	
ApproachDel:	360.9					xxxxxx					xxxxxx					xxxxxx				
ApproachLOS:	F					*					*					*				

Note: Queue reported is the number of cars per lane.

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Exist+App+Proj PM          Tue Apr 8, 2008 16:15:14                  Page 21-1
--------------------------------------------------------------------------------
                         Weston Ranch Towne Center EIR
                            Near-Term With Project
                                 PM Peak Hour
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
            2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #20 Howard Road/ Wolfe Road
********************************************************************************
Average Delay (sec/veh):     11.3       Worst Case Level Of Service: E[ 40.0]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:            Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       10  150    20    20   10    10   150  340    10    10  100    20
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    10  150    20    20   10    10   150  340    10    10  100    20
Added Vol:       0    0     0     0    0     3     3    3     0     0    3     0
PasserByVol:     0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    10  150    20    20   10    13   153  343    10    10  103    20
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95  0.95 0.95  0.95
PHF Volume:     11  158    21    21   11    14   161  361    11    11  108    21
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    11  158    21    21   11    14   161  361    11    11  108    21
Critical Gap Module:
Critical Gp:   7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:   3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:   841  839   366   918  834   119   129 xxxx xxxxx   372 xxxx xxxxx
Potent Cap.:   287  304   683   254  306   938  1469 xxxx xxxxx  1198 xxxx xxxxx
Move Cap.:     247  265   683   118  267   938  1469 xxxx xxxxx  1198 xxxx xxxxx
Volume/Cap:   0.04 0.60  0.03  0.18 0.04  0.01  0.11 xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.4 xxxx xxxxx   0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.8 xxxx xxxxx   8.0 xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  283 xxxxx  xxxx  195 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  4.4 xxxxx xxxxx  0.9 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 40.0 xxxxx xxxxx 28.9 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    E     *     *    D     *     *    *     *     *    *     *
ApproachDel:       40.0             28.9            xxxxxx           xxxxxx
ApproachLOS:        E                D                 *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************


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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1863	1583	3433	1583
Volume (vph)	55	392	633	600	583	66
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	58	413	666	632	614	69
RTOR Reduction (vph)	0	0	0	273	0	53
Lane Group Flow (vph)	58	413	666	359	614	16
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	4.0	53.4	45.4	45.4	18.6	18.6
Effective Green, g (s)	4.0	53.4	45.4	45.4	18.6	18.6
Actuated g/C Ratio	0.05	0.67	0.57	0.57	0.23	0.23
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	89	1244	1057	898	798	368
v/s Ratio Prot	c0.03	0.22	c0.36		c0.18	
v/s Ratio Perm				0.23		0.01
v/c Ratio	0.65	0.33	0.63	0.40	0.77	0.04
Uniform Delay, d1	37.3	5.7	11.6	9.7	28.7	23.8
Progression Factor	0.97	0.95	0.30	1.55	1.00	1.00
Incremental Delay, d2	15.8	0.7	2.4	1.1	4.5	0.0
Delay (s)	52.0	6.1	5.9	16.1	33.2	23.9
Level of Service	D	A	A	B	C	C
Approach Delay (s)		11.8	10.9		32.3	
Approach LOS		B	B		C	

Intersection Summary			
HCM Average Control Delay	17.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Existing + Approved + Project
12: French Camp Rd. & Manthey Road (east)

AM Peak Hour
4/16/2008

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.99		1.00	1.00	0.90	
Flt Protected	1.00		0.95	1.00	0.99	
Satd. Flow (prot)	3506		1770	3539	1657	
Flt Permitted	1.00		0.95	1.00	0.99	
Satd. Flow (perm)	3506		1770	3539	1657	
Volume (vph)	970	66	250	705	59	160
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1021	69	263	742	62	168
RTOR Reduction (vph)	5	0	0	0	133	0
Lane Group Flow (vph)	1085	0	263	742	97	0
Turn Type			Prot			
Protected Phases	4		3	8	2	
Permitted Phases						
Actuated Green, G (s)	39.1		19.0	62.1	9.9	
Effective Green, g (s)	39.1		19.0	62.1	9.9	
Actuated g/C Ratio	0.49		0.24	0.78	0.12	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1714		420	2747	205	
v/s Ratio Prot	c0.31		c0.15	0.21	c0.06	
v/s Ratio Perm						
v/c Ratio	0.63		0.63	0.27	0.47	
Uniform Delay, d1	15.1		27.3	2.5	32.6	
Progression Factor	0.52		1.01	0.69	1.00	
Incremental Delay, d2	1.7		2.7	0.2	1.7	
Delay (s)	9.7		30.3	2.0	34.3	
Level of Service	A		C	A	C	
Approach Delay (s)	9.7			9.4	34.3	
Approach LOS	A			A	C	

Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Existing + Approved + Project
13: French Camp Rd. & I-5 SB Ramps

AM Peak Hour
4/16/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0		4.0
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3539	1583	1770	3539					1770		1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		3539	1583	1770	3539					1770		1583
Volume (vph)	0	603	557	90	499	0	0	0	0	480	0	456
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	635	586	95	525	0	0	0	0	505	0	480
RTOR Reduction (vph)	0	0	336	0	0	0	0	0	0	0	0	178
Lane Group Flow (vph)	0	635	250	95	525	0	0	0	0	505	0	302
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		34.1	34.1	6.7	44.8					27.2		27.2
Effective Green, g (s)		34.1	34.1	6.7	44.8					27.2		27.2
Actuated g/C Ratio		0.43	0.43	0.08	0.56					0.34		0.34
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		1508	675	148	1982					602		538
v/s Ratio Prot		c0.18		c0.05	0.15							
v/s Ratio Perm			0.16							c0.29		0.19
v/c Ratio		0.42	0.37	0.64	0.26					0.84		0.56
Uniform Delay, d1		16.0	15.6	35.5	9.1					24.4		21.5
Progression Factor		0.32	1.24	1.27	0.46					1.00		1.00
Incremental Delay, d2		0.7	1.3	8.8	0.3					10.0		1.3
Delay (s)		5.8	20.6	53.9	4.5					34.3		22.9
Level of Service		A	C	D	A					C		C
Approach Delay (s)		12.9			12.0			0.0			28.8	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	18.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
Lane Util. Factor	0.97	1.00			0.95		0.95	0.95	1.00			
Frt	1.00	1.00			0.93		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (prot)	3433	1863			3279		1681	1681	1583			
Flt Permitted	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (perm)	3433	1863			3279		1681	1681	1583			
Volume (vph)	387	696	0	0	281	270	308	0	120	0	0	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	407	733	0	0	296	284	324	0	126	0	0	0
RTOR Reduction (vph)	0	0	0	0	141	0	0	0	106	0	0	0
Lane Group Flow (vph)	407	733	0	0	439	0	162	162	20	0	0	0
Turn Type	Prot						Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases							2		2			
Actuated Green, G (s)	14.9	59.3			40.4		12.7	12.7	12.7			
Effective Green, g (s)	14.9	59.3			40.4		12.7	12.7	12.7			
Actuated g/C Ratio	0.19	0.74			0.50		0.16	0.16	0.16			
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	639	1381			1656		267	267	251			
v/s Ratio Prot	c0.12	c0.39			0.13							
v/s Ratio Perm							c0.10	0.10	0.01			
v/c Ratio	0.64	0.53			0.27		0.61	0.61	0.08			
Uniform Delay, d1	30.1	4.4			11.3		31.3	31.3	28.7			
Progression Factor	0.90	0.43			0.52		1.00	1.00	1.00			
Incremental Delay, d2	1.8	1.3			0.4		3.9	3.9	0.1			
Delay (s)	28.7	3.1			6.3		35.2	35.2	28.8			
Level of Service	C	A			A		D	D	C			
Approach Delay (s)		12.3			6.3			33.4			0.0	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.97		1.00	1.00			0.98			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.99	
Satd. Flow (prot)	1770	3436		1770	3539			1785			1703	
Flt Permitted	0.95	1.00		0.95	1.00			0.69			0.89	
Satd. Flow (perm)	1770	3436		1770	3539			1271			1540	
Volume (vph)	250	456	110	330	441	0	50	30	10	30	20	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	263	480	116	347	464	0	53	32	11	32	21	63
RTOR Reduction (vph)	0	18	0	0	0	0	0	7	0	0	56	0
Lane Group Flow (vph)	263	578	0	347	464	0	0	89	0	0	60	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	15.9	39.4		20.0	43.5			8.6			8.6	
Effective Green, g (s)	15.9	39.4		20.0	43.5			8.6			8.6	
Actuated g/C Ratio	0.20	0.49		0.25	0.54			0.11			0.11	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	352	1692		443	1924			137			166	
v/s Ratio Prot	0.15	c0.17		c0.20	0.13							
v/s Ratio Perm								c0.07			0.04	
v/c Ratio	0.75	0.34		0.78	0.24			0.65			0.36	
Uniform Delay, d1	30.2	12.4		28.0	9.6			34.3			33.1	
Progression Factor	0.98	0.73		1.00	1.00			1.00			1.00	
Incremental Delay, d2	7.5	0.5		8.8	0.3			10.1			1.3	
Delay (s)	37.0	9.5		36.8	9.9			44.4			34.5	
Level of Service	D	A		D	A			D			C	
Approach Delay (s)		17.9			21.4			44.4			34.5	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

SIMTRAFFIC LEVEL OF SERVICE REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: EPAP + Project + Extended EBLT Pocket **# of Runs:** 10
TOD: PM **Analysis Period:** Hourly **PHF:** 1

Intersection: 11: French Camp Rd. & McDougald Blvd. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	151	151	100	11	17.7	C	2.1
	R	20	24	120	4	5.5	A	1.4
	Subtotal	**171**	**174**	**102**	**--**	**16.1**	**C**	**--**
EB	L	90	86	96	10	11.9	B	2.0
	T	296	310	105	18	6.1	A	0.6
	Subtotal	**386**	**396**	**103**	**--**	**7.4**	**A**	**--**
WB	T	467	462	99	13	6.0	A	0.6
	R	232	227	98	19	5.0	A	0.6
	Subtotal	**699**	**690**	**99**	**--**	**5.7**	**A**	**--**
	Total	**1256**	**1260**	**100**	**--**	**7.7**	**A**	**--**

Intersection: 12: French Camp Rd. & Manthey Road (east) **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	142	142	100	13	76.2	E	14.9
	R	280	285	101	18	36.4	D	5.4
	Subtotal	**422**	**426**	**101**	**--**	**49.6**	**D**	**--**
EB	T	1339	1228	92	47	51.3	D	10.6
	R	83	82	99	8	35.9	D	9.3
	Subtotal	**1422**	**1309**	**92**	**--**	**50.4**	**D**	**--**
WB	L	90	88	98	10	56.9	E	6.6
	T	1560	1543	99	36	3.7	A	0.3
	Subtotal	**1650**	**1631**	**99**	**--**	**6.6**	**A**	**--**
	Total	**3494**	**3367**	**96**	**--**	**29.1**	**C**	**--**

FEHR & PEERS
TRANSPORTATION CONSULTANTS

SIMTRAFFIC LEVEL OF SERVICE REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: EPAP + Project + Extended EBLT Pocket **# of Runs:** 10
TOD: PM **Analysis Period:** Hourly **PHF:** 1

Intersection: 13: French Camp Rd. & I-5 SB Ramps **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	380	377	99	14	106.0	F	41.2
	R	586	576	98	17	121.5	F	49.8
	Subtotal	**966**	**953**	**99**	**--**	**115.4**	**F**	**--**
EB	T	1060	987	93	25	20.2	C	2.1
	R	559	522	93	25	4.0	A	0.5
	Subtotal	**1619**	**1508**	**93**	**--**	**14.6**	**B**	**--**
WB	L	90	88	98	10	34.6	C	7.1
	T	1064	1056	99	36	8.3	A	0.9
	Subtotal	**1154**	**1144**	**99**	**--**	**10.3**	**B**	**--**
	Total	**3739**	**3605**	**96**	**--**	**39.9**	**D**	**--**

Intersection: 14: French Camp Rd. & I-5 NB Ramps **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	707	698	99	21	61.0	E	8.4
	R	120	120	100	11	20.4	C	5.8
	Subtotal	**827**	**818**	**99**	**--**	**55.1**	**E**	**--**
EB	L	797	731	92	10	30.0	C	2.2
	T	643	632	98	28	10.3	B	1.6
	Subtotal	**1440**	**1362**	**95**	**--**	**20.8**	**C**	**--**
WB	T	447	445	100	19	57.3	E	6.9
	R	380	384	101	13	4.6	A	1.0
	Subtotal	**827**	**829**	**100**	**--**	**32.9**	**C**	**--**
	Total	**3094**	**3009**	**97**	**--**	**33.5**	**C**	**--**

FEHR & PEERS
TRANSPORTATION CONSULTANTS

SIMTRAFFIC LEVEL OF SERVICE REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: EPAP + Project + Extended EBLT Pocket **# of Runs:** 10
TOD: PM **Analysis Period:** Hourly **PHF:** 1

Intersection: 15: French Camp Rd. & Val Dervin Pkwy. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	70	67	96	8	45.5	D	12.4
	T	10	9	90	2	37.1	D	13.8
	R	10	12	120	3	27.8	C	19.4
	Subtotal	**90**	**88**	**98**	**--**	**42.2**	**D**	**--**
SB	L	60	61	100	7	46.0	D	10.5
	T	10	10	100	4	50.2	D	26.7
	R	210	211	100	8	29.0	C	6.6
	Subtotal	**280**	**281**	**100**	**--**	**33.4**	**C**	**--**
EB	L	90	87	97	7	70.7	E	9.9
	T	593	585	99	26	28.2	C	3.4
	R	80	80	100	8	27.5	C	4.6
	Subtotal	**763**	**752**	**99**	**--**	**33.1**	**C**	**--**
WB	L	90	87	97	7	51.3	D	3.9
	T	547	551	101	19	14.0	B	2.6
	Subtotal	**637**	**638**	**100**	**--**	**19.1**	**B**	**--**
	Total	**1770**	**1760**	**99**	**--**	**28.5**	**C**	**--**

Intersection: 21: French Camp Rd. & Secondary Entrance **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	583	587	101	22	43.4	D	4.1
	R	66	67	102	7	3.7	A	0.8
	Subtotal	**649**	**654**	**101**	**--**	**39.3**	**D**	**--**
EB	L	55	57	104	6	46.1	D	8.4
	T	392	404	103	25	8.6	A	2.5
	Subtotal	**447**	**460**	**103**	**--**	**13.2**	**B**	**--**
WB	T	633	622	98	21	8.1	A	0.8
	R	600	586	98	25	8.2	A	1.0
	Subtotal	**1233**	**1208**	**98**	**--**	**8.1**	**A**	**--**
	Total	**2329**	**2322**	**100**	**--**	**17.9**	**B**	**--**

SIMTRAFFIC QUEUING REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: EPAP + Project + Extended EBLT Pocket **PHF:** 1
TOD: PM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: 11: French Camp Rd. & McDougald Blvd. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	1478	151	--	21	64	--	6
	R	1478	35	--	12	14	--	1
EB	L	1077	255	--	60	77	--	9
	T	1077	255	--	60	77	--	9
WB	R	1369	37	--	17	4	--	2

Intersection: 12: French Camp Rd. & Manthey Road (east) **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	1063	545	--	118	242	--	55
	R	100	151	Yes	12	114	Yes	4
EB	T	459	541	Yes	19	392	--	60
	R	459	529	Yes	21	391	--	60
WB	L	250	163	--	14	78	--	8
	T	180	204	Yes	3	140	--	10

SIMTRAFFIC QUEUING REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: EPAP + Project + Extended EBLT Pocket **PHF:** 1
TOD: PM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: 13: French Camp Rd. & I-5 SB Ramps **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	450	986	Yes	125	583	Yes	159
	T	1006	986	--	125	583	--	159
	R	250	301	Yes	9	270	Yes	9
EB	T	180	261	Yes	6	199	Yes	7
	R	200	156	--	22	54	--	11
WB	L	200	180	--	33	65	--	8
	T	415	306	--	87	157	--	16

Intersection: 14: French Camp Rd. & I-5 NB Ramps **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	600	727	Yes	141	353	--	40
	T	975	727	--	141	353	--	40
	R	300	334	Yes	15	94	--	23
EB	L	415	505	Yes	1	437	Yes	26
	T	415	489	Yes	15	148	--	15
WB	T	280	317	Yes	25	173	--	21
	R	200	237	Yes	15	64	--	14

SIMTRAFFIC QUEUING REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: EPAP + Project + Extended EBLT Pocket **PHF:** 1
TOD: PM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: 15: French Camp Rd. & Val Dervin Pkwy. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	279	141	--	21	65	--	9
	T	279	141	--	21	65	--	9
	R	279	141	--	21	65	--	9
SB	L	702	391	--	73	165	--	27
	T	702	391	--	73	165	--	27
	R	702	391	--	73	165	--	27
EB	L	120	149	Yes	6	82	--	7
	T	280	307	Yes	9	195	--	16
	R	280	305	Yes	10	195	--	16
WB	L	383	162	--	20	73	--	6
	T	383	282	--	66	118	--	21
	R	383	282	--	66	118	--	21

Intersection: 21: French Camp Rd. & Secondary Entrance **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	250	467	Yes	119	232	--	28
	R	669	69	--	11	21	--	3
EB	L	150	130	--	27	53	--	6
	T	1369	160	--	31	58	--	11
WB	T	390	193	--	41	56	--	13
	R	390	232	--	27	62	--	11

HCM Signalized Intersection Capacity Analysis
19: Mathews Rd. & I-5 NB Ramps

EPAP Plus Project + Mit
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0		4.0			
Lane Util. Factor	1.00	0.95			1.00		1.00		1.00			
Frt	1.00	1.00			0.93		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	1770	3539			1723		1770		1583			
Flt Permitted	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	1770	3539			1723		1770		1583			
Volume (vph)	120	192	0	0	232	290	283	0	1050	0	0	0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	120	192	0	0	232	290	283	0	1050	0	0	0
RTOR Reduction (vph)	0	0	0	0	60	0	0	0	327	0	0	0
Lane Group Flow (vph)	120	192	0	0	462	0	283	0	723	0	0	0
Turn Type	Prot						custom		custom			
Protected Phases	7	4			8							
Permitted Phases							2		2			
Actuated Green, G (s)	6.0	32.0			22.0		35.0		35.0			
Effective Green, g (s)	6.0	32.0			22.0		35.0		35.0			
Actuated g/C Ratio	0.08	0.43			0.29		0.47		0.47			
Clearance Time (s)	4.0	4.0			4.0		4.0		4.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)	142	1510			505		826		739			
v/s Ratio Prot	c0.07	0.05			c0.27							
v/s Ratio Perm							0.16		c0.46			
v/c Ratio	0.85	0.13			0.91		0.34		0.98			
Uniform Delay, d1	34.0	13.0			25.6		12.7		19.6			
Progression Factor	1.00	1.00			1.00		1.00		1.00			
Incremental Delay, d2	34.4	0.2			23.7		0.2		27.5			
Delay (s)	68.5	13.2			49.2		12.9		47.1			
Level of Service	E	B			D		B		D			
Approach Delay (s)		34.5			49.2			39.8			0.0	
Approach LOS		C			D			D			A	

Intersection Summary			
HCM Average Control Delay	41.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
19: Mathews Rd. & I-5 NB Ramps

EPAP Plus Project + Mit
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0		4.0			
Lane Util. Factor	1.00	0.95			1.00		1.00		1.00			
Frt	1.00	1.00			0.89		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	1770	3539			1661		1770		1583			
Flt Permitted	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	1770	3539			1661		1770		1583			
Volume (vph)	470	256	0	0	156	630	138	0	280	0	0	0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	470	256	0	0	156	630	138	0	280	0	0	0
RTOR Reduction (vph)	0	0	0	0	149	0	0	0	243	0	0	0
Lane Group Flow (vph)	470	256	0	0	637	0	138	0	37	0	0	0
Turn Type	Prot						custom		custom			
Protected Phases	7	4			8							
Permitted Phases							2		2			
Actuated Green, G (s)	25.0	70.0			41.0		12.0		12.0			
Effective Green, g (s)	25.0	70.0			41.0		12.0		12.0			
Actuated g/C Ratio	0.28	0.78			0.46		0.13		0.13			
Clearance Time (s)	4.0	4.0			4.0		4.0		4.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)	492	2753			757		236		211			
v/s Ratio Prot	c0.27	0.07			c0.38							
v/s Ratio Perm							c0.08		0.02			
v/c Ratio	0.96	0.09			0.84		0.58		0.18			
Uniform Delay, d1	32.0	2.4			21.6		36.7		34.6			
Progression Factor	1.00	1.00			1.00		1.00		1.00			
Incremental Delay, d2	29.3	0.1			10.9		3.7		0.4			
Delay (s)	61.2	2.5			32.6		40.3		35.0			
Level of Service	E	A			C		D		D			
Approach Delay (s)		40.5			32.6			36.8			0.0	
Approach LOS		D			C			D			A	

Intersection Summary			
HCM Average Control Delay	36.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	90.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Scenario Report

Scenario:	Cumulative AM
Command:	Cumulative AM
Volume:	Cumulative AM With Project
Geometry:	Cumulative
Impact Fee:	Default Impact Fee
Trip Generation:	Project AM
Trip Distribution:	Peak Hour
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Carolyn Weston/McDougald

Cycle (sec): 60 Critical Vol./Cap.(X): 0.696
Loss Time (sec): 16 (Y+R=4.0 sec) Average Delay (sec/veh): 28.1
Optimal Cycle: 58 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0	1 0	1	1 0	0 1	0	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	20	10	310	20	10	10	5	760	50	140	350	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	10	310	20	10	10	5	760	50	140	350	10
Added Vol:	3	0	0	0	0	0	0	7	5	0	5	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	23	10	310	20	10	10	5	767	55	140	355	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	23	10	310	20	10	10	5	767	55	140	355	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	10	310	20	10	10	5	767	55	140	355	10
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	23	10	310	20	10	10	5	767	55	140	355	10
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	0.93	0.93	0.95	0.94	0.94	0.95	0.95	0.95
Lanes:	1.00	1.00	1.00	1.00	0.50	0.50	1.00	1.87	0.13	1.00	1.95	0.05
Final Sat.:	1805	1900	1615	1805	879	879	1805	3335	239	1805	3497	99
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.19	0.01	0.01	0.01	0.00	0.23	0.23	0.08	0.10	0.10
Crit Moves:			****	****				****		****		
Green/Cycle:	0.14	0.23	0.23	0.12	0.20	0.20	0.16	0.27	0.27	0.12	0.23	0.23
Volume/Cap:	0.09	0.02	0.84	0.09	0.06	0.06	0.02	0.84	0.84	0.66	0.44	0.44
Delay/Veh:	22.5	18.0	38.3	23.9	19.4	19.4	21.2	27.4	27.4	33.2	20.2	20.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	22.5	18.0	38.3	23.9	19.4	19.4	21.2	27.4	27.4	33.2	20.2	20.2
LOS by Move:	C	B	D	C	B	B	C	C	C	C	C	C
HCM2kAvgQ:	0	0	9	0	0	0	0	11	11	4	4	4

Note: Queue reported is the number of cars per lane.

```
Cumulative AM              Tue Apr 8, 2008 16:17:08                  Page 8-1
-------------------------------------------------------------------------------
                        Weston Ranch Towne Center EIR
                          Future 2025 With Project
                                AM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
*******************************************************************************
Intersection #2 Carolyn Weston/S. Manthey
*******************************************************************************
Cycle (sec):         120                 Critical Vol./Cap.(X):         0.638
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):        34.5
Optimal Cycle:        64                Level Of Service:                 C
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:            Ovl              Include          Include          Include
Min. Green:     7   10    10     7   10    10     7   10    10     7   10    10
Lanes:        1  0  1  0  1    1  0  1  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      50   60   360    60   40    60    75 1010    70   290   70    30
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   50   60   360    60   40    60    75 1010    70   290   70    30
Added Vol:      5    0    45     0    0     0     0    0     7    37    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   55   60   405    60   40    60    75 1010    77   327   70    30
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    55   60   405    60   40    60    75 1010    77   327   70    30
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   55   60   405    60   40    60    75 1010    77   327   70    30
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   55   60   405    60   40    60    75 1010    77   327   70    30
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 1.00  0.85  0.95 1.00  0.85  0.95 0.94  0.94  0.95 0.91  0.91
Lanes:       1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.86  0.14  1.00 1.40  0.60
Final Sat.:  1805 1900  1615  1805 1900  1615  1805 3317   253  1805 2413  1034
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.03  0.25  0.03 0.02  0.04  0.04 0.30  0.30  0.18 0.03  0.03
Crit Moves:  ****                          ****        ****        ****
Green/Cycle: 0.06 0.08  0.35  0.06 0.08  0.08  0.30 0.45  0.45  0.27 0.43  0.43
Volume/Cap:  0.52 0.38  0.71  0.57 0.25  0.45  0.14 0.67  0.67  0.67 0.07  0.07
Delay/Veh:   59.6 53.6  37.5  62.3 52.3  54.7  30.9 26.8  26.8  42.6 20.3  20.3
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  59.6 53.6  37.5  62.3 52.3  54.7  30.9 26.8  26.8  42.6 20.3  20.3
LOS by Move:   E    D     D     E    D     D     C    C     C     D    C     C
HCM2kAvgQ:       3    2    14     3    2     3     2   17    17    12    1     1
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************

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HCM Signalized Intersection Capacity Analysis — 2025 Cumulative With Project

3: Downing Avenue & I-5 SB Ramps — AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.91	1.00	1.00	0.95						1.00	0.88
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539						1770	2787
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		5085	1583	1770	3539						1770	2787
Volume (vph)	0	1285	290	40	181	0	0	0	0	220	0	546
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1285	290	40	181	0	0	0	0	220	0	546
RTOR Reduction (vph)	0	0	133	0	0	0	0	0	0	0	0	427
Lane Group Flow (vph)	0	1285	157	40	181	0	0	0	0	0	220	119
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		32.5	32.5	2.4	38.9						13.1	13.1
Effective Green, g (s)		32.5	32.5	2.4	38.9						13.1	13.1
Actuated g/C Ratio		0.54	0.54	0.04	0.65						0.22	0.22
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		2754	857	71	2294						386	608
v/s Ratio Prot		c0.25		c0.02	0.05							
v/s Ratio Perm			0.10								0.12	0.04
v/c Ratio		0.47	0.18	0.56	0.08						0.57	0.20
Uniform Delay, d1		8.4	7.0	28.3	3.9						20.9	19.1
Progression Factor		1.00	1.00	1.35	1.47						1.00	1.00
Incremental Delay, d2		0.6	0.5	9.6	0.1						1.9	0.2
Delay (s)		9.0	7.5	47.9	5.8						22.9	19.3
Level of Service		A	A	D	A						C	B
Approach Delay (s)		8.7			13.4			0.0			20.3	
Approach LOS		A			B			A			C	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Downing Avenue & I-5 NB Ramps

2025 Cumulative With Project
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Util. Factor	0.97	1.00			0.95			1.00	1.00			
Frt	1.00	1.00			0.90			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	3433	1863			3169			1770	1583			
Flt Permitted	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	3433	1863			3169			1770	1583			
Volume (vph)	953	552	0	0	91	210	130	0	30	0	0	0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	953	552	0	0	91	210	130	0	30	0	0	0
RTOR Reduction (vph)	0	0	0	0	145	0	0	0	26	0	0	0
Lane Group Flow (vph)	953	552	0	0	156	0	0	130	4	0	0	0
Turn Type	Prot						Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases							2		2			
Actuated Green, G (s)	21.3	43.8			18.5			8.2	8.2			
Effective Green, g (s)	21.3	43.8			18.5			8.2	8.2			
Actuated g/C Ratio	0.36	0.73			0.31			0.14	0.14			
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	1219	1360			977			242	216			
v/s Ratio Prot	c0.28	c0.30			0.05							
v/s Ratio Perm								0.07	0.00			
v/c Ratio	0.78	0.41			0.16			0.54	0.02			
Uniform Delay, d1	17.3	3.1			15.1			24.1	22.4			
Progression Factor	0.56	0.50			1.00			1.00	1.00			
Incremental Delay, d2	3.1	0.8			0.3			2.3	0.0			
Delay (s)	12.7	2.4			15.4			26.4	22.5			
Level of Service	B	A			B			C	C			
Approach Delay (s)		8.9			15.4			25.7			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

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*******************************************************************************
Intersection #5 Downing/Turnpike
*******************************************************************************
Average Delay (sec/veh):      4.9       Worst Case Level Of Service: D[ 26.5]
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      60   20    50    10   10    50    80  470    30    10  190    70
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   60   20    50    10   10    50    80  470    30    10  190    70
Added Vol:      0    0     0     0    0     0     1    1     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   60   20    50    10   10    50    81  471    30    10  190    70
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    60   20    50    10   10    50    81  471    30    10  190    70
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   60   20    50    10   10    50    81  471    30    10  190    70
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  923  928   486   928  908   225   260 xxxx xxxxx   501 xxxx xxxxx
Potent Cap.:  252  270   585   250  277   819  1316 xxxx xxxxx  1074 xxxx xxxxx
Move Cap.:    218  251   585   204  258   819  1316 xxxx xxxxx  1074 xxxx xxxxx
Volume/Cap:  0.28 0.08  0.09  0.05 0.04  0.06  0.06 xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.2 xxxx xxxxx   0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.9 xxxx xxxxx   8.4 xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     A    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  295 xxxxx  xxxx  470 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  2.1 xxxxx xxxxx  0.5 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 26.5 xxxxx xxxxx 14.0 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    D     *     *    B     *     *    *     *     *    *     *
ApproachDel:      26.5             14.0           xxxxxx           xxxxxx
ApproachLOS:       D                B               *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
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Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 William Moss/McDougald

Cycle (sec): 60 | Critical Vol./Cap.(X): 0.293
Loss Time (sec): 16 (Y+R=4.0 sec) | Average Delay (sec/veh): 19.9
Optimal Cycle: 50 | Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	1	1	0	1 0	1	1	0	1 0	1	1	0	1 0	1	1	0
Volume Module:																
Base Vol:	50	200	50		20	230	60		70	170	80		50	110	20	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	50	200	50		20	230	60		70	170	80		50	110	20	
Added Vol:	3	0	0		5	0	0		0	2	5		0	4	3	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	53	200	50		25	230	60		70	172	85		50	114	23	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	53	200	50		25	230	60		70	172	85		50	114	23	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	53	200	50		25	230	60		70	172	85		50	114	23	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	53	200	50		25	230	60		70	172	85		50	114	23	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.92	0.92		0.95	0.92	0.92		0.95	0.90	0.90		0.95	0.93	0.93	
Lanes:	1.00	1.60	0.40		1.00	1.59	0.41		1.00	1.34	0.66		1.00	1.66	0.34	
Final Sat.:	1805	2801	700		1805	2774	724		1805	2295	1134		1805	2929	591	
Capacity Analysis Module:																
Vol/Sat:	0.03	0.07	0.07		0.01	0.08	0.08		0.04	0.07	0.07		0.03	0.04	0.04	
Crit Moves:	****					****				****			****			
Green/Cycle:	0.12	0.22	0.22		0.16	0.26	0.26		0.15	0.24	0.24		0.12	0.21	0.21	
Volume/Cap:	0.25	0.32	0.32		0.09	0.32	0.32		0.27	0.32	0.32		0.24	0.19	0.19	
Delay/Veh:	24.7	19.7	19.7		21.8	18.0	18.0		23.3	19.1	19.1		24.7	19.7	19.7	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	24.7	19.7	19.7		21.8	18.0	18.0		23.3	19.1	19.1		24.7	19.7	19.7	
LOS by Move:	C	B	B		C	B	B		C	B	B		C	B	B	
HCM2kAvgQ:	1	2	2		0	3	3		1	2	2		1	1	1	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 William Moss/S. Manthey

Cycle (sec): 90 | Critical Vol./Cap.(X): 0.289
Loss Time (sec): 12 (Y+R=4.0 sec) | Average Delay (sec/veh): 25.0
Optimal Cycle: 46 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	1	0	0	0 0	0	1	0	1 0	0	0	1	0 0	0	0	0
Volume Module:																
Base Vol:	70	80	0		0	120	40		120	0	150		0	0	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	70	80	0		0	120	40		120	0	150		0	0	0	
Added Vol:	7	50	0		0	44	0		0	0	7		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	77	130	0		0	164	40		120	0	157		0	0	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	77	130	0		0	164	40		120	0	157		0	0	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	77	130	0		0	164	40		120	0	157		0	0	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	77	130	0		0	164	40		120	0	157		0	0	0	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	1.00		1.00	0.97	0.97		0.95	1.00	0.85		1.00	1.00	1.00	
Lanes:	1.00	1.00	0.00		0.00	0.80	0.20		1.00	0.00	1.00		0.00	0.00	0.00	
Final Sat.:	1805	1900	0		0	1488	363		1805	0	1615		0	0	0	
Capacity Analysis Module:																
Vol/Sat:	0.04	0.07	0.00		0.00	0.11	0.11		0.07	0.00	0.10		0.00	0.00	0.00	
Crit Moves:	****					****					****					
Green/Cycle:	0.15	0.31	0.00		0.00	0.38	0.38		0.17	0.00	0.34		0.00	0.00	0.00	
Volume/Cap:	0.29	0.22	0.00		0.00	0.29	0.29		0.39	0.00	0.29		0.00	0.00	0.00	
Delay/Veh:	34.7	23.1	0.0		0.0	19.5	19.5		34.0	0.0	22.2		0.0	0.0	0.0	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	34.7	23.1	0.0		0.0	19.5	19.5		34.0	0.0	22.2		0.0	0.0	0.0	
LOS by Move:	C	C	A		A	B	B		C	A	C		A	A	A	
HCM2kAvgQ:	2	3	0		0	4	4		3	0	3		0	0	0	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 McDougald/Henry Long

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.771
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): 17.1
Optimal Cycle: 0 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	0	1 0	1	0	0	1 0	1	0	0	1 0	1	0	0	1 0
Volume Module:																
Base Vol:	50	80	10		10	370	130		140	10	110		10	10	30	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	50	80	10		10	370	130		140	10	110		10	10	30	
Added Vol:	1	3	0		0	5	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	51	83	10		10	375	130		140	10	110		10	10	30	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	51	83	10		10	375	130		140	10	110		10	10	30	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	51	83	10		10	375	130		140	10	110		10	10	30	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	51	83	10		10	375	130		140	10	110		10	10	30	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	1.00	0.89	0.11		1.00	0.74	0.26		1.00	0.08	0.92		1.00	0.25	0.75	
Final Sat.:	528	516	62		575	486	169		499	49	542		458	132	395	
Capacity Analysis Module:																
Vol/Sat:	0.10	0.16	0.16		0.02	0.77	0.77		0.28	0.20	0.20		0.02	0.08	0.08	
Crit Moves:		****				****			****					****		
Delay/Veh:	9.9	9.7	9.7		8.9	23.3	23.3		12.0	9.7	9.7		10.0	9.3	9.3	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	9.9	9.7	9.7		8.9	23.3	23.3		12.0	9.7	9.7		10.0	9.3	9.3	
LOS by Move:	A	A	A		A	C	C		B	A	A		B	A	A	
ApproachDel:	9.8				23.0				10.9					9.5		
Delay Adj:	1.00				1.00				1.00					1.00		
ApprAdjDel:	9.8				23.0				10.9					9.5		
LOS by Appr:	A				C				B					A		
AllWayAvgQ:	0.1	0.2	0.2		0.0	2.8	2.8		0.3	0.2	0.2		0.0	0.1	0.1	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 French Camp/Wolfe

Cycle (sec): 90 | Critical Vol./Cap.(X): 0.388
Loss Time (sec): 16 (Y+R=4.0 sec) | Average Delay (sec/veh): 27.2
Optimal Cycle: 50 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	0	1 0	2	0	0	1 0	1	0	2	1 0	1	0	2	1 0
Volume Module:																
Base Vol:	10	10	10		670	50	30		10	510	10		20	150	170	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	10	10	10		670	50	30		10	510	10		20	150	170	
Added Vol:	0	0	3		3	0	0		0	9	0		6	6	2	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	10	10	13		673	50	30		10	519	10		26	156	172	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	10	10	13		673	50	30		10	519	10		26	156	172	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	10	10	13		673	50	30		10	519	10		26	156	172	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	10	10	13		673	50	30		10	519	10		26	156	172	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.92	0.92		0.92	0.94	0.94		0.95	0.91	0.91		0.95	0.84	0.84	
Lanes:	1.00	0.43	0.57		2.00	0.62	0.38		1.00	2.94	0.06		1.00	2.00	1.00	
Final Sat.:	1805	756	983		3502	1121	673		1805	5074	98		1805	3185	1592	
Capacity Analysis Module:																
Vol/Sat:	0.01	0.01	0.01		0.19	0.04	0.04		0.01	0.10	0.10		0.01	0.05	0.11	
Crit Moves:		****			****				****						****	
Green/Cycle:	0.21	0.11	0.11		0.41	0.30	0.30		0.08	0.18	0.18		0.13	0.23	0.23	
Volume/Cap:	0.03	0.12	0.12		0.47	0.15	0.15		0.07	0.57	0.57		0.11	0.21	0.47	
Delay/Veh:	28.1	36.3	36.3		19.9	23.0	23.0		38.7	34.6	34.6		35.1	28.3	30.6	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	28.1	36.3	36.3		19.9	23.0	23.0		38.7	34.6	34.6		35.1	28.3	30.6	
LOS by Move:	C	D	D		B	C	C		D	C	C		D	C	C	
HCM2kAvgQ:	0	1	1		7	2	2		0	6	6		1	2	5	

Note: Queue reported is the number of cars per lane.

```
Cumulative AM              Tue Apr 8, 2008 16:17:09                 Page 15-1
-------------------------------------------------------------------------------
                        Weston Ranch Towne Center EIR
                          Future 2025 With Project
                               AM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
*******************************************************************************
Intersection #11 French Camp/McDougald
*******************************************************************************
Cycle (sec):           90                 Critical Vol./Cap.(X):         0.673
Loss Time (sec):       12 (Y+R=4.0 sec)   Average Delay (sec/veh):        24.8
Optimal Cycle:         55                 Level Of Service:                 C
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     7   10   10     7   10   10     7   10   10     7   10   10
Lanes:        0  0  0  0  0    1  0  0  0  1    1  0  2  0  0    0  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0    0   460    0   20   10 1160    0    0  270  120
Growth Adj:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:    0    0    0   460    0   20   10 1160    0    0  270  120
Added Vol:      0    0    0     5    0    0    0   15    0    0   14    4
PasserByVol:    0    0    0     0    0    0    0    0    0    0    0    0
Initial Fut:    0    0    0   465    0   20   10 1175    0    0  284  124
User Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume:     0    0    0   465    0   20   10 1175    0    0  284  124
Reduct Vol:     0    0    0     0    0    0    0    0    0    0    0    0
Reduced Vol:    0    0    0   465    0   20   10 1175    0    0  284  124
PCE Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume:    0    0    0   465    0   20   10 1175    0    0  284  124
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900 1900  1900 1900 1900  1900 1900 1900 1900 1900 1900
Adjustment:  1.00 1.00 1.00  0.95 1.00 0.85  0.95 0.95 1.00 1.00 0.91 0.91
Lanes:       0.00 0.00 0.00  1.00 0.00 1.00  1.00 2.00 0.00 0.00 1.39 0.61
Final Sat.:     0    0    0  1805    0 1615  1805 3610    0    0 2397 1047
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00 0.00  0.26 0.00 0.01  0.01 0.33 0.00 0.00 0.12 0.12
Crit Moves:                  ****                   ****        ****
Green/Cycle: 0.00 0.00 0.00  0.35 0.00 0.35  0.21 0.44 0.00 0.00 0.31 0.31
Volume/Cap:  0.00 0.00 0.00  0.74 0.00 0.04  0.03 0.74 0.00 0.00 0.38 0.38
Delay/Veh:    0.0  0.0  0.0  30.4  0.0 19.4  28.6 22.8  0.0  0.0 24.3 24.3
User DelAdj: 1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh:   0.0  0.0  0.0  30.4  0.0 19.4  28.6 22.8  0.0  0.0 24.3 24.3
LOS by Move:    A    A    A     C    A    B     C    C    A    A    C    C
HCM2kAvgQ:      0    0    0    13    0    0     0   15    0    0    5    5
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************

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CORSIM LEVEL OF SERVICE REPORT

Project: *Weston Ranch Alternatives Analysis* **HCM:** *2000*
Scenario: *2025 With Project* **# of Runs:** *10*
TOD: *AM* **Analysis Period:** *Hourly* **PHF:** *1*

Intersection: *French Camp Road & Original Manthey* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	94	92	98	7	39.7	D	4.4
	T	9	10	111	4	54.3	D	26.6
	R	30	30	100	7	6.5	A	1.8
	Subtotal	**133**	**132**	**99**	**--**	**33.2**	**C**	**--**
SB	L	140	141	101	4	43.2	D	1.9
	T	6	5	83	3	49.8	D	22.6
	R	9	8	89	2	7.7	A	2.2
	Subtotal	**155**	**154**	**99**	**--**	**41.6**	**D**	**--**
EB	L	27	20	74	4	53.8	D	9.8
	T	1446	1442	100	20	14.7	B	1.1
	R	446	452	101	19	18.2	B	2.1
	Subtotal	**1919**	**1914**	**100**	**--**	**16.0**	**B**	**--**
WB	L	130	140	108	9	46.2	D	2.6
	T	501	514	103	21	5.9	A	0.9
	R	150	150	100	12	5.6	A	0.5
	Subtotal	**781**	**803**	**103**	**--**	**12.8**	**B**	**--**
	Total	**2988**	**3003**	**101**	**--**	**17.2**	**B**	**--**

Intersection: *French Camp Road & I-5 SB Ramps* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	1800	1803	100	24	26.4	C	0.9
	R	297	291	98	22	23.9	C	2.5
	Subtotal	**2097**	**2095**	**100**	**--**	**26.0**	**C**	**--**
EB	T	1367	1365	100	27	30.6	C	1.8
	R	249	248	100	11	8.1	A	0.4
	Subtotal	**1616**	**1613**	**100**	**--**	**27.1**	**C**	**--**
WB	T	100	510	510	24	16.2	B	1.5
	Subtotal	**100**	**510**	**510**	**--**	**16.2**	**B**	**--**
	Total	**3813**	**4217**	**111**	**--**	**25.3**	**C**	**--**

CORSIM LEVEL OF SERVICE REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2025 With Project **# of Runs:** 10
TOD: AM **Analysis Period:** Hourly **PHF:** 1

Intersection: French Camp Road & I-5 NB Ramps **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	201	203	101	17	39.0	D	3.9
	R	210	206	98	16	49.0	D	6.1
	Subtotal	**411**	**409**	**100**	**--**	**44.0**	**D**	**--**
EB	T	100	2813	2813	46	3.0	A	0.2
	Subtotal	**100**	**2813**	**2813**	**--**	**3.0**	**A**	**--**
WB	T	1360	1348	99	19	5.3	A	0.4
	Subtotal	**1360**	**1348**	**99**	**--**	**5.3**	**A**	**--**
	Total	**1871**	**4570**	**244**	**--**	**7.3**	**A**	**--**

Intersection: French Camp Road & Val Dervin Parkway **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	578	579	100	19	36.3	D	1.6
	T	10	9	90	3	45.0	D	19.5
	R	290	289	100	20	13.8	B	3.0
	Subtotal	**878**	**877**	**100**	**--**	**29.0**	**C**	**--**
SB	L	350	349	100	8	49.2	D	1.8
	T	60	66	110	5	45.9	D	4.7
	R	63	58	92	7	7.4	A	1.2
	Subtotal	**473**	**472**	**100**	**--**	**43.6**	**D**	**--**
EB	L	182	177	97	18	46.0	D	4.6
	T	2458	2456	100	33	18.3	B	0.9
	R	387	388	100	26	8.1	A	0.6
	Subtotal	**3027**	**3021**	**100**	**--**	**18.6**	**B**	**--**
WB	L	30	36	120	4	46.0	D	5.1
	T	719	711	99	7	23.0	C	1.1
	R	30	32	107	6	4.9	A	1.2
	Subtotal	**779**	**779**	**100**	**--**	**23.3**	**C**	**--**
	Total	**5157**	**5149**	**100**	**--**	**23.4**	**C**	**--**

CORSIM LEVEL OF SERVICE REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2025 With Project **# of Runs:** 10
TOD: AM **Analysis Period:** Hourly **PHF:** 1

Intersection: French Camp Road & Realigned Manthey **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	325	325	100	3	37.0	D	0.9
	R	29	28	97	3	5.1	A	0.7
	Subtotal	**354**	**353**	**99**	**--**	**34.5**	**C**	**--**
EB	L	46	50	109	7	44.0	D	4.2
	T	1594	1587	100	8	4.2	A	0.3
	Subtotal	**1640**	**1638**	**100**	**--**	**5.4**	**A**	**--**
WB	T	370	378	102	21	6.5	A	0.9
	R	234	234	100	16	7.8	A	1.1
	Subtotal	**604**	**613**	**101**	**--**	**7.0**	**A**	**--**
	Total	**2598**	**2603**	**100**	**--**	**9.7**	**A**	**--**

CORSIM QUEUING REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2025 With Project **PHF:** 1
TOD: AM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: French Camp Road & Original Manthey **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	100	--	0	25	--	0
	T	1000	38	--	13	0	--	0
	R	300	25	--	0	0	--	0
SB	L	500	123	--	8	43	--	12
	T	1000	33	--	12	0	--	0
	R	500	25	--	0	0	--	0
EB	L	150	65	--	13	0	--	0
	T	700	388	--	40	68	--	12
WB	L	400	213	--	21	50	--	0
	T	800	138	--	13	0	--	0
	R	400	38	--	18	0	--	0

Intersection: French Camp Road & I-5 SB Ramps **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	500	355	--	20	108	--	12
	T	1000	338	--	21	100	--	0
	R	500	213	--	29	30	--	11
EB	T	800	370	--	23	93	--	12
	R	600	103	--	22	0	--	0
WB	T	350	198	--	25	25	--	0

CORSIM QUEUING REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2025 With Project **PHF:** 1
TOD: AM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: French Camp Road & I-5 NB Ramps **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	120	--	11	25	--	0
	R	999	235	--	38	68	--	12
EB	T	450	170	--	40	0	--	0
WB	T	600	183	--	33	10	--	13

Intersection: French Camp Road & Val Dervin Parkway **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	230	--	16	75	--	0
	T	988	208	--	58	28	--	8
SB	L	350	313	--	18	110	--	13
	T	977	103	--	14	25	--	0
	R	300	40	--	13	0	--	0
EB	L	300	225	--	37	50	--	0
	T	600	448	--	25	75	--	0
	R	400	158	--	43	0	--	0
WB	L	200	85	--	13	8	--	12
	T	2350	165	--	17	25	--	0
	R	200	28	--	8	0	--	0

CORSIM QUEUING REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2025 With Project **PHF:** 1
TOD: AM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: French Camp Road & Realigned Manthey **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	150	125	--	0	50	--	0
	R	1000	28	--	8	0	--	0
EB	L	200	93	--	21	25	--	0
	T	950	160	--	17	23	--	8
WB	T	700	153	--	42	0	--	0

FEHR & PEERS
TRANSPORTATION CONSULTANTS

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Cumulative AM              Tue Apr 8, 2008 16:17:09                 Page 16-1
-------------------------------------------------------------------------------
                        Weston Ranch Towne Center EIR
                          Future 2025 With Project
                                AM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #16 Yettner/Manthey
*******************************************************************************
Average Delay (sec/veh):      1.8       Worst Case Level Of Service: C[ 16.5]
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        1  0  0  1  0    1  0  0  1  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      20  160    10    10  610    20    10   10    30    10   10    20
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   20  160    10    10  610    20    10   10    30    10   10    20
Added Vol:      0   13     0     0   12     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   20  173    10    10  622    20    10   10    30    10   10    20
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    20  173    10    10  622    20    10   10    30    10   10    20
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   20  173    10    10  622    20    10   10    30    10   10    20
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx   4.1 xxxx xxxxx   7.1  6.5   6.2   7.1  6.5   6.2
FollowUpTim:  2.2 xxxx xxxxx   2.2 xxxx xxxxx   3.5  4.0   3.3   3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  642 xxxx xxxxx   183 xxxx xxxxx   885  875   632   890  880   178
Potent Cap.:  952 xxxx xxxxx  1404 xxxx xxxxx   268  290   484   266  288   870
Move Cap.:    952 xxxx xxxxx  1404 xxxx xxxxx   249  282   484   237  280   870
Volume/Cap:  0.02 xxxx  xxxx  0.01 xxxx  xxxx  0.04 0.04  0.06  0.04 0.04  0.02
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.1 xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  8.9 xxxx xxxxx   7.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:   A    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  363 xxxxx  xxxx  397 xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.5 xxxxx xxxxx  0.3 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx 16.5 xxxxx xxxxx 15.1 xxxxx
Shared LOS:    *    *     *     *    *     *     *    C     *     *    C     *
ApproachDel:    xxxxxx            xxxxxx             16.5             15.1
ApproachLOS:        *                 *                C                C
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************


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Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #17 Mathews/S. Manthey

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.623
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): 13.9
Optimal Cycle: 0 | Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	0 0	1! 0	0	1 0	1 0	1	0 1	0 1	0	0 1	0 1	0
Volume Module:												
Base Vol:	20	20	30	60	30	30	60	210	20	70	550	160
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	20	30	60	30	30	60	210	20	70	550	160
Added Vol:	0	3	0	8	4	1	1	0	0	0	0	8
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	20	23	30	68	34	31	61	210	20	70	550	168
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	20	23	30	68	34	31	61	210	20	70	550	168
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	23	30	68	34	31	61	210	20	70	550	168
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	20	23	30	68	34	31	61	210	20	70	550	168
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.27	0.32	0.41	1.00	1.00	1.00	0.42	1.44	0.14	0.18	1.39	0.43
Final Sat.:	137	158	206	454	483	533	232	822	80	112	909	289
Capacity Analysis Module:												
Vol/Sat:	0.15	0.15	0.15	0.15	0.07	0.06	0.26	0.26	0.25	0.62	0.61	0.58
Crit Moves:	****			****			****			****		
Delay/Veh:	10.8	10.8	10.8	11.4	10.1	9.3	11.1	10.8	10.6	17.0	16.1	14.8
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.8	10.8	10.8	11.4	10.1	9.3	11.1	10.8	10.6	17.0	16.1	14.8
LOS by Move:	B	B	B	B	B	A	B	B	B	C	C	B
ApproachDel:	10.8			10.6			10.9			15.9		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.8			10.6			10.9			15.9		
LOS by Appr:	B			B			B			C		
AllWayAvgQ:	0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.3	0.3	1.5	1.3	1.3

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 Mathews/I5 SB Ramps

Average Delay (sec/veh): 14.3 | Worst Case Level Of Service: C[24.6]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 0	0	0 1	0 0	1	0 0	1 1	0	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	410	0	470	0	230	70	30	310	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	410	0	470	0	230	70	30	310	0
Added Vol:	0	0	0	0	0	0	0	4	4	0	8	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	410	0	470	0	234	74	30	318	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	410	0	470	0	234	74	30	318	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	410	0	470	0	234	74	30	318	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	495	686	318	xxxx	xxxx	xxxxx	308	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	537	373	727	xxxx	xxxx	xxxxx	1264	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	528	364	727	xxxx	xxxx	xxxxx	1264	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.78	0.00	0.65	xxxx	xxxx	xxxx	0.02	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	4.8	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	18.5	xxxxx	xxxx	xxxxx	7.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	C	*	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	528	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	7.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	31.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	D	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			24.6			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 Mathews/I5 NB Ramps

Average Delay (sec/veh): 8.9 Worst Case Level Of Service: E[46.9]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	1	0	0	1		0	0	0	0	0		1	0	2	0	0		0	0	0	1	0	
Volume Module:																								
Base Vol:	150		0		30		0		0		0		180		460		0		0		190		120	
Growth Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
Initial Bse:	150		0		30		0		0		0		180		460		0		0		190		120	
Added Vol:	5		0		0		0		0		0		0		4		0		0		3		0	
PasserByVol:	0		0		0		0		0		0		0		0		0		0		0		0	
Initial Fut:	155		0		30		0		0		0		180		464		0		0		193		120	
User Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Volume:	155		0		30		0		0		0		180		464		0		0		193		120	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
FinalVolume:	155		0		30		0		0		0		180		464		0		0		193		120	
Critical Gap Module:																								
Critical Gp:	6.4	6.5		6.2		xxxxx	xxxx	xxxxx		4.1		xxxx	xxxxx	xxxxx		xxxx	xxxxx							
FollowUpTim:	3.5	4.0		3.3		xxxxx	xxxx	xxxxx		2.2		xxxx	xxxxx	xxxxx		xxxx	xxxxx							
Capacity Module:																								
Cnflict Vol:	1077	1137		232		xxxx	xxxx	xxxxx		313		xxxx	xxxxx		xxxx	xxxx	xxxxx							
Potent Cap.:	245	203		812		xxxx	xxxx	xxxxx		1259		xxxx	xxxxx		xxxx	xxxx	xxxxx							
Move Cap.:	218	174		812		xxxx	xxxx	xxxxx		1259		xxxx	xxxxx		xxxx	xxxx	xxxxx							
Volume/Cap:	0.71	0.00		0.04		xxxx	xxxx	xxxx		0.14		xxxx	xxxx		xxxx	xxxx	xxxx							
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx		0.1		xxxx	xxxx	xxxxx		0.5		xxxx	xxxxx		xxxx	xxxx	xxxxx							
Control Del:	xxxxx	xxxx		9.6		xxxxx	xxxx	xxxxx		8.3		xxxx	xxxxx		xxxxx	xxxx	xxxxx							
LOS by Move:	*	*		A		*	*	*		A		*	*		*	*	*							
Movement:	LT - LTR - RT					LT - LTR - RT						LT - LTR - RT							LT - LTR - RT					
Shared Cap.:	218	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx					
SharedQueue:	4.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
Shrd ConDel:	54.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
Shared LOS:	F	*	*	*	*	*	*	*	*	*	*	*												
ApproachDel:	46.9					xxxxxx				xxxxxx							xxxxxx							
ApproachLOS:	E					*				*							*							

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #20 Howard/Wolfe

Average Delay (sec/veh): 2.1 Worst Case Level Of Service: B[12.9]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	1!	0	0		1	0	0	1	0		1	0	0	1	0	
Volume Module:																								
Base Vol:	10		10		10		10		10		40		10		270		30		20		150		60	
Growth Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
Initial Bse:	10		10		10		10		10		40		10		270		30		20		150		60	
Added Vol:	0		0		0		0		0		6		3		1		0		0		1		0	
PasserByVol:	0		0		0		0		0		0		0		0		0		0		0		0	
Initial Fut:	10		10		10		10		10		46		13		271		30		20		151		60	
User Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Adj:	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00		1.00
PHF Volume:	10		10		10		10		10		46		13		271		30		20		151		60	
Reduct Vol:	0		0		0		0		0		0		0		0		0		0		0		0	
FinalVolume:	10		10		10		10		10		46		13		271		30		20		151		60	
Critical Gap Module:																								
Critical Gp:	7.1	6.5		6.2		7.1	6.5		6.2		4.1		xxxx	xxxxx		4.1		xxxx	xxxxx					
FollowUpTim:	3.5	4.0		3.3		3.5	4.0		3.3		2.2		xxxx	xxxxx		2.2		xxxx	xxxxx					
Capacity Module:																								
Cnflict Vol:	561	563		286		543	548		181		211		xxxx	xxxxx		301		xxxx	xxxxx					
Potent Cap.:	441	438		758		454	447		867		1372		xxxx	xxxxx		1272		xxxx	xxxxx					
Move Cap.:	403	427		758		431	436		867		1372		xxxx	xxxxx		1272		xxxx	xxxxx					
Volume/Cap:	0.02	0.02		0.01		0.02	0.02		0.05		0.01		xxxx	xxxx		0.02		xxxx	xxxx					
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx		xxxxx		xxxx	xxxx	xxxxx		0.0		xxxx	xxxxx		0.0		xxxx	xxxxx						
Control Del:	xxxxx	xxxx		xxxxx		xxxxx	xxxx	xxxxx		7.6		xxxx	xxxxx		7.9		xxxx	xxxxx						
LOS by Move:	*	*		*		*	*	*		A		*	*		A		*	*						
Movement:	LT - LTR - RT					LT - LTR - RT						LT - LTR - RT							LT - LTR - RT					
Shared Cap.:	xxxx	488	xxxxx		xxxx	665	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx									
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	0.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
Shrd ConDel:	xxxxx	12.9	xxxxx	xxxxx	11.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*												
ApproachDel:	12.9				11.0				xxxxxx								xxxxxx							
ApproachLOS:	B				B				*								*							

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 French Camp Road/Secondary Driveway

Cycle (sec): 120 Critical Vol./Cap.(X): 0.448
Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 17.5
Optimal Cycle: 46 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	0 0	0	0	0	2 0	0	0	1	1 0	3	0	0	0 0	3	0	1
Volume Module:																
Base Vol:	0	0	0	130	0	10	10	1610	0	0	370	60				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	0	0	0	130	0	10	10	1610	0	0	370	60				
Added Vol:	0	0	0	184	0	15	14	6	0	0	4	180				
Pass-by:	0	0	0	22	0	4	22	-22	0	0	-4	4				
Initial Fut:	0	0	0	336	0	29	46	1594	0	0	370	244				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Volume:	0	0	0	336	0	29	46	1594	0	0	370	244				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
Reduced Vol:	0	0	0	336	0	29	46	1594	0	0	370	244				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
FinalVolume:	0	0	0	336	0	29	46	1594	0	0	370	244				
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Adjustment:	1.00	1.00	1.00	0.92	1.00	0.85	0.95	0.91	1.00	1.00	0.91	0.85				
Lanes:	0.00	0.00	0.00	2.00	0.00	1.00	1.00	3.00	0.00	0.00	3.00	1.00				
Final Sat.:	0	0	0	3502	0	1615	1805	5187	0	0	5187	1615				
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00	0.10	0.00	0.02	0.03	0.31	0.00	0.00	0.07	0.15				
Crit Moves:				****				****		****						
Green/Cycle:	0.00	0.00	0.00	0.20	0.00	0.08	0.19	0.64	0.00	0.00	0.50	0.50				
Volume/Cap:	0.00	0.00	0.00	0.48	0.00	0.22	0.13	0.48	0.00	0.00	0.14	0.30				
Delay/Veh:	0.0	0.0	0.0	43.0	0.0	52.1	40.1	11.2	0.0	0.0	15.9	17.5				
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
AdjDel/Veh:	0.0	0.0	0.0	43.0	0.0	52.1	40.1	11.2	0.0	0.0	15.9	17.5				
LOS by Move:	A	A	A	D	A	D	D	B	A	A	B	B				
HCM2kAvgQ:	0	0	0	6	0	1	1	11	0	0	3	5				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Scenario Report

Scenario:	Cumulative PM
Command:	Cumulative PM
Volume:	Cumulative PM With Project
Geometry:	Cumulative
Impact Fee:	Default Impact Fee
Trip Generation:	Project PM
Trip Distribution:	Peak Hour
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Carolyn Weston/McDougald

Cycle (sec): 60 Critical Vol./Cap.(X): 0.506
Loss Time (sec): 16 (Y+R=4.0 sec) Average Delay (sec/veh): 23.0
Optimal Cycle: 50 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	1	0	1	1 0	0	1	0	1 0	1	1	0	1 0	1	1	0
Volume Module:																
Base Vol:	10	5	210		20	5	5		10	450	20		250	790	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	10	5	210		20	5	5		10	450	20		250	790	0	
Added Vol:	12	0	0		0	0	0		0	18	11		0	19	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	22	5	210		20	5	5		10	468	31		250	809	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	22	5	210		20	5	5		10	468	31		250	809	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	22	5	210		20	5	5		10	468	31		250	809	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	22	5	210		20	5	5		10	468	31		250	809	0	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	0.85		0.95	0.93	0.93		0.95	0.94	0.94		0.95	0.95	0.95	
Lanes:	1.00	1.00	1.00		1.00	0.50	0.50		1.00	1.88	0.12		1.00	2.00	0.00	
Final Sat.:	1805	1900	1615		1805	879	879		1805	3355	222		1805	3610	0	
Capacity Analysis Module:																
Vol/Sat:	0.01	0.00	0.13		0.01	0.01	0.01		0.01	0.14	0.14		0.14	0.22	0.00	
Crit Moves:			****		****				****					****		
Green/Cycle:	0.12	0.18	0.18		0.12	0.18	0.18		0.12	0.24	0.24		0.20	0.32	0.00	
Volume/Cap:	0.10	0.01	0.71		0.09	0.03	0.03		0.05	0.59	0.59		0.70	0.71	0.00	
Delay/Veh:	23.5	20.1	30.7		23.9	20.5	20.5		23.6	21.4	21.4		28.8	20.1	0.0	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	23.5	20.1	30.7		23.9	20.5	20.5		23.6	21.4	21.4		28.8	20.1	0.0	
LOS by Move:	C	C	C		C	C	C		C	C	C		C	C	A	
HCM2kAvgQ:	0	0	5		0	0	0		0	5	5		6	8	0	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Carolyn Weston/S. Manthey

Cycle (sec): 120 Critical Vol./Cap.(X): 0.881
Loss Time (sec): 16 (Y+R=4.0 sec) Average Delay (sec/veh): 45.5
Optimal Cycle: 120 Level Of Service: D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Ovl				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	1	0	1	1 0	1	0	1	1 0	1	1	0	1 0	1	1	0
Volume Module:																
Base Vol:	150	110	320		210	90	190		225	590	80		520	880	150	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	150	110	320		210	90	190		225	590	80		520	880	150	
Added Vol:	19	0	123		0	0	0		0	0	18		126	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	169	110	443		210	90	190		225	590	98		646	880	150	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	169	110	443		210	90	190		225	590	98		646	880	150	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	169	110	443		210	90	190		225	590	98		646	880	150	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	169	110	443		210	90	190		225	590	98		646	880	150	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	0.85		0.95	1.00	0.85		0.95	0.93	0.93		0.95	0.93	0.93	
Lanes:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.72	0.28		1.00	1.71	0.29	
Final Sat.:	1805	1900	1615		1805	1900	1615		1805	3031	503		1805	3016	514	
Capacity Analysis Module:																
Vol/Sat:	0.09	0.06	0.27		0.12	0.05	0.12		0.12	0.19	0.19		0.36	0.29	0.29	
Crit Moves:	****						****			****			****			
Green/Cycle:	0.11	0.10	0.51		0.14	0.13	0.13		0.19	0.22	0.22		0.41	0.44	0.44	
Volume/Cap:	0.88	0.58	0.54		0.83	0.35	0.88		0.66	0.88	0.88		0.88	0.66	0.66	
Delay/Veh:	87.3	56.0	20.9		70.8	48.1	82.6		50.1	56.7	56.7		45.0	27.7	27.7	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	87.3	56.0	20.9		70.8	48.1	82.6		50.1	56.7	56.7		45.0	27.7	27.7	
LOS by Move:	F	E	C		E	D	F		D	E	E		D	C	C	
HCM2kAvgQ:	9	5	11		10	3	10		9	16	16		25	16	16	

Note: Queue reported is the number of cars per lane.

HCM Signalized Intersection Capacity Analysis
3: Downing Avenue & I-5 SB Ramps

2025 Cumulative With Project
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.91	1.00	1.00	0.95						1.00	0.88
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539						1770	2787
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		5085	1583	1770	3539						1770	2787
Volume (vph)	0	953	110	40	452	0	0	0	0	150	0	1114
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	953	110	40	452	0	0	0	0	150	0	1114
RTOR Reduction (vph)	0	0	66	0	0	0	0	0	0	0	0	318
Lane Group Flow (vph)	0	953	44	40	452	0	0	0	0	0	150	796
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		24.2	24.2	2.4	30.6						21.4	21.4
Effective Green, g (s)		24.2	24.2	2.4	30.6						21.4	21.4
Actuated g/C Ratio		0.40	0.40	0.04	0.51						0.36	0.36
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		2051	638	71	1805						631	994
v/s Ratio Prot		c0.19		c0.02	0.13							
v/s Ratio Perm			0.03								0.08	c0.29
v/c Ratio		0.46	0.07	0.56	0.25						0.24	0.80
Uniform Delay, d1		13.1	11.0	28.3	8.3						13.6	17.4
Progression Factor		1.00	1.00	0.84	0.68						1.00	1.00
Incremental Delay, d2		0.8	0.2	8.7	0.3						0.2	4.7
Delay (s)		13.9	11.2	32.5	5.9						13.8	22.1
Level of Service		B	B	C	A						B	C
Approach Delay (s)		13.6			8.1			0.0			21.1	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Downing Avenue & I-5 NB Ramps

2025 Cumulative With Project
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Util. Factor	0.97	1.00			0.95			1.00	1.00			
Frt	1.00	1.00			0.92			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	3433	1863			3250			1770	1583			
Flt Permitted	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	3433	1863			3250			1770	1583			
Volume (vph)	772	331	0	0	242	290	250	0	110	0	0	0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	772	331	0	0	242	290	250	0	110	0	0	0
RTOR Reduction (vph)	0	0	0	0	203	0	0	0	87	0	0	0
Lane Group Flow (vph)	772	331	0	0	329	0	0	250	23	0	0	0
Turn Type	Prot						Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases							2		2			
Actuated Green, G (s)	17.3	39.2			17.9			12.8	12.8			
Effective Green, g (s)	17.3	39.2			17.9			12.8	12.8			
Actuated g/C Ratio	0.29	0.65			0.30			0.21	0.21			
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	990	1217			970			378	338			
v/s Ratio Prot	c0.22	0.18			c0.10							
v/s Ratio Perm								0.14	0.01			
v/c Ratio	0.78	0.27			0.34			0.66	0.07			
Uniform Delay, d1	19.6	4.4			16.4			21.6	18.8			
Progression Factor	0.51	0.47			1.00			1.00	1.00			
Incremental Delay, d2	3.7	0.5			0.9			4.3	0.1			
Delay (s)	13.6	2.6			17.4			25.9	18.9			
Level of Service	B	A			B			C	B			
Approach Delay (s)		10.3			17.4			23.8			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 Downing/Turnpike

Average Delay (sec/veh): 6.9 Worst Case Level Of Service: D[31.0]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	1	0	0	1 0	1	0	0	1 0
Volume Module:																
Base Vol:	70	10	10		60	50	70		30	280	130		10	390	10	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	70	10	10		60	50	70		30	280	130		10	390	10	
Added Vol:	0	0	0		0	0	1		1	1	0		0	1	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	70	10	10		60	50	71		31	281	130		10	391	10	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	70	10	10		60	50	71		31	281	130		10	391	10	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	70	10	10		60	50	71		31	281	130		10	391	10	
Critical Gap Module:																
Critical Gp:	7.1	6.5	6.2		7.1	6.5	6.2		4.1	xxxx	xxxxx		4.1	xxxx	xxxxx	
FollowUpTim:	3.5	4.0	3.3		3.5	4.0	3.3		2.2	xxxx	xxxxx		2.2	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	885	829	346		834	889	396		401	xxxx	xxxxx		411	xxxx	xxxxx	
Potent Cap.:	268	308	702		290	285	658		1169	xxxx	xxxxx		1159	xxxx	xxxxx	
Move Cap.:	200	298	702		271	275	658		1169	xxxx	xxxxx		1159	xxxx	xxxxx	
Volume/Cap:	0.35	0.03	0.01		0.22	0.18	0.11		0.03	xxxx	xxxx		0.01	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		0.1	xxxx	xxxxx		0.0	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		8.2	xxxx	xxxxx		8.1	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	*		A	*	*		A	*	*	
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	226	xxxxx		xxxx	354	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	1.8	xxxxx		xxxxx	2.8	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	31.0	xxxxx		xxxxx	25.4	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	D	*		*	D	*		*	*	*		*	*	*	
ApproachDel:	31.0				25.4				xxxxxx				xxxxxx			
ApproachLOS:	D				D				*				*			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 William Moss/McDougald

Cycle (sec): 60 Critical Vol./Cap.(X): 0.265
Loss Time (sec): 16 (Y+R=4.0 sec) Average Delay (sec/veh): 20.4
Optimal Cycle: 50 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	1	1 0	1	0	1	1 0	1	0	1	1 0	1	0	1	1 0
Volume Module:																
Base Vol:	90	240	30		10	120	70		40	140	30		30	160	30	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	90	240	30		10	120	70		40	140	30		30	160	30	
Added Vol:	12	0	2		11	0	0		0	8	11		2	8	12	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	102	240	32		21	120	70		40	148	41		32	168	42	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	102	240	32		21	120	70		40	148	41		32	168	42	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	102	240	32		21	120	70		40	148	41		32	168	42	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	102	240	32		21	120	70		40	148	41		32	168	42	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.93	0.93		0.95	0.90	0.90		0.95	0.92	0.92		0.95	0.92	0.92	
Lanes:	1.00	1.76	0.24		1.00	1.26	0.74		1.00	1.57	0.43		1.00	1.60	0.40	
Final Sat.:	1805	3128	417		1805	2155	1257		1805	2734	757		1805	2801	700	
Capacity Analysis Module:																
Vol/Sat:	0.06	0.08	0.08		0.01	0.06	0.06		0.02	0.05	0.05		0.02	0.06	0.06	
Crit Moves:	****					****			****					****		
Green/Cycle:	0.20	0.24	0.24		0.17	0.20	0.20		0.12	0.19	0.19		0.14	0.21	0.21	
Volume/Cap:	0.28	0.32	0.32		0.07	0.28	0.28		0.19	0.28	0.28		0.13	0.28	0.28	
Delay/Veh:	20.6	19.2	19.2		21.2	20.6	20.6		24.4	20.8	20.8		23.0	19.9	19.9	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	20.6	19.2	19.2		21.2	20.6	20.6		24.4	20.8	20.8		23.0	19.9	19.9	
LOS by Move:	C	B	B		C	C	C		C	C	C		C	B	B	
HCM2kAvgQ:	2	2	2		0	2	2		1	2	2		1	2	2	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 William Moss/S. Manthey

Cycle (sec): 90 Critical Vol./Cap.(X): 0.456
Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 34.8
Optimal Cycle: 46 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	1	0 0	0	0	0	1 0	1	0	0	0 1	0	0	0	0 0
Volume Module:																
Base Vol:	130	180	0	0	150	140	130	0	70	0	0	0				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	130	180	0	0	150	140	130	0	70	0	0	0				
Added Vol:	22	142	0	0	144	0	0	0	21	0	0	0				
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0				
Initial Fut:	152	322	0	0	294	140	130	0	91	0	0	0				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Volume:	152	322	0	0	294	140	130	0	91	0	0	0				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
Reduced Vol:	152	322	0	0	294	140	130	0	91	0	0	0				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
FinalVolume:	152	322	0	0	294	140	130	0	91	0	0	0				
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Adjustment:	0.95	1.00	1.00	1.00	0.96	0.96	0.95	1.00	0.85	1.00	1.00	1.00				
Lanes:	1.00	1.00	0.00	0.00	0.68	0.32	1.00	0.00	1.00	0.00	0.00	0.00				
Final Sat.:	1805	1900	0	0	1230	586	1805	0	1615	0	0	0				
Capacity Analysis Module:																
Vol/Sat:	0.08	0.17	0.00	0.00	0.24	0.24	0.07	0.00	0.06	0.00	0.00	0.00				
Crit Moves:	****				****		****									
Green/Cycle:	0.18	0.49	0.00	0.00	0.52	0.52	0.16	0.00	0.05	0.00	0.00	0.00				
Volume/Cap:	0.46	0.35	0.00	0.00	0.46	0.46	0.46	0.00	1.19	0.00	0.00	0.00				
Delay/Veh:	33.7	14.6	0.0	0.0	13.7	13.7	35.5	0.0	207.6	0.0	0.0	0.0				
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
AdjDel/Veh:	33.7	14.6	0.0	0.0	13.7	13.7	35.5	0.0	207.6	0.0	0.0	0.0				
LOS by Move:	C	B	A	A	B	B	D	A	F	A	A	A				
HCM2kAvgQ:	4	6	0	0	8	8	4	0	7	0	0	0				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 McDougald/Henry Long

Cycle (sec): 100 Critical Vol./Cap.(X): 0.814
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 22.9
Optimal Cycle: 0 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	0	1 0	1	0	0	1 0	1	0	0	1 0	1	0	0	1 0
Volume Module:																
Base Vol:	100	460	20	20	370	130	60	10	90	10	10	10				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	100	460	20	20	370	130	60	10	90	10	10	10				
Added Vol:	0	12	0	0	11	2	2	0	1	0	0	0				
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0				
Initial Fut:	100	472	20	20	381	132	62	10	91	10	10	10				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Volume:	100	472	20	20	381	132	62	10	91	10	10	10				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
Reduced Vol:	100	472	20	20	381	132	62	10	91	10	10	10				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
FinalVolume:	100	472	20	20	381	132	62	10	91	10	10	10				
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Lanes:	1.00	0.96	0.04	1.00	0.74	0.26	1.00	0.10	0.90	1.00	0.50	0.50				
Final Sat.:	565	599	25	552	468	162	442	51	463	415	230	230				
Capacity Analysis Module:																
Vol/Sat:	0.18	0.79	0.79	0.04	0.81	0.81	0.14	0.20	0.20	0.02	0.04	0.04				
Crit Moves:			****		****			****			****					
Delay/Veh:	10.2	25.7	25.7	9.3	27.7	27.7	11.5	10.7	10.7	10.9	10.2	10.2				
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
AdjDel/Veh:	10.2	25.7	25.7	9.3	27.7	27.7	11.5	10.7	10.7	10.9	10.2	10.2				
LOS by Move:	B	D	D	A	D	D	B	B	B	B	B	B				
ApproachDel:	23.1			27.0			11.0			10.4						
Delay Adj:	1.00			1.00			1.00			1.00						
ApprAdjDel:	23.1			27.0			11.0			10.4						
LOS by Appr:	C			D			B			B						
AllWayAvgQ:	0.2	3.0	3.0	0.0	3.4	3.4	0.1	0.2	0.2	0.0	0.0	0.0				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 French Camp/Wolfe

Cycle (sec):	90	Critical Vol./Cap.(X):	0.844
Loss Time (sec):	16 (Y+R=4.0 sec)	Average Delay (sec/veh):	32.8
Optimal Cycle:	93	Level Of Service:	C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	0	1	0	2 0	0	1	0	1 0	2	1	0	1 0	2	1	0
Volume Module:																
Base Vol:	40	160	70		220	20	20		10	220	10		20	610	770	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	40	160	70		220	20	20		10	220	10		20	610	770	
Added Vol:	0	0	10		8	0	0		0	22	0		8	23	8	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	40	160	80		228	20	20		10	242	10		28	633	778	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	40	160	80		228	20	20		10	242	10		28	633	778	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	40	160	80		228	20	20		10	242	10		28	633	778	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	40	160	80		228	20	20		10	242	10		28	633	778	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.95	0.95		0.92	0.93	0.93		0.95	0.90	0.90		0.95	0.83	0.83	
Lanes:	1.00	0.67	0.33		2.00	0.50	0.50		1.00	2.88	0.12		1.00	2.00	1.00	
Final Sat.:	1805	1203	602		3502	879	879		1805	4951	205		1805	3171	1585	
Capacity Analysis Module:																
Vol/Sat:	0.02	0.13	0.13		0.07	0.02	0.02		0.01	0.05	0.05		0.02	0.20	0.49	
Crit Moves:		****			****				****						****	
Green/Cycle:	0.09	0.14	0.14		0.08	0.13	0.13		0.08	0.35	0.35		0.25	0.52	0.52	
Volume/Cap:	0.24	0.94	0.94		0.84	0.18	0.18		0.07	0.14	0.14		0.06	0.38	0.94	
Delay/Veh:	38.8	77.2	77.2		60.7	35.3	35.3		38.7	19.8	19.8		25.9	12.8	31.2	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	38.8	77.2	77.2		60.7	35.3	35.3		38.7	19.8	19.8		25.9	12.8	31.2	
LOS by Move:	D	E	E		E	D	D		D	B	B		C	B	C	
HCM2kAvgQ:	1	10	10		6	1	1		0	2	2		1	6	27	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 French Camp/McDougald

Cycle (sec):	90	Critical Vol./Cap.(X):	0.806
Loss Time (sec):	12 (Y+R=4.0 sec)	Average Delay (sec/veh):	17.7
Optimal Cycle:	76	Level Of Service:	B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	0 0	0	0	0	1 0	0	0	1	1 0	2	0	0	0 0	1	1	0
Volume Module:																
Base Vol:	0	0	0		160	0	10		20	490	0		0	1400	540	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		160	0	10		20	490	0		0	1400	540	
Added Vol:	0	0	0		12	0	0		0	40	0		0	39	13	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		172	0	10		20	530	0		0	1439	553	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	0	0	0		172	0	10		20	530	0		0	1439	553	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		172	0	10		20	530	0		0	1439	553	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	0	0	0		172	0	10		20	530	0		0	1439	553	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	1.00	1.00	1.00		0.95	1.00	0.85		0.95	0.95	1.00		1.00	0.91	0.91	
Lanes:	0.00	0.00	0.00		1.00	0.00	1.00		1.00	2.00	0.00		0.00	1.44	0.56	
Final Sat.:	0	0	0		1805	0	1615		1805	3610	0		0	2498	960	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.10	0.00	0.01		0.01	0.15	0.00		0.00	0.58	0.58	
Crit Moves:						****			****					****		
Green/Cycle:	0.00	0.00	0.00		0.11	0.00	0.11		0.08	0.49	0.00		0.00	0.68	0.68	
Volume/Cap:	0.00	0.00	0.00		0.85	0.00	0.06		0.14	0.30	0.00		0.00	0.85	0.85	
Delay/Veh:	0.0	0.0	0.0		66.7	0.0	35.8		39.2	13.6	0.0		0.0	14.3	14.3	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		66.7	0.0	35.8		39.2	13.6	0.0		0.0	14.3	14.3	
LOS by Move:	A	A	A		E	A	D		D	B	A		A	B	B	
HCM2kAvgQ:	0	0	0		7	0	0		1	5	0		0	25	25	

Note: Queue reported is the number of cars per lane.

CORSIM LEVEL OF SERVICE REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2025 With Project **# of Runs:** 10
TOD: PM **Analysis Period:** Hourly **PHF:** 1

Intersection: French Camp Road & Original Manthey **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	334	330	99	9	46.0	D	2.2
	T	22	20	91	4	50.1	D	13.3
	R	180	186	103	12	14.7	B	1.7
	Subtotal	**536**	**535**	**100**	**--**	**35.3**	**D**	**--**
SB	L	476	477	100	7	43.9	D	1.8
	T	23	23	100	3	58.8	E	8.1
	R	46	45	98	4	22.5	C	3.8
	Subtotal	**545**	**544**	**100**	**--**	**42.8**	**D**	**--**
EB	L	33	41	124	5	70.4	E	10.1
	T	1122	1190	106	16	13.1	B	1.0
	R	144	152	106	12	15.7	B	1.9
	Subtotal	**1299**	**1383**	**106**	**--**	**15.1**	**B**	**--**
WB	L	110	117	106	12	62.8	E	8.4
	T	2249	2331	104	43	23.6	C	2.1
	R	413	439	106	25	10.0	B	0.9
	Subtotal	**2772**	**2886**	**104**	**--**	**23.1**	**C**	**--**
	Total	**5152**	**5348**	**104**	**--**	**24.3**	**C**	**--**

Intersection: French Camp Road & I-5 SB Ramps **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	860	868	101	25	32.0	C	1.6
	R	842	832	99	26	38.9	D	1.6
	Subtotal	**1702**	**1700**	**100**	**--**	**35.4**	**D**	**--**
EB	T	1222	1272	104	24	29.6	C	1.4
	R	556	582	105	23	11.1	B	0.8
	Subtotal	**1778**	**1855**	**104**	**--**	**23.8**	**C**	**--**
WB	T	100	2052	2052	37	21.4	C	1.6
	Subtotal	**100**	**2052**	**2052**	**--**	**21.4**	**C**	**--**
	Total	**3580**	**5607**	**157**	**--**	**26.4**	**C**	**--**

FEHR & PEERS
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CORSIM LEVEL OF SERVICE REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2025 With Project **# of Runs:** 10
TOD: PM **Analysis Period:** Hourly **PHF:** 1

Intersection: French Camp Road & I-5 NB Ramps **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	570	566	99	12	46.0	D	1.5
	R	180	184	102	12	46.5	D	4.2
	Subtotal	**750**	**750**	**100**	**--**	**46.1**	**D**	**--**
EB	T	100	1397	1397	26	8.3	A	0.7
	Subtotal	**100**	**1397**	**1397**	**--**	**8.3**	**A**	**--**
WB	T	4598	4604	100	32	9.7	A	0.6
	Subtotal	**4598**	**4604**	**100**	**--**	**9.7**	**A**	**--**
	Total	**5448**	**6751**	**124**	**--**	**13.5**	**B**	**--**

Intersection: French Camp Road & Val Dervin Parkway **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	685	684	100	12	81.3	F	9.7
	T	10	7	70	2	53.0	D	18.0
	R	30	31	103	6	8.9	A	2.9
	Subtotal	**725**	**721**	**99**	**--**	**78.0**	**E**	**--**
SB	L	20	18	90	4	74.6	E	18.4
	T	20	17	85	4	79.9	E	24.6
	R	236	240	102	7	15.4	B	1.5
	Subtotal	**276**	**275**	**100**	**--**	**23.2**	**C**	**--**
EB	L	155	142	92	7	306.3	F	112.6
	T	757	759	100	16	17.9	B	1.5
	R	648	669	103	19	13.4	B	1.0
	Subtotal	**1560**	**1570**	**101**	**--**	**42.0**	**D**	**--**
WB	L	110	121	110	8	76.7	E	6.4
	T	3677	3687	100	18	40.6	D	7.9
	R	220	201	91	13	42.2	D	12.1
	Subtotal	**4007**	**4009**	**100**	**--**	**41.8**	**D**	**--**
	Total	**6568**	**6575**	**100**	**--**	**45.0**	**D**	**--**

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CORSIM LEVEL OF SERVICE REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2025 With Project **# of Runs:** 10
TOD: PM **Analysis Period:** Hourly **PHF:** 1

Intersection: French Camp Road & Realigned Manthey **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	667	664	100	7	46.3	D	1.2
	R	79	81	103	7	5.1	A	0.5
	Subtotal	**746**	**745**	**100**	**--**	**41.8**	**D**	**--**
EB	L	70	73	103	5	57.0	E	6.8
	T	722	719	100	5	6.0	A	0.3
	Subtotal	**792**	**792**	**100**	**--**	**10.6**	**B**	**--**
WB	T	1693	1738	103	32	19.7	B	1.3
	R	936	965	103	28	28.4	C	1.7
	Subtotal	**2629**	**2704**	**103**	**--**	**22.8**	**C**	**--**
	Total	**4167**	**4241**	**102**	**--**	**23.9**	**C**	**--**

CORSIM QUEUING REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2025 With Project **PHF:** 1
TOD: PM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: French Camp Road & Original Manthey **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	325	Yes	26	103	--	8
	T	1000	60	--	13	0	--	0
	R	300	143	--	17	25	--	0
SB	L	500	210	--	17	75	--	0
	T	1000	65	--	13	0	--	0
	R	500	78	--	18	0	--	0
EB	L	150	113	--	21	25	--	0
	T	700	300	--	70	50	--	0
WB	L	400	175	--	26	45	--	11
	T	800	558	--	69	138	--	18
	R	400	75	--	12	0	--	0

Intersection: French Camp Road & I-5 SB Ramps **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	500	280	--	16	75	--	0
	T	1000	328	--	18	100	--	0
	R	500	375	--	17	128	--	8
EB	T	800	568	--	49	165	--	13
	R	600	203	--	36	5	--	11
WB	T	350	460	Yes	13	138	--	13

CORSIM QUEUING REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2025 With Project **PHF:** 1
TOD: PM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: French Camp Road & I-5 NB Ramps **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	278	--	22	98	--	8
	R	999	240	--	32	53	--	8
EB	T	450	298	--	28	25	--	0
WB	T	600	580	--	52	75	--	0

Intersection: French Camp Road & Val Dervin Parkway **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	543	Yes	68	203	--	30
	T	988	73	--	14	0	--	0
SB	L	350	68	--	17	0	--	0
	T	977	70	--	26	3	--	8
	R	300	125	--	17	25	--	0
EB	L	300	393	Yes	21	248	--	62
	T	600	405	--	114	103	--	68
	R	400	355	--	44	25	--	0
WB	L	200	228	Yes	22	60	--	13
	T	2350	1113	--	199	410	--	121
	R	200	73	--	25	0	--	0

CORSIM QUEUING REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2025 With Project **PHF:** 1
TOD: PM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: French Camp Road & Realigned Manthey **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	150	373	Yes	28	108	--	12
	R	1000	50	--	0	0	--	0
EB	L	200	153	--	25	25	--	0
	T	950	108	--	12	0	--	0
WB	T	700	658	--	35	138	--	13

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #16 Yettner/Manthey

Average Delay (sec/veh): 2.0 Worst Case Level Of Service: C[16.9]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	1	0	0	1 0	1	0	0	1 0	0	0	1!	0 0	0	0	1!	0 0
Volume Module:																
Base Vol:	30	520	10		10	180	20		20	10	20		10	10	20	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	30	520	10		10	180	20		20	10	20		10	10	20	
Added Vol:	0	37	0		0	37	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	30	557	10		10	217	20		20	10	20		10	10	20	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	30	557	10		10	217	20		20	10	20		10	10	20	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	30	557	10		10	217	20		20	10	20		10	10	20	
Critical Gap Module:																
Critical Gp:	4.1	xxxx	xxxxx		4.1	xxxx	xxxxx		7.1	6.5	6.2		7.1	6.5	6.2	
FollowUpTim:	2.2	xxxx	xxxxx		2.2	xxxx	xxxxx		3.5	4.0	3.3		3.5	4.0	3.3	
Capacity Module:																
Cnflict Vol:	237	xxxx	xxxxx		567	xxxx	xxxxx		884	874	227		884	879	562	
Potent Cap.:	1342	xxxx	xxxxx		1015	xxxx	xxxxx		268	290	817		268	288	530	
Move Cap.:	1342	xxxx	xxxxx		1015	xxxx	xxxxx		245	281	817		248	279	530	
Volume/Cap:	0.02	xxxx	xxxx		0.01	xxxx	xxxx		0.08	0.04	0.02		0.04	0.04	0.04	
Level Of Service Module:																
2Way95thQ:	0.1	xxxx	xxxxx		0.0	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	7.7	xxxx	xxxxx		8.6	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	A	*	*		A	*	*		*	*	*		*	*	*	
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	353	xxxxx		xxxx	351	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	0.5	xxxxx		xxxxx	0.4	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	16.9	xxxxx		xxxxx	16.6	xxxxx	
Shared LOS:	*	*	*		*	*	*		*	C	*		*	C	*	
ApproachDel:	xxxxxx				xxxxxx				16.9				16.6			
ApproachLOS:	*				*				C				C			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #17 Mathews/S. Manthey

Cycle (sec): 100 Critical Vol./Cap.(X): 0.698
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 17.4
Optimal Cycle: 0 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	0	0	1!	0 0	1	0	1	0 1	0	1	0	1 0	0	1	0	1 0
Volume Module:																
Base Vol:	10	40	30		100	40	70		40	720	20		40	280	100	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	10	40	30		100	40	70		40	720	20		40	280	100	
Added Vol:	0	9	0		25	9	3		3	0	0		0	0	24	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	10	49	30		125	49	73		43	720	20		40	280	124	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	10	49	30		125	49	73		43	720	20		40	280	124	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	10	49	30		125	49	73		43	720	20		40	280	124	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	10	49	30		125	49	73		43	720	20		40	280	124	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.11	0.55	0.34		1.00	1.00	1.00		0.11	1.84	0.05		0.18	1.26	0.56	
Final Sat.:	51	248	152		431	456	501		62	1040	29		93	665	308	
Capacity Analysis Module:																
Vol/Sat:	0.20	0.20	0.20		0.29	0.11	0.15		0.70	0.69	0.69		0.43	0.42	0.40	
Crit Moves:		****			****				****				****			
Delay/Veh:	12.2	12.2	12.2		13.7	11.0	10.5		22.0	21.6	21.3		14.4	13.9	13.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	12.2	12.2	12.2		13.7	11.0	10.5		22.0	21.6	21.3		14.4	13.9	13.0	
LOS by Move:	B	B	B		B	B	B		C	C	C		B	B	B	
ApproachDel:	12.2				12.2				21.7				13.7			
Delay Adj:	1.00				1.00				1.00				1.00			
ApprAdjDel:	12.2				12.2				21.7				13.7			
LOS by Appr:	B				B				C				B			
AllWayAvgQ:	0.2	0.2	0.2		0.4	0.1	0.1		2.0	1.9	1.9		0.7	0.6	0.6	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 Mathews/I5 SB Ramps

Average Delay (sec/veh): 2.9 Worst Case Level Of Service: B[13.9]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	1	0	0 1	0	0	1	1 0	1	0	1	0 0
Volume Module:																
Base Vol:	0	0		0	120	0	170		0	730	120		30	250		0
Growth Adj:	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00
Initial Bse:	0	0		0	120	0	170		0	730	120		30	250		0
Added Vol:	0	0		0	0	0	0		0	9	16		0	24		0
PasserByVol:	0	0		0	0	0	0		0	0	0		0	0		0
Initial Fut:	0	0		0	120	0	170		0	739	136		30	274		0
User Adj:	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00
PHF Adj:	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00
PHF Volume:	0	0		0	120	0	170		0	739	136		30	274		0
Reduct Vol:	0	0		0	0	0	0		0	0	0		0	0		0
FinalVolume:	0	0		0	120	0	170		0	739	136		30	274		0
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx		xxxxx	6.4	6.5	6.2		xxxxx	xxxx	xxxxx		4.1	xxxx		xxxxx
FollowUpTim:	xxxxx	xxxx		xxxxx	3.5	4.0	3.3		xxxxx	xxxx	xxxxx		2.2	xxxx		xxxxx
Capacity Module:																
Cnflict Vol:	xxxx	xxxx		xxxxx	704	1209	274		xxxx	xxxx	xxxxx		875	xxxx		xxxxx
Potent Cap.:	xxxx	xxxx		xxxxx	407	184	770		xxxx	xxxx	xxxxx		780	xxxx		xxxxx
Move Cap.:	xxxx	xxxx		xxxxx	395	177	770		xxxx	xxxx	xxxxx		780	xxxx		xxxxx
Volume/Cap:	xxxx	xxxx		xxxx	0.30	0.00	0.22		xxxx	xxxx	xxxx		0.04	xxxx		xxxx
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx		xxxxx	xxxx	xxxx	0.8		xxxx	xxxx	xxxxx		0.1	xxxx		xxxxx
Control Del:	xxxxx	xxxx		xxxxx	xxxxx	xxxx	11.0		xxxxx	xxxx	xxxxx		9.8	xxxx		xxxxx
LOS by Move:	*	*		*	*	*	B		*	*	*		A	*		*
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	xxxx		xxxxx	395	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx		xxxxx
SharedQueue:	xxxxx	xxxx		xxxxx	1.3	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx		xxxxx
Shrd ConDel:	xxxxx	xxxx		xxxxx	18.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx		xxxxx
Shared LOS:	*	*		*	C	*	*		*	*	*		*	*		*
ApproachDel:	xxxxxx				13.9				xxxxxx				xxxxxx			
ApproachLOS:	*				B				*				*			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 Mathews/I5 NB Ramps

Average Delay (sec/veh): 13.5 Worst Case Level Of Service: F[195.8]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	1	0	0 1	0	0	0	0 0	1	0	2	0 0	0	0	0	1 0
Volume Module:																
Base Vol:	40	0		20	0	0		0	500	350		0	0	240		380
Growth Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Initial Bse:	40	0		20	0	0		0	500	350		0	0	240		380
Added Vol:	15	0		0	0	0		0	0	9		0	0	9		0
PasserByVol:	0	0		0	0	0		0	0	0		0	0	0		0
Initial Fut:	55	0		20	0	0		0	500	359		0	0	249		380
User Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
PHF Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
PHF Volume:	55	0		20	0	0		0	500	359		0	0	249		380
Reduct Vol:	0	0		0	0	0		0	0	0		0	0	0		0
FinalVolume:	55	0		20	0	0		0	500	359		0	0	249		380
Critical Gap Module:																
Critical Gp:	6.4	6.5		6.2	xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
FollowUpTim:	3.5	4.0		3.3	xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
Capacity Module:																
Cnflict Vol:	1798	1988		180	xxxx	xxxx	xxxxx		629	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Potent Cap.:	89	62		869	xxxx	xxxx	xxxxx		963	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Move Cap.:	53	30		869	xxxx	xxxx	xxxxx		963	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Volume/Cap:	1.05	0.00		0.02	xxxx	xxxx	xxxx		0.52	xxxx	xxxx	xxxx	xxxx	xxxx		
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx		0.1	xxxx	xxxx	xxxxx		3.1	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Control Del:	xxxxx	xxxx		9.2	xxxxx	xxxx	xxxxx		12.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
LOS by Move:	*	*		A	*	*	*		B	*	*	*	*	*		
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	53	xxxx		xxxxx	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx		xxxxx
SharedQueue:	4.7	xxxx		xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx		xxxxx
Shrd ConDel:	263.7	xxxx		xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx		xxxxx
Shared LOS:	F	*		*	*	*	*		*	*	*		*	*		*
ApproachDel:	195.8				xxxxxx				xxxxxx				xxxxxx			
ApproachLOS:	F				*				*				*			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #20 Howard/Wolfe

Average Delay (sec/veh): 3.4 Worst Case Level Of Service: C[19.7]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	1	0	0	1 0	1	0	0	1 0
Volume Module:																
Base Vol:	10	10	10		10	10	10		170	400	10		20	130	10	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	10	10	10		10	10	10		170	400	10		20	130	10	
Added Vol:	0	0	0		0	0	8		10	3	0		0	3	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	10	10	10		10	10	18		180	403	10		20	133	10	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	10	10	10		10	10	18		180	403	10		20	133	10	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	10	10	10		10	10	18		180	403	10		20	133	10	
Critical Gap Module:																
Critical Gp:	7.1	6.5	6.2		7.1	6.5	6.2		4.1	xxxx	xxxxx		4.1	xxxx	xxxxx	
FollowUpTim:	3.5	4.0	3.3		3.5	4.0	3.3		2.2	xxxx	xxxxx		2.2	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	960	951	408		956	951	138		143	xxxx	xxxxx		413	xxxx	xxxxx	
Potent Cap.:	238	262	648		240	262	916		1452	xxxx	xxxxx		1157	xxxx	xxxxx	
Move Cap.:	202	225	648		204	225	916		1452	xxxx	xxxxx		1157	xxxx	xxxxx	
Volume/Cap:	0.05	0.04	0.02		0.05	0.04	0.02		0.12	xxxx	xxxx		0.02	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		0.4	xxxx	xxxxx		0.1	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		7.8	xxxx	xxxxx		8.2	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	*		A	*	*		A	*	*	
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	274	xxxxx		xxxx	336	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	0.4	xxxxx		xxxxx	0.4	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	19.7	xxxxx		xxxxx	17.1	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	C	*		*	C	*		*	*	*		*	*	*	
ApproachDel:	19.7				17.1				xxxxxx				xxxxxx			
ApproachLOS:	C				C				*				*			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 French Camp Road/Secondary Driveway

Cycle (sec): 120 Critical Vol./Cap.(X): 0.899
Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 27.5
Optimal Cycle: 119 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	0	0	0	0 0	2	0	0	0 1	1	0	3	0 0	0	0	3	0 1
Volume Module:																
Base Vol:	0	0	0		90	0	10		10	730	0		0	1710	390	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		90	0	10		10	730	0		0	1710	390	
Added Vol:	0	0	0		556	0	38		39	13	0		0	14	515	
Pass-by:	0	0	0		21	0	31		21	-21	0		0	-31	31	
Initial Fut:	0	0	0		667	0	79		70	722	0		0	1693	936	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	0	0	0		667	0	79		70	722	0		0	1693	936	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		667	0	79		70	722	0		0	1693	936	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	0	0	0		667	0	79		70	722	0		0	1693	936	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	1.00	1.00	1.00		0.92	1.00	0.85		0.95	0.91	1.00		1.00	0.91	0.85	
Lanes:	0.00	0.00	0.00		2.00	0.00	1.00		1.00	3.00	0.00		0.00	3.00	1.00	
Final Sat.:	0	0	0		3502	0	1615		1805	5187	0		0	5187	1615	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.19	0.00	0.05		0.04	0.14	0.00		0.00	0.33	0.58	
Crit Moves:					****				****						****	
Green/Cycle:	0.00	0.00	0.00		0.21	0.00	0.09		0.06	0.49	0.00		0.00	0.63	0.63	
Volume/Cap:	0.00	0.00	0.00		0.91	0.00	0.55		0.66	0.29	0.00		0.00	0.52	0.91	
Delay/Veh:	0.0	0.0	0.0		62.6	0.0	57.2		70.3	18.4	0.0		0.0	12.1	31.5	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		62.6	0.0	57.2		70.3	18.4	0.0		0.0	12.1	31.5	
LOS by Move:	A	A	A		E	A	E		E	B	A		A	B	C	
HCM2kAvgQ:	0	0	0		16	0	4		4	6	0		0	12	34	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
AM Peak Hour

Scenario Report

Scenario:	Cumulative AM
Command:	Cumulative AM
Volume:	Cumulative AM
Geometry:	Cumulative
Impact Fee:	Default Impact Fee
Trip Generation:	Project AM
Trip Distribution:	Peak Hour
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Future 2035 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Carolyn Weston/McDougald

Cycle (sec): 120 Critical Vol./Cap.(X): 0.846
Loss Time (sec): 16 (Y+R=4.0 sec) Average Delay (sec/veh): 41.4
Optimal Cycle: 106 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0	1 0	1	1 0	0 1	0	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	176	70	258	90	70	20	20	1043	113	347	806	60
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	176	70	258	90	70	20	20	1043	113	347	806	60
Added Vol:	3	0	1	0	0	0	0	10	5	2	5	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	179	70	259	90	70	20	20	1053	118	349	811	60
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	179	70	259	90	70	20	20	1053	118	349	811	60
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	179	70	259	90	70	20	20	1053	118	349	811	60
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	179	70	259	90	70	20	20	1053	118	349	811	60
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	0.97	0.97	0.95	0.94	0.94	0.95	0.94	0.94
Lanes:	1.00	1.00	1.00	1.00	0.78	0.22	1.00	1.80	0.20	1.00	1.86	0.14
Final Sat.:	1805	1900	1615	1805	1429	408	1805	3198	358	1805	3328	246
Capacity Analysis Module:												
Vol/Sat:	0.10	0.04	0.16	0.05	0.05	0.05	0.01	0.33	0.33	0.19	0.24	0.24
Crit Moves:			****	****				****		****		
Green/Cycle:	0.14	0.19	0.19	0.06	0.11	0.11	0.12	0.39	0.39	0.23	0.50	0.50
Volume/Cap:	0.73	0.19	0.85	0.85	0.43	0.43	0.09	0.85	0.85	0.85	0.49	0.49
Delay/Veh:	60.8	41.2	66.0	99.0	51.0	51.0	47.2	38.4	38.4	59.1	20.1	20.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	60.8	41.2	66.0	99.0	51.0	51.0	47.2	38.4	38.4	59.1	20.1	20.1
LOS by Move:	E	D	E	F	D	D	D	D	D	E	C	C
HCM2kAvgQ:	8	2	12	5	4	4	1	23	23	15	11	11

Note: Queue reported is the number of cars per lane.

```
Cumulative AM              Tue Apr 8, 2008 16:22:00                  Page 8-1
--------------------------------------------------------------------------------
                         Weston Ranch Towne Center EIR
                           Future 2035 With Project
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
Intersection #2 Carolyn Weston/S. Manthey
********************************************************************************
Cycle (sec):         120                 Critical Vol./Cap.(X):         0.703
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):        32.4
Optimal Cycle:        73                Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:            Ovl              Ovl             Include          Include
Min. Green:     7   10    10     7   10    10     7   10    10     7   10    10
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  1  0    2  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     146   80   283    80   70    80   100 1188   103   430  987   100
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  146   80   283    80   70    80   100 1188   103   430  987   100
Added Vol:      5    0    35     0    0     0     0    1    10    63    2     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  151   80   318    80   70    80   100 1189   113   493  989   100
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   151   80   318    80   70    80   100 1189   113   493  989   100
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  151   80   318    80   70    80   100 1189   113   493  989   100
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  151   80   318    80   70    80   100 1189   113   493  989   100
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.95 0.95  0.85  0.95 0.94  0.94  0.92 0.94  0.94
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.83  0.17  2.00 1.82  0.18
Final Sat.:  1805 3610  1615  1805 3610  1615  1805 3254   309  3502 3233   327
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.02  0.20  0.04 0.02  0.05  0.06 0.37  0.37  0.14 0.31  0.31
Crit Moves:  ****                ****              ****        ****
Green/Cycle: 0.11 0.11  0.30  0.08 0.08  0.19  0.11 0.49  0.49  0.19 0.56  0.56
Volume/Cap:  0.75 0.19  0.65  0.55 0.23  0.26  0.51 0.75  0.75  0.75 0.54  0.54
Delay/Veh:   66.6 48.4  39.6  57.7 51.8  41.8  52.9 27.0  27.0  51.1 16.7  16.7
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  66.6 48.4  39.6  57.7 51.8  41.8  52.9 27.0  27.0  51.1 16.7  16.7
LOS by Move:   E    D     D     E    D     D     D    C     C     D    B     B
HCM2kAvgQ:     7    2    11     4    1     3     4   21    21    10   13    13
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************

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HCM Signalized Intersection Capacity Analysis
3: Downing Avenue & I-5 SB Ramps

2035 Cumulative With Project
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.91	1.00	1.00	0.95						1.00	0.88
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539						1770	2787
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		5085	1583	1770	3539						1770	2787
Volume (vph)	0	1288	300	80	323	0	0	0	0	480	0	1260
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1288	300	80	323	0	0	0	0	480	0	1260
RTOR Reduction (vph)	0	0	177	0	0	0	0	0	0	0	0	518
Lane Group Flow (vph)	0	1288	123	80	323	0	0	0	0	0	480	742
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		32.7	32.7	6.0	42.7						29.3	29.3
Effective Green, g (s)		32.7	32.7	6.0	42.7						29.3	29.3
Actuated g/C Ratio		0.41	0.41	0.08	0.53						0.37	0.37
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		2078	647	133	1889						648	1021
v/s Ratio Prot		c0.25		c0.05	0.09							
v/s Ratio Perm			0.08								0.27	0.27
v/c Ratio		0.62	0.19	0.60	0.17						0.74	0.73
Uniform Delay, d1		18.7	15.2	35.8	9.6						22.0	21.9
Progression Factor		1.00	1.00	0.57	1.06						1.00	1.00
Incremental Delay, d2		1.4	0.6	6.9	0.2						4.6	2.6
Delay (s)		20.1	15.8	27.4	10.3						26.6	24.5
Level of Service		C	B	C	B						C	C
Approach Delay (s)		19.3			13.7			0.0			25.1	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Downing Avenue & I-5 NB Ramps

2035 Cumulative With Project
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Util. Factor	0.97	1.00			0.95			1.00	1.00			
Frt	1.00	1.00			0.92			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	3433	1863			3255			1770	1583			
Flt Permitted	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	3433	1863			3255			1770	1583			
Volume (vph)	1067	701	0	0	243	280	160	0	80	0	0	0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1067	701	0	0	243	280	160	0	80	0	0	0
RTOR Reduction (vph)	0	0	0	0	190	0	0	0	68	0	0	0
Lane Group Flow (vph)	1067	701	0	0	333	0	0	160	12	0	0	0
Turn Type	Prot						Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases							2		2			
Actuated Green, G (s)	30.0	59.8			25.8			12.2	12.2			
Effective Green, g (s)	30.0	59.8			25.8			12.2	12.2			
Actuated g/C Ratio	0.38	0.75			0.32			0.15	0.15			
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	1287	1393			1050			270	241			
v/s Ratio Prot	c0.31	c0.38			0.10							
v/s Ratio Perm								0.09	0.01			
v/c Ratio	0.83	0.50			0.32			0.59	0.05			
Uniform Delay, d1	22.7	4.1			20.5			31.6	29.0			
Progression Factor	0.61	0.59			1.00			1.00	1.00			
Incremental Delay, d2	3.7	1.0			0.8			3.5	0.1			
Delay (s)	17.4	3.5			21.2			35.0	29.0			
Level of Service	B	A			C			D	C			
Approach Delay (s)		11.9			21.2			33.0			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			


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Cumulative AM              Tue Apr 8, 2008 16:22:00                    Page 9-1
-------------------------------------------------------------------------------
                          Weston Ranch Towne Center EIR
                            Future 2035 With Project
                                 AM Peak Hour
-------------------------------------------------------------------------------
                       Level Of Service Computation Report
            2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #5 Downing/Turnpike
*******************************************************************************
Average Delay (sec/veh): OVERFLOW       Worst Case Level Of Service: F[xxxxx]
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign         Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include           Include          Include          Include
Lanes:        0  0  1! 0  0     0  0  1! 0  0     1  0  0  1  0     1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     110  320    60    80  100   140   150  382   240   150  257    70
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  110  320    60    80  100   140   150  382   240   150  257    70
Added Vol:      0    0     0     0    0     0     0    9     0     0   16     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  110  320    60    80  100   140   150  391   240   150  273    70
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   110  320    60    80  100   140   150  391   240   150  273    70
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:  110  320    60    80  100   140   150  391   240   150  273    70
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1539 1454   511  1609 1539   308   343 xxxx xxxxx   631 xxxx xxxxx
Potent Cap.:   95  131   567    85  117   737  1227 xxxx xxxxx   961 xxxx xxxxx
Move Cap.:      0   97   567     0   86   737  1227 xxxx xxxxx   961 xxxx xxxxx
Volume/Cap:  xxxx 3.29  0.11  xxxx 1.16  0.19  0.12 xxxx  xxxx  0.16 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.4 xxxx xxxxx   0.6 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.3 xxxx xxxxx   9.4 xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     A    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx    0 xxxxx  xxxx    0 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx           xxxxxx           xxxxxx
ApproachLOS:        F                F                *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************


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Weston Ranch Towne Center EIR
Future 2035 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 William Moss/McDougald

Cycle (sec): 60 Critical Vol./Cap.(X): 0.648
Loss Time (sec): 16 (Y+R=4.0 sec) Average Delay (sec/veh): 25.3
Optimal Cycle: 54 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	1	1	0	1 0	1	1	0	1 0	1	1	0	1 0	1	1	0
Volume Module:																
Base Vol:	56	218	120		93	387	160		350	200	53		110	160	136	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	56	218	120		93	387	160		350	200	53		110	160	136	
Added Vol:	3	1	0		5	2	0		0	5	5		0	2	3	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	59	219	120		98	389	160		350	205	58		110	162	139	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	59	219	120		98	389	160		350	205	58		110	162	139	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	59	219	120		98	389	160		350	205	58		110	162	139	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	59	219	120		98	389	160		350	205	58		110	162	139	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.90	0.90		0.95	0.91	0.91		0.95	0.92	0.92		0.95	0.88	0.88	
Lanes:	1.00	1.29	0.71		1.00	1.42	0.58		1.00	1.56	0.44		1.00	1.08	0.92	
Final Sat.:	1805	2209	1210		1805	2445	1006		1805	2721	770		1805	1809	1552	
Capacity Analysis Module:																
Vol/Sat:	0.03	0.10	0.10		0.05	0.16	0.16		0.19	0.08	0.08		0.06	0.09	0.09	
Crit Moves:	****					****			****					****		
Green/Cycle:	0.12	0.19	0.19		0.13	0.20	0.20		0.25	0.24	0.24		0.17	0.17	0.17	
Volume/Cap:	0.28	0.53	0.53		0.41	0.78	0.78		0.78	0.31	0.31		0.36	0.54	0.54	
Delay/Veh:	24.9	22.8	22.8		25.1	28.5	28.5		29.9	18.8	18.8		22.7	23.9	23.9	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	24.9	22.8	22.8		25.1	28.5	28.5		29.9	18.8	18.8		22.7	23.9	23.9	
LOS by Move:	C	C	C		C	C	C		C	B	B		C	C	C	
HCM2kAvgQ:	1	4	4		2	7	7		8	2	2		2	4	4	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 William Moss/S. Manthey

Cycle (sec): 60 Critical Vol./Cap.(X): 0.426
Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 24.5
Optimal Cycle: 46 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Protected				Permitted				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	2	0	0	0 0	1	1	0	1 0	0	0	1	0 0	0	0	0
Volume Module:																
Base Vol:	76	299	0		0	534	70		190	0	123		0	0	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	76	299	0		0	534	70		190	0	123		0	0	0	
Added Vol:	5	40	0		0	73	0		0	0	10		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	81	339	0		0	607	70		190	0	133		0	0	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	81	339	0		0	607	70		190	0	133		0	0	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	81	339	0		0	607	70		190	0	133		0	0	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	81	339	0		0	607	70		190	0	133		0	0	0	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.95	1.00		1.00	0.94	0.94		0.95	1.00	0.85		1.00	1.00	1.00	
Lanes:	1.00	2.00	0.00		0.00	1.79	0.21		1.00	0.00	1.00		0.00	0.00	0.00	
Final Sat.:	1805	3610	0		0	3188	368		1805		0	1615	0	0	0	
Capacity Analysis Module:																
Vol/Sat:	0.04	0.09	0.00		0.00	0.19	0.19		0.11	0.00	0.08		0.00	0.00	0.00	
Crit Moves:	****					****			****							
Green/Cycle:	0.12	0.56	0.00		0.00	0.44	0.44		0.24	0.00	0.07		0.00	0.00	0.00	
Volume/Cap:	0.38	0.17	0.00		0.00	0.43	0.43		0.43	0.00	1.11		0.00	0.00	0.00	
Delay/Veh:	25.7	6.5	0.0		0.0	11.8	11.8		19.9	0.0	140.9		0.0	0.0	0.0	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	25.7	6.5	0.0		0.0	11.8	11.8		19.9	0.0	140.9		0.0	0.0	0.0	
LOS by Move:	C	A	A		A	B	B		B	A	F		A	A	A	
HCM2kAvgQ:	2	2	0		0	5	5		3	0	7		0	0	0	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 McDougald/Henry Long

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.278
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): 10.0
Optimal Cycle: 0 | Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	1	1 0	1	0	1	1 0	1	0	0	1 0	1	0	0	1 0
Volume Module:																
Base Vol:	90	104	0		0	151	190		140	0	120		0	0	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	90	104	0		0	151	190		140	0	120		0	0	0	
Added Vol:	1	4	0		0	7	0		0	0	2		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	91	108	0		0	158	190		140	0	122		0	0	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	91	108	0		0	158	190		140	0	122		0	0	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	91	108	0		0	158	190		140	0	122		0	0	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	91	108	0		0	158	190		140	0	122		0	0	0	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	1.00	2.00	0.00		1.00	1.00	1.00		1.00	0.00	1.00		1.00	1.00	0.00	
Final Sat.:	530	1142	0		553	602	682		543	0	661		496	532	0	
Capacity Analysis Module:																
Vol/Sat:	0.17	0.09	xxxx		0.00	0.26	0.28		0.26	xxxx	0.18		0.00	0.00	xxxx	
Crit Moves:	****						****		****					****		
Delay/Veh:	10.5	9.3	0.0		0.0	10.4	9.6		11.1	0.0	8.9		0.0	0.0	0.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	10.5	9.3	0.0		0.0	10.4	9.6		11.1	0.0	8.9		0.0	0.0	0.0	
LOS by Move:	B	A	*		*	B	A		B	*	A		*	*	*	
ApproachDel:	9.8				10.0				10.1				xxxxxx			
Delay Adj:	1.00				1.00				1.00				xxxxx			
ApprAdjDel:	9.8				10.0				10.1				xxxxxx			
LOS by Appr:	A				A				B				*			
AllWayAvgQ:	0.2	0.1	0.1		0.0	0.3	0.3		0.3	0.2	0.2		0.0	0.0	0.0	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 French Camp/Wolfe

Cycle (sec): 90 | Critical Vol./Cap.(X): 0.743
Loss Time (sec): 16 (Y+R=4.0 sec) | Average Delay (sec/veh): 33.6
Optimal Cycle: 73 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Ovl			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	1	1 0	1	0	1	1 0	1	0	2	1 0	1	0	2	1 0
Volume Module:																
Base Vol:	60	660	45		373	570	90		10	723	190		14	566	136	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	60	660	45		373	570	90		10	723	190		14	566	136	
Added Vol:	0	0	20		6	0	0		0	8	0		12	5	4	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	60	660	65		379	570	90		10	731	190		26	571	140	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	60	660	65		379	570	90		10	731	190		26	571	140	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	60	660	65		379	570	90		10	731	190		26	571	140	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	60	660	65		379	570	90		10	731	190		26	571	140	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.94	0.94		0.95	0.93	0.93		0.95	0.88	0.88		0.95	0.88	0.88	
Lanes:	1.00	1.82	0.18		1.00	1.73	0.27		1.00	2.38	0.62		1.00	2.41	0.59	
Final Sat.:	1805	3244	319		1805	3055	482		1805	3989	1037		1805	4041	991	
Capacity Analysis Module:																
Vol/Sat:	0.03	0.20	0.20		0.21	0.19	0.19		0.01	0.18	0.18		0.01	0.14	0.14	
Crit Moves:		****			****					****			****			
Green/Cycle:	0.15	0.25	0.25		0.26	0.36	0.36		0.11	0.23	0.23		0.08	0.20	0.46	
Volume/Cap:	0.22	0.80	0.80		0.80	0.51	0.51		0.05	0.80	0.80		0.19	0.72	0.31	
Delay/Veh:	33.9	36.6	36.6		40.5	22.7	22.7		36.1	36.9	36.9		39.5	36.2	15.4	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	33.9	36.6	36.6		40.5	22.7	22.7		36.1	36.9	36.9		39.5	36.2	15.4	
LOS by Move:	C	D	D		D	C	C		D	D	D		D	D	B	
HCM2kAvgQ:	2	12	12		12	8	8		0	11	11		1	8	5	

Note: Queue reported is the number of cars per lane.

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Cumulative AM              Tue Apr 8, 2008 16:22:00                 Page 15-1
-------------------------------------------------------------------------------
                        Weston Ranch Towne Center EIR
                          Future 2035 With Project
                               AM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
*******************************************************************************
Intersection #11 French Camp/McDougald
*******************************************************************************
Cycle (sec):          90                 Critical Vol./Cap.(X):         0.676
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        26.2
Optimal Cycle:        55                 Level Of Service:                 C
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected         Permitted
Rights:           Include          Include          Include           Include
Min. Green:     7   10   10     7   10   10     7   10   10     7   10   10
Lanes:        0  0  0  0  0    1  0  0  0  1    1  0  3  0  0    0  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0    0   611    0   60   160  982    0    0  656  104
Growth Adj:  1.00 1.00 1.00 1.00 1.00 1.00  1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:    0    0    0   611    0   60   160  982    0    0  656  104
Added Vol:      0    0    0     8    0    0     0   34    0    0   20    5
PasserByVol:    0    0    0     0    0    0     0    0    0    0    0    0
Initial Fut:    0    0    0   619    0   60   160 1016    0    0  676  109
User Adj:    1.00 1.00 1.00 1.00 1.00 1.00  1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00 1.00 1.00 1.00  1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume:     0    0    0   619    0   60   160 1016    0    0  676  109
Reduct Vol:     0    0    0     0    0    0     0    0    0    0    0    0
Reduced Vol:    0    0    0   619    0   60   160 1016    0    0  676  109
PCE Adj:     1.00 1.00 1.00 1.00 1.00 1.00  1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj:     1.00 1.00 1.00 1.00 1.00 1.00  1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume:    0    0    0   619    0   60   160 1016    0    0  676  109
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900 1900 1900 1900 1900  1900 1900 1900 1900 1900 1900
Adjustment:  1.00 1.00 1.00 0.95 1.00 0.85  0.95 0.91 1.00 1.00 0.89 0.89
Lanes:       0.00 0.00 0.00 1.00 0.00 1.00  1.00 3.00 0.00 0.00 2.58 0.42
Final Sat.:     0    0    0 1805    0 1615  1805 5187    0    0 4373  705
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00 0.00 0.34 0.00 0.04  0.09 0.20 0.00 0.00 0.15 0.15
Crit Moves:                 ****                ****                ****
Green/Cycle: 0.00 0.00 0.00 0.51 0.00 0.51  0.13 0.36 0.00 0.00 0.23 0.23
Volume/Cap:  0.00 0.00 0.00 0.68 0.00 0.07  0.68 0.54 0.00 0.00 0.68 0.68
Delay/Veh:    0.0  0.0  0.0 18.7  0.0 11.4  44.9 23.3  0.0  0.0 33.3 33.3
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00  1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh:   0.0  0.0  0.0 18.7  0.0 11.4  44.9 23.3  0.0  0.0 33.3 33.3
LOS by Move:    A    A    A    B    A    B     D    C    A    A    C    C
HCM2kAvgQ:      0    0    0   14    0    1     6    9    0    0    8    8
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************

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CORSIM LEVEL OF SERVICE REPORT

Project: *Weston Ranch Alternatives Analysis* **HCM:** *2000*
Scenario: *2035 With Project* **# of Runs:** *10*
TOD: *AM* **Analysis Period:** *Hourly* **PHF:** *1*

Intersection: *French Camp Road & Original Manthey* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	117	119	101	9	66.3	E	10.5
	T	25	28	112	4	55.9	E	10.7
	R	210	207	99	9	11.1	B	0.7
	Subtotal	**352**	**354**	**101**	**--**	**33.2**	**C**	**--**
SB	L	128	131	102	4	57.5	E	2.6
	T	17	17	100	3	67.3	E	12.2
	R	14	12	86	3	14.9	B	7.7
	Subtotal	**159**	**160**	**101**	**--**	**55.3**	**E**	**--**
EB	L	35	41	117	6	65.8	E	7.8
	T	1571	1544	98	24	19.3	B	1.6
	R	403	405	100	20	25.7	C	3.3
	Subtotal	**2009**	**1990**	**99**	**--**	**21.6**	**C**	**--**
WB	L	300	335	112	37	53.8	D	5.9
	T	1001	1072	107	47	10.9	B	1.7
	R	146	156	107	13	5.6	A	0.5
	Subtotal	**1447**	**1563**	**108**	**--**	**19.6**	**B**	**--**
	Total	**3967**	**4068**	**103**	**--**	**23.1**	**C**	**--**

Intersection: *French Camp Road & I-5 SB Ramps* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	1430	1440	101	26	32.2	C	1.9
	R	510	510	100	24	33.2	C	2.4
	Subtotal	**1940**	**1950**	**101**	**--**	**32.5**	**C**	**--**
EB	T	1171	1140	97	21	20.3	C	2.5
	R	738	748	101	18	11.7	B	0.6
	Subtotal	**1909**	**1888**	**99**	**--**	**16.9**	**B**	**--**
WB	T	100	1046	1046	24	19.1	B	2.1
	Subtotal	**100**	**1046**	**1046**	**--**	**19.1**	**B**	**--**
	Total	**3949**	**4884**	**124**	**--**	**23.6**	**C**	**--**

CORSIM LEVEL OF SERVICE REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2035 With Project **# of Runs:** 10
TOD: AM **Analysis Period:** Hourly **PHF:** 1

Intersection: French Camp Road & I-5 NB Ramps **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	311	307	99	9	44.7	D	2.8
	R	1120	1118	100	11	6.4	A	0.2
	Subtotal	**1431**	**1426**	**100**	**--**	**14.7**	**B**	**--**
EB	T	100	1736	1736	31	6.7	A	0.8
	Subtotal	**100**	**1736**	**1736**	**--**	**6.7**	**A**	**--**
WB	T	3202	3196	100	26	11.4	B	0.9
	Subtotal	**3202**	**3196**	**100**	**--**	**11.4**	**B**	**--**
	Total	**4733**	**6358**	**134**	**--**	**10.8**	**B**	**--**

Intersection: French Camp Road & Val Dervin Parkway **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	823	815	99	16	52.2	D	2.2
	T	80	71	88	11	39.9	D	7.8
	R	60	58	97	10	26.1	C	5.9
	Subtotal	**963**	**944**	**98**	**--**	**49.7**	**D**	**--**
SB	L	80	71	89	5	60.4	E	7.6
	T	70	73	104	10	70.4	E	13.2
	R	565	576	102	9	56.5	E	6.8
	Subtotal	**715**	**721**	**101**	**--**	**58.3**	**E**	**--**
EB	L	334	331	99	19	58.9	E	5.4
	T	2225	2234	100	28	41.0	D	1.6
	R	304	307	101	16	11.0	B	1.0
	Subtotal	**2863**	**2871**	**100**	**--**	**39.9**	**D**	**--**
WB	L	180	191	106	16	98.5	F	18.6
	T	1814	1813	100	16	68.2	E	10.7
	R	30	20	67	4	44.5	D	13.7
	Subtotal	**2024**	**2024**	**100**	**--**	**70.8**	**E**	**--**
	Total	**6565**	**6559**	**100**	**--**	**52.8**	**D**	**--**

CORSIM LEVEL OF SERVICE REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2035 With Project **# of Runs:** 10
TOD: AM **Analysis Period:** Hourly **PHF:** 1

Intersection: French Camp Road & Realigned Manthey **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	660	656	99	9	33.2	C	1.1
	R	42	45	107	7	6.2	A	1.1
	Subtotal	**702**	**701**	**100**	**--**	**31.5**	**C**	**--**
EB	L	86	85	99	9	39.4	D	3.8
	T	1349	1348	100	8	7.0	A	0.3
	Subtotal	**1435**	**1433**	**100**	**--**	**8.9**	**A**	**--**
WB	T	921	964	105	29	13.6	B	1.5
	R	211	226	107	23	14.2	B	2.4
	Subtotal	**1132**	**1190**	**105**	**--**	**13.7**	**B**	**--**
	Total	**3269**	**3325**	**102**	**--**	**15.4**	**B**	**--**

CORSIM QUEUING REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2035 With Project **PHF:** 1
TOD: AM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: French Camp Road & Original Manthey **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	198	--	42	50	--	0
	T	1000	90	--	21	5	--	11
	R	300	115	--	13	15	--	13
SB	L	500	83	--	12	25	--	0
	T	1000	53	--	14	0	--	0
EB	L	200	108	--	24	25	--	0
	T	700	568	--	62	128	--	18
WB	L	400	248	--	32	60	--	13
	T	800	245	--	28	25	--	0
	R	400	53	--	8	0	--	0

Intersection: French Camp Road & I-5 SB Ramps **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	500	423	--	22	115	--	13
	T	1000	398	--	32	108	--	12
	R	500	333	--	29	78	--	8
EB	T	800	428	--	40	68	--	17
	R	600	248	--	69	8	--	12
WB	T	350	375	Yes	31	73	--	8

CORSIM QUEUING REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2035 With Project **PHF:** 1
TOD: AM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: French Camp Road & I-5 NB Ramps **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	200	--	17	50	--	0
	R	999	153	--	25	0	--	0
EB	T	450	240	--	32	25	--	0
WB	T	600	443	--	39	95	--	11

Intersection: French Camp Road & Val Dervin Parkway **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	403	Yes	48	153	--	8
	T	988	178	--	22	25	--	0
SB	L	350	145	--	31	25	--	0
	T	977	293	--	89	53	--	18
	R	300	398	Yes	8	185	--	17
EB	L	300	365	Yes	17	118	--	12
	T	600	550	--	67	168	--	12
	R	400	135	--	39	0	--	0
WB	L	200	258	Yes	17	85	--	17
	T	2350	803	--	171	340	--	93
	R	200	55	--	16	0	--	0

CORSIM QUEUING REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2035 With Project **PHF:** 1
TOD: AM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: French Camp Road & Realigned Manthey **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	150	218	Yes	12	75	--	0
	R	979	43	--	17	0	--	0
EB	L	150	140	--	21	25	--	0
	T	950	158	--	17	25	--	0
WB	T	700	268	--	29	28	--	8

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Cumulative AM              Tue Apr 8, 2008 16:22:00                 Page 16-1
-------------------------------------------------------------------------------
                         Weston Ranch Towne Center EIR
                           Future 2035 With Project
                                 AM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Operations Method (Future Volume Alternative)
*******************************************************************************
Intersection #16 Yettner/Manthey
*******************************************************************************
Cycle (sec):          60                Critical Vol./Cap.(X):         0.505
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):        19.9
Optimal Cycle:        50                Level Of Service:                 B
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     7   10    10     7   10    10     7   10    10     7   10    10
Lanes:        1  0  1  1  0    1  0  1  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      60  207    50    50  410   230   110   50    60    50  100    50
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   60  207    50    50  410   230   110   50    60    50  100    50
Added Vol:      0   33     0     0   20     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   60  240    50    50  430   230   110   50    60    50  100    50
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    60  240    50    50  430   230   110   50    60    50  100    50
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   60  240    50    50  430   230   110   50    60    50  100    50
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   60  240    50    50  430   230   110   50    60    50  100    50
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.93  0.93  0.95 0.90  0.90  0.95 0.92  0.92  0.95 0.95  0.95
Lanes:       1.00 1.66  0.34  1.00 1.30  0.70  1.00 0.45  0.55  1.00 0.67  0.33
Final Sat.:  1805 2910   606  1805 2230  1193  1805  793   951  1805 1203   602
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.08  0.08  0.03 0.19  0.19  0.06 0.06  0.06  0.03 0.08  0.08
Crit Moves:  ****                 ****        ****                ****
Green/Cycle: 0.12 0.26  0.26  0.19 0.33  0.33  0.12 0.17  0.17  0.12 0.17  0.17
Volume/Cap:  0.28 0.31  0.31  0.15 0.58  0.58  0.52 0.38  0.38  0.24 0.50  0.50
Delay/Veh:   25.0 17.9  17.9  20.7 17.3  17.3  27.3 23.1  23.1  24.7 24.0  24.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  25.0 17.9  17.9  20.7 17.3  17.3  27.3 23.1  23.1  24.7 24.0  24.0
LOS by Move:   C    B     B     C    B     B     C    C     C     C    C     C
HCM2kAvgQ:     1    2     2     1    6     6     3    2     2     1    3     3
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************

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HCM Signalized Intersection Capacity Analysis
17: Mathews Rd. & Manthey Rd.

2035 Cumulative With Project
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.86		1.00	0.86	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.94		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	6386		1770	6408	1583	1770	3335		1770	3236	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	6386		1770	6408	1583	1770	3335		1770	3236	
Volume (vph)	119	2180	50	80	1750	136	90	271	170	124	60	80
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	119	2180	50	80	1750	136	90	271	170	124	60	80
RTOR Reduction (vph)	0	2	0	0	0	71	0	94	0	0	73	0
Lane Group Flow (vph)	119	2228	0	80	1750	65	90	347	0	124	67	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	15.9	65.3		7.8	57.2	57.2	19.7	18.6		12.3	11.2	
Effective Green, g (s)	15.9	65.3		7.8	57.2	57.2	19.7	18.6		12.3	11.2	
Actuated g/C Ratio	0.13	0.54		0.06	0.48	0.48	0.16	0.16		0.10	0.09	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	235	3475		115	3054	755	291	517		181	302	
v/s Ratio Prot	0.07	c0.35		c0.05	0.27		0.05	c0.10		c0.07	0.02	
v/s Ratio Perm						0.04						
v/c Ratio	0.51	0.64		0.70	0.57	0.09	0.31	0.67		0.69	0.22	
Uniform Delay, d1	48.4	19.1		54.9	22.6	17.1	44.2	47.8		52.0	50.4	
Progression Factor	1.00	1.00		1.06	0.37	0.33	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	0.9		15.3	0.7	0.2	0.6	3.4		10.2	0.4	
Delay (s)	50.1	20.1		73.4	9.1	5.9	44.8	51.2		62.2	50.7	
Level of Service	D	C		E	A	A	D	D		E	D	
Approach Delay (s)		21.6			11.5			50.1			56.1	
Approach LOS		C			B			D			E	

Intersection Summary			
HCM Average Control Delay	22.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
18: Mathews Rd. & I-5 Sb Ramps

2035 Cumulative With Project
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0		4.0
Lane Util. Factor		0.91	1.00	1.00	0.95					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		5085	1583	1770	3539					3433		2787
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		5085	1583	1770	3539					3433		2787
Volume (vph)	0	2060	414	400	1506	0	0	0	0	400	0	460
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	2060	414	400	1506	0	0	0	0	400	0	460
RTOR Reduction (vph)	0	0	168	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2060	246	400	1506	0	0	0	0	400	0	460
Turn Type			Perm	Prot						Prot		Free
Protected Phases		4		3	8					1		
Permitted Phases			4									Free
Actuated Green, G (s)		60.7	60.7	30.2	94.9					17.1		120.0
Effective Green, g (s)		60.7	60.7	30.2	94.9					17.1		120.0
Actuated g/C Ratio		0.51	0.51	0.25	0.79					0.14		1.00
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0		
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		
Lane Grp Cap (vph)		2572	801	445	2799					489		2787
v/s Ratio Prot		c0.41		c0.23	0.43					c0.12		
v/s Ratio Perm			0.16									0.17
v/c Ratio		0.80	0.31	0.90	0.54					0.82		0.17
Uniform Delay, d1		24.6	17.4	43.4	4.6					49.9		0.0
Progression Factor		0.45	0.20	0.97	0.53					1.00		1.00
Incremental Delay, d2		2.2	0.8	2.5	0.1					10.2		0.1
Delay (s)		13.3	4.2	44.8	2.5					60.2		0.1
Level of Service		B	A	D	A					E		A
Approach Delay (s)		11.8			11.4			0.0			28.1	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	14.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	107.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
19: Mathews Rd. & I-5 NB Ramps

2035 Cumulative With Project
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Util. Factor	0.97	0.95			0.95	1.00	0.97		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	3433	3539			3539	1583	3433		1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	3433	3539			3539	1583	3433		1583			
Volume (vph)	1330	1130	0	0	1206	340	701	0	840	0	0	0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1330	1130	0	0	1206	340	701	0	840	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	177	0	0	0	0	0	0
Lane Group Flow (vph)	1330	1130	0	0	1206	163	701	0	840	0	0	0
Turn Type	Prot					Perm	Prot		Free			
Protected Phases	7	4			8		5					
Permitted Phases						8			Free			
Actuated Green, G (s)	45.0	88.0			39.0	39.0	24.0		120.0			
Effective Green, g (s)	45.0	88.0			39.0	39.0	24.0		120.0			
Actuated g/C Ratio	0.38	0.73			0.32	0.32	0.20		1.00			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0					
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0					
Lane Grp Cap (vph)	1287	2595			1150	514	687		1583			
v/s Ratio Prot	c0.39	0.32			c0.34		c0.20					
v/s Ratio Perm						0.10			0.53			
v/c Ratio	1.03	0.44			1.05	0.32	1.02		0.53			
Uniform Delay, d1	37.5	6.3			40.5	30.5	48.0		0.0			
Progression Factor	0.65	0.63			1.00	1.00	1.00		1.00			
Incremental Delay, d2	28.3	0.3			40.3	1.6	39.6		1.3			
Delay (s)	52.6	4.2			80.8	32.1	87.6		1.3			
Level of Service	D	A			F	C	F		A			
Approach Delay (s)		30.4			70.1			40.5			0.0	
Approach LOS		C			E			D			A	

Intersection Summary			
HCM Average Control Delay	44.3	HCM Level of Service	D
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	107.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			


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Cumulative AM              Tue Apr 8, 2008 16:22:00                  Page 17-1
-------------------------------------------------------------------------------
                         Weston Ranch Towne Center EIR
                           Future 2035 With Project
                                AM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM Operations Method (Future Volume Alternative)
*******************************************************************************
Intersection #20 Howard/Wolfe
*******************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):          0.937
Loss Time (sec):        0 (Y+R=4.0 sec)  Average Delay (sec/veh):         44.0
Optimal Cycle:        120                Level Of Service:                    D
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     7   10    10     7   10    10     7   10    10     7   10    10
Lanes:        1  0  2  0  1    1  0  2  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      60  220   870   100  300    69    48  388    60   390  289    70
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   60  220   870   100  300    69    48  388    60   390  289    70
Added Vol:      0    0     0     0    0     2     3    1     0     0    1     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   60  220   870   100  300    71    51  389    60   390  290    70
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    60  220   870   100  300    71    51  389    60   390  290    70
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   60  220   870   100  300    71    51  389    60   390  290    70
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   60  220   870   100  300    71    51  389    60   390  290    70
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.95  0.85  0.95 0.95  0.85  0.95 0.93  0.93  0.95 0.92  0.92
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 1.73  0.27  1.00 1.61  0.39
Final Sat.:  1805 3610  1615  1805 3610  1615  1805 3065   473  1805 2824   682
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.06  0.54  0.06 0.08  0.04  0.03 0.13  0.13  0.22 0.10  0.10
Crit Moves:                ****  ****                  ****        ****
Green/Cycle: 0.26 0.57  0.57  0.07 0.38  0.38  0.15 0.13  0.13  0.23 0.22  0.22
Volume/Cap:  0.13 0.11  0.95  0.79 0.22  0.12  0.19 0.95  0.95  0.95 0.48  0.48
Delay/Veh:   28.2  9.9  38.6  73.6 21.4  20.5  37.8 71.6  71.6  69.3 34.8  34.8
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  28.2  9.9  38.6  73.6 21.4  20.5  37.8 71.6  71.6  69.3 34.8  34.8
LOS by Move:   C    A     D     E    C     C     D    E     E     E    C     C
HCM2kAvgQ:      1    2    30     5    3     1     1   11    11    16    5     5
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************

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Weston Ranch Towne Center EIR
Future 2035 With Project
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 French Camp Road/Secondary Driveway

Cycle (sec): 120 Critical Vol./Cap.(X): 0.498
Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 24.2
Optimal Cycle: 49 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Ovl			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	0 0	0	0	0	2 0	0	0	1	1 0	3	0	0	0 0	3	0	1
Volume Module:																
Base Vol:	0	0	0	490	0	20	40	1352	0	0	918	60				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	0	0	0	490	0	20	40	1352	0	0	918	60				
Added Vol:	0	0	0	151	0	17	27	16	0	0	8	146				
Pass-by:	0	0	0	19	0	5	19	-19	0	0	-5	5				
Initial Fut:	0	0	0	660	0	42	86	1349	0	0	921	211				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Volume:	0	0	0	660	0	42	86	1349	0	0	921	211				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
Reduced Vol:	0	0	0	660	0	42	86	1349	0	0	921	211				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
FinalVolume:	0	0	0	660	0	42	86	1349	0	0	921	211				
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Adjustment:	1.00	1.00	1.00	0.92	1.00	0.85	0.95	0.91	1.00	1.00	0.91	0.85				
Lanes:	0.00	0.00	0.00	2.00	0.00	1.00	1.00	3.00	0.00	0.00	3.00	1.00				
Final Sat.:	0	0	0	3502	0	1615	1805	5187	0	0	5187	1615				
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00	0.19	0.00	0.03	0.05	0.26	0.00	0.00	0.18	0.13				
Crit Moves:				****				****		****						
Green/Cycle:	0.00	0.00	0.00	0.35	0.00	0.35	0.14	0.49	0.00	0.00	0.41	0.76				
Volume/Cap:	0.00	0.00	0.00	0.53	0.00	0.07	0.35	0.53	0.00	0.00	0.43	0.17				
Delay/Veh:	0.0	0.0	0.0	31.3	0.0	25.8	48.0	21.5	0.0	0.0	25.4	3.9				
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
AdjDel/Veh:	0.0	0.0	0.0	31.3	0.0	25.8	48.0	21.5	0.0	0.0	25.4	3.9				
LOS by Move:	A	A	A	C	A	C	D	C	A	A	C	A				
HCM2kAvgQ:	0	0	0	10	0	1	3	13	0	0	9	2				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Scenario Report

Scenario:	Cumulative PM
Command:	Cumulative PM
Volume:	Cumulative PM
Geometry:	Cumulative
Impact Fee:	Default Impact Fee
Trip Generation:	Project PM
Trip Distribution:	Peak Hour
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Carolyn Weston/McDougald

Cycle (sec): 120 Critical Vol./Cap.(X): 0.859
Loss Time (sec): 16 (Y+R=4.0 sec) Average Delay (sec/veh): 41.8
Optimal Cycle: 111 Level Of Service: D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	1	0	1	1 0	0	1	0	1 0	1	1	0	1 0	1	1	0
Volume Module:																
Base Vol:	153	60	293		100	60	20		60	1063	73		313	923	70	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	153	60	293		100	60	20		60	1063	73		313	923	70	
Added Vol:	12	0	5		0	0	0		0	24	11		5	27	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	165	60	298		100	60	20		60	1087	84		318	950	70	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	165	60	298		100	60	20		60	1087	84		318	950	70	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	165	60	298		100	60	20		60	1087	84		318	950	70	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	165	60	298		100	60	20		60	1087	84		318	950	70	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	0.85		0.95	0.96	0.96		0.95	0.94	0.94		0.95	0.94	0.94	
Lanes:	1.00	1.00	1.00		1.00	0.75	0.25		1.00	1.86	0.14		1.00	1.86	0.14	
Final Sat.:	1805	1900	1615		1805	1372	457		1805	3314	256		1805	3329	245	
Capacity Analysis Module:																
Vol/Sat:	0.09	0.03	0.18		0.06	0.04	0.04		0.03	0.33	0.33		0.18	0.29	0.29	
Crit Moves:			****		****					****			****			
Green/Cycle:	0.15	0.21	0.21		0.06	0.13	0.13		0.10	0.38	0.38		0.21	0.49	0.49	
Volume/Cap:	0.63	0.15	0.86		0.86	0.33	0.33		0.33	0.86	0.86		0.86	0.59	0.59	
Delay/Veh:	52.8	38.4	64.2		98.8	47.9	47.9		51.4	39.8	39.8		63.8	22.6	22.6	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	52.8	38.4	64.2		98.8	47.9	47.9		51.4	39.8	39.8		63.8	22.6	22.6	
LOS by Move:	D	D	E		F	D	D		D	D	D		E	C	C	
HCM2kAvgQ:	7	2	13		6	3	3		2	23	23		14	14	14	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #2 Carolyn Weston/S. Manthey

Cycle (sec): 120 Critical Vol./Cap.(X): 0.813
Loss Time (sec): 16 (Y+R=4.0 sec) Average Delay (sec/veh): 44.6
Optimal Cycle: 96 Level Of Service: D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Ovl				Ovl				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	2	0	1	1 0	2	0	1	1 0	1	1	0	2 0	1	1	0
Volume Module:																
Base Vol:	233	140	219		240	120	220		250	1123	83		469	853	200	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	233	140	219		240	120	220		250	1123	83		469	853	200	
Added Vol:	27	0	182		0	0	0		0	5	24		164	5	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	260	140	401		240	120	220		250	1128	107		633	858	200	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	260	140	401		240	120	220		250	1128	107		633	858	200	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	260	140	401		240	120	220		250	1128	107		633	858	200	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	260	140	401		240	120	220		250	1128	107		633	858	200	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.95	0.85		0.95	0.95	0.85		0.95	0.94	0.94		0.92	0.92	0.92	
Lanes:	1.00	2.00	1.00		1.00	2.00	1.00		1.00	1.83	0.17		2.00	1.62	0.38	
Final Sat.:	1805	3610	1615		1805	3610	1615		1805	3254	309		3502	2846	663	
Capacity Analysis Module:																
Vol/Sat:	0.14	0.04	0.25		0.13	0.03	0.14		0.14	0.35	0.35		0.18	0.30	0.30	
Crit Moves:	****					****				****			****			
Green/Cycle:	0.17	0.10	0.31		0.15	0.08	0.28		0.19	0.40	0.40		0.21	0.42	0.42	
Volume/Cap:	0.86	0.40	0.81		0.86	0.40	0.49		0.72	0.86	0.86		0.86	0.72	0.72	
Delay/Veh:	69.3	51.7	47.7		72.2	53.0	37.2		52.2	37.9	37.9		55.4	30.4	30.4	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	69.3	51.7	47.7		72.2	53.0	37.2		52.2	37.9	37.9		55.4	30.4	30.4	
LOS by Move:	E	D	D		E	D	D		D	D	D		E	C	C	
HCM2kAvgQ:	12	3	16		11	3	7		10	24	24		14	18	18	

Note: Queue reported is the number of cars per lane.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.91	1.00	1.00	0.95						1.00	0.88
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539						1770	2787
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		5085	1583	1770	3539						1770	2787
Volume (vph)	0	1560	210	120	695	0	0	0	0	420	0	1015
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1560	210	120	695	0	0	0	0	420	0	1015
RTOR Reduction (vph)	0	0	122	0	0	0	0	0	0	0	0	238
Lane Group Flow (vph)	0	1560	88	120	695	0	0	0	0	0	420	777
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		33.6	33.6	8.1	45.7						26.3	26.3
Effective Green, g (s)		33.6	33.6	8.1	45.7						26.3	26.3
Actuated g/C Ratio		0.42	0.42	0.10	0.57						0.33	0.33
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		2136	665	179	2022						582	916
v/s Ratio Prot		c0.31		c0.07	0.20							
v/s Ratio Perm			0.06								0.24	c0.28
v/c Ratio		0.73	0.13	0.67	0.34						0.72	0.85
Uniform Delay, d1		19.4	14.2	34.7	9.1						23.6	25.0
Progression Factor		1.00	1.00	0.69	1.12						1.00	1.00
Incremental Delay, d2		2.2	0.4	4.4	0.2						4.4	7.4
Delay (s)		21.7	14.7	28.2	10.5						28.0	32.4
Level of Service		C	B	C	B						C	C
Approach Delay (s)		20.8			13.1			0.0			31.1	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	114.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Util. Factor	0.97	1.00			0.95			1.00	1.00			
Frt	1.00	1.00			0.93			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	3433	1863			3299			1770	1583			
Flt Permitted	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	3433	1863			3299			1770	1583			
Volume (vph)	1441	539	0	0	485	400	330	0	90	0	0	0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1441	539	0	0	485	400	330	0	90	0	0	0
RTOR Reduction (vph)	0	0	0	0	182	0	0	0	70	0	0	0
Lane Group Flow (vph)	1441	539	0	0	703	0	0	330	20	0	0	0
Turn Type	Prot						Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases							2		2			
Actuated Green, G (s)	32.0	54.4			18.4			17.6	17.6			
Effective Green, g (s)	32.0	54.4			18.4			17.6	17.6			
Actuated g/C Ratio	0.40	0.68			0.23			0.22	0.22			
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	1373	1267			759			389	348			
v/s Ratio Prot	c0.42	0.29			c0.21							
v/s Ratio Perm								0.19	0.01			
v/c Ratio	1.05	0.43			0.93			0.85	0.06			
Uniform Delay, d1	24.0	5.8			30.1			29.9	24.6			
Progression Factor	0.54	0.28			1.00			1.00	1.00			
Incremental Delay, d2	34.7	0.7			19.0			15.7	0.1			
Delay (s)	47.6	2.3			49.1			45.6	24.7			
Level of Service	D	A			D			D	C			
Approach Delay (s)		35.3			49.1			41.1			0.0	
Approach LOS		D			D			D			A	

Intersection Summary			
HCM Average Control Delay	39.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	114.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 Downing/Turnpike

Average Delay (sec/veh): 317.3 Worst Case Level Of Service: F[1458.1]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	1	0	0	1 0	1	0	0	1 0
Volume Module:																
Base Vol:	280	20	60	60	10	150	180	266	140	60	365	60				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	280	20	60	60	10	150	180	266	140	60	365	60				
Added Vol:	0	0	0	0	0	0	0	44	0	0	40	0				
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0				
Initial Fut:	280	20	60	60	10	150	180	310	140	60	405	60				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Volume:	280	20	60	60	10	150	180	310	140	60	405	60				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
FinalVolume:	280	20	60	60	10	150	180	310	140	60	405	60				
Critical Gap Module:																
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx				
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx				
Capacity Module:																
Cnflict Vol:	1375	1325	380	1335	1365	435	465	xxxx	xxxxx	450	xxxx	xxxxx				
Potent Cap.:	124	157	671	132	149	625	1107	xxxx	xxxxx	1121	xxxx	xxxxx				
Move Cap.:	74	125	671	89	118	625	1107	xxxx	xxxxx	1121	xxxx	xxxxx				
Volume/Cap:	3.78	0.16	0.09	0.67	0.08	0.24	0.16	xxxx	xxxx	0.05	xxxx	xxxx				
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.6	xxxx	xxxxx	0.2	xxxx	xxxxx				
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.9	xxxx	xxxxx	8.4	xxxx	xxxxx				
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*				
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	89	xxxxx	xxxx	220	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
SharedQueue:	xxxxx	37.4	xxxxx	xxxxx	9.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
Shrd ConDel:	xxxxx	1458	xxxxx	xxxxx	107	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
Shared LOS:	*	F	*	*	F	*	*	*	*	*	*	*				
ApproachDel:	1458.1			106.8			xxxxxx			xxxxxx						
ApproachLOS:	F			F			*			*						

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 William Moss/McDougald

Cycle (sec): 60 Critical Vol./Cap.(X): 0.577
Loss Time (sec): 16 (Y+R=4.0 sec) Average Delay (sec/veh): 23.3
Optimal Cycle: 50 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	1	1 0	1	0	1	1 0	1	0	1	1 0	1	0	1	1 0
Volume Module:																
Base Vol:	43	673	160		123	233	460		30	150	53		80	150	43	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	43	673	160		123	233	460		30	150	53		80	150	43	
Added Vol:	12	5	0		11	5	0		0	13	11		0	15	12	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	55	678	160		134	238	460		30	163	64		80	165	55	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	55	678	160		134	238	460		30	163	64		80	165	55	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	55	678	160		134	238	460		30	163	64		80	165	55	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	55	678	160		134	238	460		30	163	64		80	165	55	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.92	0.92		0.95	0.86	0.86		0.95	0.91	0.91		0.95	0.91	0.91	
Lanes:	1.00	1.62	0.38		1.00	1.00	1.00		1.00	1.44	0.56		1.00	1.50	0.50	
Final Sat.:	1805	2836	669		1805	1626	1626		1805	2483	975		1805	2607	869	
Capacity Analysis Module:																
Vol/Sat:	0.03	0.24	0.24		0.07	0.15	0.28		0.02	0.07	0.07		0.04	0.06	0.06	
Crit Moves:	****						****			****			****			
Green/Cycle:	0.12	0.30	0.30		0.15	0.33	0.33		0.12	0.17	0.17		0.12	0.17	0.17	
Volume/Cap:	0.26	0.79	0.79		0.50	0.44	0.85		0.14	0.39	0.39		0.38	0.38	0.38	
Delay/Veh:	24.8	23.3	23.3		25.1	15.8	26.9		24.1	22.7	22.7		25.6	22.7	22.7	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	24.8	23.3	23.3		25.1	15.8	26.9		24.1	22.7	22.7		25.6	22.7	22.7	
LOS by Move:	C	C	C		C	B	C		C	C	C		C	C	C	
HCM2kAvgQ:	1	10	10		3	4	12		1	2	2		2	2	2	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 William Moss/S. Manthey

Cycle (sec): 60 | Critical Vol./Cap.(X): 0.485
Loss Time (sec): 12 (Y+R=4.0 sec) | Average Delay (sec/veh): 24.3
Optimal Cycle: 46 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Permitted				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	2	0 0	0	0	1	1 0	1	0	0	0 1	0	0	0	0 0
Volume Module:																
Base Vol:	113	312	0	0	241	130	270	0	163	0	0	0				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	113	312	0	0	241	130	270	0	163	0	0	0				
Added Vol:	27	209	0	0	188	0	0	0	24	0	0	0				
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0				
Initial Fut:	140	521	0	0	429	130	270	0	187	0	0	0				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Volume:	140	521	0	0	429	130	270	0	187	0	0	0				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
Reduced Vol:	140	521	0	0	429	130	270	0	187	0	0	0				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
FinalVolume:	140	521	0	0	429	130	270	0	187	0	0	0				
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Adjustment:	0.95	0.95	1.00	1.00	0.92	0.92	0.95	1.00	0.85	1.00	1.00	1.00				
Lanes:	1.00	2.00	0.00	0.00	1.53	0.47	1.00	0.00	1.00	0.00	0.00	0.00				
Final Sat.:	1805	3610	0	0	2673	810	1805	0	1615	0	0	0				
Capacity Analysis Module:																
Vol/Sat:	0.08	0.14	0.00	0.00	0.16	0.16	0.15	0.00	0.12	0.00	0.00	0.00				
Crit Moves:	****				****		****									
Green/Cycle:	0.16	0.49	0.00	0.00	0.33	0.33	0.31	0.00	0.11	0.00	0.00	0.00				
Volume/Cap:	0.48	0.29	0.00	0.00	0.48	0.48	0.48	0.00	1.02	0.00	0.00	0.00				
Delay/Veh:	24.2	9.2	0.0	0.0	16.3	16.3	17.5	0.0	99.8	0.0	0.0	0.0				
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
AdjDel/Veh:	24.2	9.2	0.0	0.0	16.3	16.3	17.5	0.0	99.8	0.0	0.0	0.0				
LOS by Move:	C	A	A	A	B	B	B	A	F	A	A	A				
HCM2kAvgQ:	3	3	0	0	5	5	5	0	8	0	0	0				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 McDougald/Henry Long

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.555
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): 13.6
Optimal Cycle: 0 | Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	1	1 0	1	0	1	1 0	1	0	0	1 0	1	0	0	1 0
Volume Module:																
Base Vol:	100	606	20	20	106	100	90	10	160	10	10	10				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	100	606	20	20	106	100	90	10	160	10	10	10				
Added Vol:	5	17	0	0	16	0	0	0	4	0	0	0				
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0				
Initial Fut:	105	623	20	20	122	100	90	10	164	10	10	10				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Volume:	105	623	20	20	122	100	90	10	164	10	10	10				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
Reduced Vol:	105	623	20	20	122	100	90	10	164	10	10	10				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
FinalVolume:	105	623	20	20	122	100	90	10	164	10	10	10				
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Lanes:	1.00	1.94	0.06	1.00	1.10	0.90	1.00	0.06	0.94	1.00	0.50	0.50				
Final Sat.:	530	1122	36	453	540	479	466	32	519	427	238	238				
Capacity Analysis Module:																
Vol/Sat:	0.20	0.56	0.55	0.04	0.23	0.21	0.19	0.32	0.32	0.02	0.04	0.04				
Crit Moves:		****			****				****		****					
Delay/Veh:	10.9	15.9	15.8	10.6	11.6	10.7	11.7	11.5	11.5	10.7	9.9	9.9				
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
AdjDel/Veh:	10.9	15.9	15.8	10.6	11.6	10.7	11.7	11.5	11.5	10.7	9.9	9.9				
LOS by Move:	B	C	C	B	B	B	B	B	B	B	A	A				
ApproachDel:	15.2				11.1			11.6			10.2					
Delay Adj:	1.00				1.00			1.00			1.00					
ApprAdjDel:	15.2				11.1			11.6			10.2					
LOS by Appr:	C				B			B			B					
AllWayAvgQ:	0.2	1.1	1.1	0.0	0.3	0.2	0.2	0.4	0.4	0.0	0.0	0.0				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #10 French Camp/Wolfe

Cycle (sec): 90 | Critical Vol./Cap.(X): 0.724
Loss Time (sec): 16 (Y+R=4.0 sec) | Average Delay (sec/veh): 31.2
Optimal Cycle: 70 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Ovl			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	1	1	0	1 0	1	1	0	1 0	2	1	0	1 0	2	1	0
Volume Module:																
Base Vol:	120	660	125		213	700	60		60	423	60		146	623	333	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	120	660	125		213	700	60		60	423	60		146	623	333	
Added Vol:	0	0	47		16	0	0		0	20	0		50	22	17	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	120	660	172		229	700	60		60	443	60		196	645	350	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	120	660	172		229	700	60		60	443	60		196	645	350	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	120	660	172		229	700	60		60	443	60		196	645	350	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	120	660	172		229	700	60		60	443	60		196	645	350	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.92	0.92		0.95	0.94	0.94		0.95	0.89	0.89		0.95	0.86	0.86	
Lanes:	1.00	1.59	0.41		1.00	1.84	0.16		1.00	2.64	0.36		1.00	2.00	1.00	
Final Sat.:	1805	2775	723		1805	3285	282		1805	4486	608		1805	3275	1637	
Capacity Analysis Module:																
Vol/Sat:	0.07	0.24	0.24		0.13	0.21	0.21		0.03	0.10	0.10		0.11	0.20	0.21	
Crit Moves:		****			****				****					****		
Green/Cycle:	0.13	0.32	0.32		0.17	0.35	0.35		0.08	0.17	0.17		0.17	0.26	0.43	
Volume/Cap:	0.51	0.75	0.75		0.75	0.60	0.60		0.43	0.58	0.58		0.65	0.75	0.50	
Delay/Veh:	38.5	30.7	30.7		45.9	24.7	24.7		41.7	35.2	35.2		39.9	33.1	18.8	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	38.5	30.7	30.7		45.9	24.7	24.7		41.7	35.2	35.2		39.9	33.1	18.8	
LOS by Move:	D	C	C		D	C	C		D	D	D		D	C	B	
HCM2kAvgQ:	4	13	13		8	10	10		2	6	6		6	11	8	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 French Camp/McDougald

Cycle (sec): 90 | Critical Vol./Cap.(X): 0.569
Loss Time (sec): 12 (Y+R=4.0 sec) | Average Delay (sec/veh): 16.4
Optimal Cycle: 49 | Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Split Phase				Split Phase				Protected				Permitted			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	0 0	0	0	0	1 0	0	0	1	1 0	3	0	0	0 0	2	1	0
Volume Module:																
Base Vol:	0	0	0		156	0	250		40	721	0		0	852	406	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		156	0	250		40	721	0		0	852	406	
Added Vol:	0	0	0		20	0	0		0	82	0		0	89	22	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		176	0	250		40	803	0		0	941	428	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92	
PHF Volume:	0	0	0		191	0	272		43	873	0		0	1023	465	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		191	0	272		43	873	0		0	1023	465	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	0	0	0		191	0	272		43	873	0		0	1023	465	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	1.00	1.00	1.00		0.95	1.00	0.85		0.95	0.91	1.00		1.00	0.87	0.87	
Lanes:	0.00	0.00	0.00		1.00	0.00	1.00		1.00	3.00	0.00		0.00	2.06	0.94	
Final Sat.:	0	0	0		1805	0	1615		1805	5187	0		0	3398	1545	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.11	0.00	0.17		0.02	0.17	0.00		0.00	0.30	0.30	
Crit Moves:							****		****					****		
Green/Cycle:	0.00	0.00	0.00		0.28	0.00	0.28		0.08	0.58	0.00		0.00	0.51	0.51	
Volume/Cap:	0.00	0.00	0.00		0.37	0.00	0.59		0.31	0.29	0.00		0.00	0.59	0.59	
Delay/Veh:	0.0	0.0	0.0		26.3	0.0	29.9		40.5	9.4	0.0		0.0	16.1	16.1	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		26.3	0.0	29.9		40.5	9.4	0.0		0.0	16.1	16.1	
LOS by Move:	A	A	A		C	A	C		D	A	A		A	B	B	
HCM2kAvgQ:	0	0	0		4	0	7		1	4	0		0	11	11	

Note: Queue reported is the number of cars per lane.

CORSIM LEVEL OF SERVICE REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2035 With Project **# of Runs:** 10
TOD: PM **Analysis Period:** Hourly **PHF:** 1

Intersection: French Camp Road & Original Manthey **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	369	378	102	11	56.4	E	3.8
	T	60	58	97	5	58.5	E	7.3
	R	330	330	100	12	17.6	B	0.8
	Subtotal	**759**	**766**	**101**	**--**	**39.8**	**D**	**--**
SB	L	393	399	102	9	48.8	D	1.6
	T	64	64	100	5	55.9	E	7.0
	R	65	65	100	6	37.1	D	4.9
	Subtotal	**522**	**527**	**101**	**--**	**48.2**	**D**	**--**
EB	L	54	60	111	5	61.3	E	9.9
	T	1258	1233	98	32	40.3	D	2.1
	R	112	113	100	13	45.4	D	5.9
	Subtotal	**1424**	**1405**	**99**	**--**	**41.6**	**D**	**--**
WB	L	520	580	112	33	56.1	E	2.8
	T	1888	1981	105	58	38.4	D	3.2
	R	396	418	106	28	12.0	B	1.4
	Subtotal	**2804**	**2979**	**106**	**--**	**38.1**	**D**	**--**
	Total	**5509**	**5677**	**103**	**--**	**40.1**	**D**	**--**

Intersection: French Camp Road & I-5 SB Ramps **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	1500	1524	102	25	36.0	D	1.0
	R	938	927	99	23	41.3	D	1.3
	Subtotal	**2438**	**2450**	**100**	**--**	**38.0**	**D**	**--**
EB	T	1395	1374	98	26	21.0	C	1.0
	R	586	594	101	26	10.9	B	0.9
	Subtotal	**1981**	**1968**	**99**	**--**	**17.9**	**B**	**--**
WB	T	100	2071	2071	15	26.7	C	1.0
	Subtotal	**100**	**2071**	**2071**	**--**	**26.7**	**C**	**--**
	Total	**4519**	**6489**	**144**	**--**	**28.3**	**C**	**--**

CORSIM LEVEL OF SERVICE REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2035 With Project **# of Runs:** 10
TOD: PM **Analysis Period:** Hourly **PHF:** 1

Intersection: French Camp Road & I-5 NB Ramps **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	747	760	102	22	59.2	E	5.3
	R	1010	1002	99	20	11.6	B	2.0
	Subtotal	**1757**	**1763**	**100**	**--**	**32.1**	**C**	**--**
EB	T	100	2127	2127	28	4.2	A	0.3
	Subtotal	**100**	**2127**	**2127**	**--**	**4.2**	**A**	**--**
WB	T	3732	3695	99	28	14.2	B	5.0
	Subtotal	**3732**	**3695**	**99**	**--**	**14.2**	**B**	**--**
	Total	**5589**	**7584**	**136**	**--**	**15.5**	**B**	**--**

Intersection: French Camp Road & Val Dervin Parkway **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	673	672	100	22	91.2	F	40.8
	T	100	98	98	11	43.2	D	10.1
	R	60	61	102	12	28.8	C	11.4
	Subtotal	**833**	**830**	**100**	**--**	**81.0**	**F**	**--**
SB	L	110	102	93	6	289.9	F	133.7
	T	130	131	101	15	82.0	F	24.3
	R	628	605	96	29	32.6	C	21.3
	Subtotal	**868**	**837**	**96**	**--**	**71.6**	**E**	**--**
EB	L	294	267	91	19	85.7	F	13.2
	T	2056	2069	101	32	19.1	B	1.6
	R	790	785	99	23	13.5	B	1.2
	Subtotal	**3140**	**3121**	**99**	**--**	**23.4**	**C**	**--**
WB	L	140	140	100	10	74.7	E	10.2
	T	2431	2397	99	8	37.8	D	2.6
	R	80	82	103	8	17.9	B	3.0
	Subtotal	**2651**	**2618**	**99**	**--**	**39.1**	**D**	**--**
	Total	**7492**	**7406**	**99**	**--**	**40.9**	**D**	**--**

CORSIM LEVEL OF SERVICE REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2035 With Project **# of Runs:** 10
TOD: PM **Analysis Period:** Hourly **PHF:** 1

Intersection: French Camp Road & Realigned Manthey **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	683	688	101	8	50.5	D	0.9
	R	118	119	101	9	5.2	A	0.5
	Subtotal	**801**	**807**	**101**	**--**	**43.8**	**D**	**--**
EB	L	202	202	100	22	55.9	E	6.5
	T	741	743	100	20	6.0	A	0.4
	Subtotal	**943**	**944**	**100**	**--**	**16.6**	**B**	**--**
WB	T	1519	1576	104	44	15.2	B	1.1
	R	803	839	104	30	19.8	B	2.0
	Subtotal	**2322**	**2416**	**104**	**--**	**16.8**	**B**	**--**
	Total	**4066**	**4167**	**102**	**--**	**22.0**	**C**	**--**

CORSIM QUEUING REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2035 With Project **PHF:** 1
TOD: PM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: French Camp Road & Original Manthey **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	395	Yes	16	135	--	13
	T	1000	158	--	43	25	--	0
	R	300	200	--	39	25	--	0
SB	L	500	210	--	13	75	--	0
	T	1000	183	--	24	38	--	13
EB	L	200	143	--	33	25	--	0
	T	694	550	--	47	170	--	11
WB	L	400	373	--	28	105	--	11
	T	800	665	--	94	198	--	22
	R	400	150	--	37	0	--	0

Intersection: French Camp Road & I-5 SB Ramps **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	500	435	--	29	150	--	0
	T	1000	430	--	16	160	--	13
	R	500	425	--	20	150	--	0
EB	T	800	490	--	69	103	--	8
	R	600	155	--	60	0	--	0
WB	T	350	458	Yes	12	175	--	0

CORSIM QUEUING REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2035 With Project **PHF:** 1
TOD: PM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: French Camp Road & I-5 NB Ramps **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	385	Yes	21	143	--	12
	R	999	495	--	276	23	--	30
EB	T	450	190	--	36	0	--	0
WB	T	600	533	--	142	133	--	70

Intersection: French Camp Road & Val Dervin Parkway **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	400	633	Yes	344	238	--	136
	T	988	265	--	168	40	--	24
SB	L	350	385	Yes	94	205	--	94
	T	977	580	--	378	155	--	138
	R	300	313	Yes	72	50	--	0
EB	L	300	375	Yes	20	150	--	24
	T	600	283	--	21	73	--	8
	R	400	275	--	54	25	--	0
WB	L	200	230	Yes	23	60	--	13
	T	2350	635	--	99	168	--	24
	R	200	63	--	18	0	--	0

CORSIM QUEUING REPORT

Project: Weston Ranch Alternatives Analysis **HCM:** 2000
Scenario: 2035 With Project **PHF:** 1
TOD: PM **Analysis Period:** Hourly **# of Runs:** 10

Intersection: French Camp Road & Realigned Manthey **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			Average Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	150	445	Yes	23	125	--	0
	R	861	55	--	16	0	--	0
EB	L	150	200	Yes	0	75	--	12
	T	956	145	--	28	0	--	0
WB	T	694	558	--	129	68	--	12

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 Yettner/Manthey

Cycle (sec): 60 | Critical Vol./Cap.(X): 0.680
Loss Time (sec): 16 (Y+R=4.0 sec) | Average Delay (sec/veh): 28.8
Optimal Cycle: 57 | Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1 0	1	1	0	1 0	1	1	0	1 0	0	1	0	1 0	0	1	0
Volume Module:																
Base Vol:	60	484	50		50	405	250		300	100	60		50	100	50	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	60	484	50		50	405	250		300	100	60		50	100	50	
Added Vol:	0	80	0		0	86	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	60	564	50		50	491	250		300	100	60		50	100	50	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	60	564	50		50	491	250		300	100	60		50	100	50	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	60	564	50		50	491	250		300	100	60		50	100	50	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	60	564	50		50	491	250		300	100	60		50	100	50	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.94	0.94		0.95	0.90	0.90		0.95	0.94	0.94		0.95	0.95	0.95	
Lanes:	1.00	1.84	0.16		1.00	1.33	0.67		1.00	0.62	0.38		1.00	0.67	0.33	
Final Sat.:	1805	3276	290		1805	2270	1156		1805	1121	673		1805	1203	602	
Capacity Analysis Module:																
Vol/Sat:	0.03	0.17	0.17		0.03	0.22	0.22		0.17	0.09	0.09		0.03	0.08	0.08	
Crit Moves:	****					****			****					****		
Green/Cycle:	0.12	0.22	0.22		0.15	0.25	0.25		0.20	0.21	0.21		0.15	0.17	0.17	
Volume/Cap:	0.28	0.78	0.78		0.18	0.85	0.85		0.85	0.42	0.42		0.19	0.50	0.50	
Delay/Veh:	25.0	26.9	26.9		22.6	29.2	29.2		40.7	21.1	21.1		22.7	24.0	24.0	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	25.0	26.9	26.9		22.6	29.2	29.2		40.7	21.1	21.1		22.7	24.0	24.0	
LOS by Move:	C	C	C		C	C	C		D	C	C		C	C	C	
HCM2kAvgQ:	1	8	8		1	10	10		8	3	3		1	3	3	

Note: Queue reported is the number of cars per lane.

Traffix 7.8.0115 (c) 2007 Dowling Assoc. Licensed to FEHR & PEERS, W.C.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.86		1.00	0.86	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.93		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	6383		1770	6408	1583	1770	3291		1770	3279	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	6383		1770	6408	1583	1770	3291		1770	3279	
Volume (vph)	289	2260	60	80	2380	135	60	91	80	118	82	79
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	289	2260	60	80	2380	135	60	91	80	118	82	79
RTOR Reduction (vph)	0	2	0	0	0	49	0	72	0	0	69	0
Lane Group Flow (vph)	289	2318	0	80	2380	86	60	99	0	118	92	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	19.0	73.8		8.0	62.8	62.8	7.0	12.4		9.8	15.2	
Effective Green, g (s)	19.0	73.8		8.0	62.8	62.8	7.0	12.4		9.8	15.2	
Actuated g/C Ratio	0.16	0.62		0.07	0.52	0.52	0.06	0.10		0.08	0.13	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	280	3926		118	3354	828	103	340		145	415	
v/s Ratio Prot	c0.16	0.36		0.05	c0.37		c0.03	c0.03		c0.07	0.03	
v/s Ratio Perm						0.05						
v/c Ratio	1.03	0.59		0.68	0.71	0.10	0.58	0.29		0.81	0.22	
Uniform Delay, d1	50.5	14.0		54.7	21.7	14.4	55.1	49.7		54.2	47.1	
Progression Factor	1.00	1.00		1.03	0.77	0.47	1.00	1.00		1.00	1.00	
Incremental Delay, d2	62.4	0.7		12.4	1.1	0.2	8.1	0.5		28.2	0.3	
Delay (s)	112.9	14.6		68.9	17.7	7.0	63.2	50.2		82.4	47.4	
Level of Service	F	B		E	B	A	E	D		F	D	
Approach Delay (s)		25.5			18.8			53.6			62.2	
Approach LOS		C			B			D			E	

Intersection Summary			
HCM Average Control Delay	25.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0		4.0
Lane Util. Factor		0.91	1.00	1.00	0.95					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		5085	1583	1770	3539					3433		2787
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		5085	1583	1770	3539					3433		2787
Volume (vph)	0	1812	645	500	795	0	0	0	0	640	0	1800
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1812	645	500	795	0	0	0	0	640	0	1800
RTOR Reduction (vph)	0	0	315	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1812	330	500	795	0	0	0	0	640	0	1800
Turn Type			Perm	Prot						Prot		Free
Protected Phases		4		3	8					1		
Permitted Phases			4									Free
Actuated Green, G (s)		46.8	46.8	36.8	87.6					24.4		120.0
Effective Green, g (s)		46.8	46.8	36.8	87.6					24.4		120.0
Actuated g/C Ratio		0.39	0.39	0.31	0.73					0.20		1.00
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0		
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		
Lane Grp Cap (vph)		1983	617	543	2583					698		2787
v/s Ratio Prot		c0.36		c0.28	0.22					c0.19		
v/s Ratio Perm			0.21									0.65
v/c Ratio		0.91	0.53	0.92	0.31					0.92		0.65
Uniform Delay, d1		34.7	28.2	40.2	5.6					46.8		0.0
Progression Factor		0.64	1.16	0.95	0.02					1.00		1.00
Incremental Delay, d2		6.7	2.7	17.9	0.2					16.8		1.2
Delay (s)		28.9	35.5	56.2	0.4					63.6		1.2
Level of Service		C	D	E	A					E		A
Approach Delay (s)		30.6			21.9			0.0			17.5	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	23.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Util. Factor	0.97	0.95			0.95	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	3433	3539			3539	1583	1770		1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	3433	3539			3539	1583	1770		1583			
Volume (vph)	550	1902	0	0	1051	680	243	0	930	0	0	0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	550	1902	0	0	1051	680	243	0	930	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	300	0	0	0	0	0	0
Lane Group Flow (vph)	550	1902	0	0	1051	380	243	0	930	0	0	0
Turn Type	Prot					Perm	Prot		Free			
Protected Phases	7	4			8		5					
Permitted Phases						8			Free			
Actuated Green, G (s)	29.0	91.0			58.0	58.0	21.0		120.0			
Effective Green, g (s)	29.0	91.0			58.0	58.0	21.0		120.0			
Actuated g/C Ratio	0.24	0.76			0.48	0.48	0.18		1.00			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0					
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0					
Lane Grp Cap (vph)	830	2684			1711	765	310		1583			
v/s Ratio Prot	0.16	c0.54			0.30		c0.14					
v/s Ratio Perm						0.24			0.59			
v/c Ratio	0.66	0.71			0.61	0.50	0.78		0.59			
Uniform Delay, d1	41.1	7.6			22.8	21.1	47.3		0.0			
Progression Factor	0.68	0.86			1.00	1.00	1.00		1.00			
Incremental Delay, d2	0.8	0.6			1.7	2.3	12.2		1.6			
Delay (s)	28.7	7.2			24.4	23.4	59.5		1.6			
Level of Service	C	A			C	C	E		A			
Approach Delay (s)		12.0			24.0			13.6			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 Howard/Wolfe

Cycle (sec): 100 Critical Vol./Cap.(X): 0.946
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 46.8
Optimal Cycle: 120 Level Of Service: D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	1	0	2	0 1	1	0	2	0 1	1	0	1	1 0	1	0	1	1 0
Volume Module:																
Base Vol:	60	200	410		220	80	116		196	406	60		790	376	340	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	60	200	410		220	80	116		196	406	60		790	376	340	
Added Vol:	0	0	0		0	0	8		7	3	0		0	3	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	60	200	410		220	80	124		203	409	60		790	379	340	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	60	200	410		220	80	124		203	409	60		790	379	340	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	60	200	410		220	80	124		203	409	60		790	379	340	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	60	200	410		220	80	124		203	409	60		790	379	340	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.95	0.85		0.95	0.95	0.85		0.95	0.93	0.93		0.95	0.88	0.88	
Lanes:	1.00	2.00	1.00		1.00	2.00	1.00		1.00	1.74	0.26		1.00	1.05	0.95	
Final Sat.:	1805	3610	1615		1805	3610	1615		1805	3088	453		1805	1768	1586	
Capacity Analysis Module:																
Vol/Sat:	0.03	0.06	0.25		0.12	0.02	0.08		0.11	0.13	0.13		0.44	0.21	0.21	
Crit Moves:			****		****					****			****			
Green/Cycle:	0.16	0.27	0.27		0.13	0.23	0.23		0.21	0.14	0.14		0.46	0.40	0.40	
Volume/Cap:	0.20	0.21	0.95		0.95	0.09	0.33		0.54	0.95	0.95		0.95	0.54	0.54	
Delay/Veh:	36.5	28.4	65.7		87.2	30.1	32.3		37.0	69.9	69.9		44.9	23.7	23.7	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	36.5	28.4	65.7		87.2	30.1	32.3		37.0	69.9	69.9		44.9	23.7	23.7	
LOS by Move:	D	C	E		F	C	C		D	E	E		D	C	C	
HCM2kAvgQ:	2	3	17		11	1	3		6	12	12		28	9	9	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 French Camp Road/Secondary Driveway

Cycle (sec): 120 Critical Vol./Cap.(X): 0.677
Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 26.3
Optimal Cycle: 58 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Ovl			
Min. Green:	7	10	10		7	10	10		7	10	10		7	10	10	
Lanes:	0	0	0	0 0	2	0	0	0 1	1	0	3	0 0	0	0	3	0 1
Volume Module:																
Base Vol:	0	0	0		40	0	10		120	721	0		0	1516	390	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		40	0	10		120	721	0		0	1516	390	
Added Vol:	0	0	0		626	0	77		65	37	0		0	34	382	
Pass-by:	0	0	0		17	0	31		17	-17	0		0	-31	31	
Initial Fut:	0	0	0		683	0	118		202	741	0		0	1519	803	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	0	0	0		683	0	118		202	741	0		0	1519	803	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		683	0	118		202	741	0		0	1519	803	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	0	0	0		683	0	118		202	741	0		0	1519	803	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	1.00	1.00	1.00		0.92	1.00	0.85		0.95	0.91	1.00		1.00	0.91	0.85	
Lanes:	0.00	0.00	0.00		2.00	0.00	1.00		1.00	3.00	0.00		0.00	3.00	1.00	
Final Sat.:	0	0	0		3502	0	1615		1805	5187	0		0	5187	1615	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.20	0.00	0.07		0.11	0.14	0.00		0.00	0.29	0.50	
Crit Moves:					****				****						****	
Green/Cycle:	0.00	0.00	0.00		0.29	0.00	0.29		0.17	0.43	0.00		0.00	0.45	0.73	
Volume/Cap:	0.00	0.00	0.00		0.68	0.00	0.25		0.68	0.33	0.00		0.00	0.66	0.68	
Delay/Veh:	0.0	0.0	0.0		39.6	0.0	33.1		53.2	22.5	0.0		0.0	26.7	10.0	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		39.6	0.0	33.1		53.2	22.5	0.0		0.0	26.7	10.0	
LOS by Move:	A	A	A		D	A	C		D	C	A		A	C	A	
HCM2kAvgQ:	0	0	0		12	0	3		8	6	0		0	16	16	

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 5 Downing Avenue/French Camp Turnpike	??? / ???	Yes / No
# 8 Henry Long Boulevard/McDougald Boul	???	No
# 9 Henry Long Boulevard/Manthey Road	???	No
# 11 French Camp Road/McDougald Boulevar	??? / ???	No / No
# 12 Manthey Road/French Camp Road	???	Yes
# 15 French Camp Road/Val Dervin Parkway	??? / ???	Yes / No
# 16 Yettner Road/ S. Manthey Road	??? / ???	No / No
# 17 Mathews Road/South Manthey Road	???	No
# 18 Mathews Road/I-5 SB Ramps	??? / ???	No / Yes
# 19 Mathews Road/I-5 NB Ramps	??? / ???	Yes / Yes
# 20 Howard Road/ Wolfe Road	??? / ???	No / No

Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #5 Downing Avenue/French Camp Turnpike

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	1	0	0	1 0	1	0	0	1 0
Initial Vol:	110		10	10	30		10	90	150		270	140	100		320	20
ApproachDel:	254.7				29.0				xxxxxx				xxxxxx			

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=9.2]
   SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=130]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1260]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.0]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=130]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1260]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #5 Downing Avenue/French Camp Turnpike

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	110		10		10	30		10		90	150		270		140	100		320		20

Major Street Volume: 1000
Minor Approach Volume: 130
Minor Approach Volume Threshold: 285

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #8 Henry Long Boulevard/McDougald Boulevard

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	90		53		10	10		55		110	110		10		160	10		10		30

Major Street Volume: 330
Minor Approach Volume: 175
Minor Approach Volume Threshold: 851

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #9 Henry Long Boulevard/Manthey Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
Initial Vol:	0		0		0	0		0		185	78		0		0	0		0		0

Major Street Volume: 185
Minor Approach Volume: 78
Minor Approach Volume Threshold: 669

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #11 French Camp Road/McDougald Boulevard

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	1	0	1
Initial Vol:	0		0		0	175		0		10	20		481		0	0		277		123
ApproachDel:	xxxxxx					27.4					xxxxxx					xxxxxx				

Approach[southbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.4]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=185]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1086]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #11 French Camp Road/McDougald Boulevard

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	1	0	1
Initial Vol:	0		0		0	175		0		10	20		481		0	0		277		123

Major Street Volume: 901
Minor Approach Volume: 185
Minor Approach Volume Threshold: 419

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

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Intersection #12 Manthey Road/French Camp Road

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	1!	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1
Initial Vol:	59		0		160	0		0		0	0		970		66	250		705		0

Major Street Volume: 1991
Minor Approach Volume: 219
Minor Approach Volume Threshold: 48 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #15 French Camp Road/Val Dervin Parkway

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	1	1	0	0	1	0	1	0
Initial Vol:	50		30		10	30		20		60	250		456		110	330		441		0
ApproachDel:	xxxxxx					xxxxxx					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=OVERFLOW]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=90]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1787]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=OVERFLOW]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=110]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1787]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #15 French Camp Road/Val Dervin Parkway

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	1	1	0	0	1	0	1	0
Initial Vol:	50		30		10	30		20		60	250		456		110	330		441		0

Major Street Volume: 1587
Minor Approach Volume: 110
Minor Approach Volume Threshold: 126

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #16 Yettner Road/ S. Manthey Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	10	209			0	0	306		10		10		0		10	0		0		0
ApproachDel:	xxxxxx					xxxxxx					11.5					xxxxxx				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=20]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=555]
   FAIL - Total volume less than 650 for intersection
          with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #16 Yettner Road/ S. Manthey Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	10	209			0	0	306		10		10		0		10	0		0		0

Major Street Volume: 535
Minor Approach Volume: 20
Minor Approach Volume Threshold: 386

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #17 Mathews Road/South Manthey Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	1!	0	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0
Initial Vol:	20		22		20	24		12		31	11		170		20	30		740		95

Major Street Volume: 1066
Minor Approach Volume: 67
Minor Approach Volume Threshold: 347

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #18 Mathews Road/I-5 SB Ramps

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	1	0	1	0	0
Initial Vol:	0		0		0	140		0		410	0		172		42	60		455		0
ApproachDel:	xxxxxx					24.2					xxxxxx					xxxxxx				

Approach[southbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=3.7]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=550]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1279]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #18 Mathews Road/I-5 SB Ramps

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	1	0	1	0	0
Initial Vol:	0		0		0	140		0	410		0	172		42		60	455			0

Major Street Volume: 729
Minor Approach Volume: 550
Minor Approach Volume Threshold: 510

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #19 Mathews Road/I-5 NB Ramps

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	1	0	0	1	0	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Initial Vol:	283		0	1050		0		0		0	120	192			0		0	232		290
ApproachDel:	96.2					xxxxxx					xxxxxx					xxxxxx				

Approach[northbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=35.6]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=1333]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2167]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #19 Mathews Road/I-5 NB Ramps

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	1	0	0	1	0	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Initial Vol:	283		0	1050		0		0		0	120		192		0	0		232		290

Major Street Volume: 834
Minor Approach Volume: 1333
Minor Approach Volume Threshold: 452

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #20 Howard Road/ Wolfe Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	10		20		40	100		20		61	11		61		10	10		241		10
ApproachDel:	10.6					14.1					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=70]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=594]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.7]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=181]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=594]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #20 Howard Road/ Wolfe Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0	0	0	1!	0 0
Initial Vol:	10		20	40	100		20	61	11		61	10	10		241	10

Major Street Volume: 343
Minor Approach Volume: 181
Minor Approach Volume Threshold: 505

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 5 Downing Avenue/French Camp Turnpike	??? / ???	Yes / No
# 8 Henry Long Boulevard/McDougald Boul	???	No
# 9 Henry Long Boulevard/Manthey Road	???	No
# 11 French Camp Road/McDougald Boulevar	??? / ???	No / No
# 12 Manthey Road/French Camp Road	???	Yes
# 15 French Camp Road/Val Dervin Parkway	??? / ???	Yes / Yes
# 16 Yettner Road/ S. Manthey Road	??? / ???	No / No
# 17 Mathews Road/South Manthey Road	???	No
# 18 Mathews Road/I-5 SB Ramps	??? / ???	No / No
# 19 Mathews Road/I-5 NB Ramps	??? / ???	Yes / Yes
# 20 Howard Road/ Wolfe Road	??? / ???	No / No

Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #5 Downing Avenue/French Camp Turnpike

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	230		10		10	10		10		100	150		250		120	10		350		10
ApproachDel:	441.7					15.7					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=30.7]
   SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=250]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1260]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.5]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=120]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1260]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #5 Downing Avenue/French Camp Turnpike

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	230		10		10	10		10		100	150		250		120	10		350		10

Major Street Volume: 890
Minor Approach Volume: 250
Minor Approach Volume Threshold: 325

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #8 Henry Long Boulevard/McDougald Boulevard

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	70		142		20	20		51		60	170		10		90	10		10		10

Major Street Volume: 363
Minor Approach Volume: 270
Minor Approach Volume Threshold: 810

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #9 Henry Long Boulevard/Manthey Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
Initial Vol:	0		0		0	0		0		202	265		0		0	0		0		0

Major Street Volume: 265
Minor Approach Volume: 202
Minor Approach Volume Threshold: 574

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #11 French Camp Road/McDougald Boulevard

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	1	0	1
Initial Vol:	0		0		0	151		0		20	90		296		0	0		467		232
ApproachDel:	xxxxxx					37.8					xxxxxx					xxxxxx				

Approach[southbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.8]
   FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=171]
   SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1256]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #11 French Camp Road/McDougald Boulevard

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	1	0	1
Initial Vol:	0		0		0	151		0		20	90		296		0	0		467		232

Major Street Volume: 1085
Minor Approach Volume: 171
Minor Approach Volume Threshold: 339

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #12 Manthey Road/French Camp Road

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	1!	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1
Initial Vol:	142		0		280	0		0		0	0		1339		83	90		1560		0

Major Street Volume: 3072
Minor Approach Volume: 422
Minor Approach Volume Threshold: -102 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #15 French Camp Road/Val Dervin Parkway

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	1	1	0	0	1	0	1	0
Initial Vol:	70		10		10	60		10		210	90		593		80	90		547		0
ApproachDel:	339.1					125.6					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=8.5]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=90]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1770]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=9.8]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=280]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1770]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #15 French Camp Road/Val Dervin Parkway

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	1	1	0	0	1	0	1	0
Initial Vol:	70		10		10	60		10		210	90		593		80	90		547		0

Major Street Volume: 1400
Minor Approach Volume: 280
Minor Approach Volume Threshold: 169

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #16 Yettner Road/ S. Manthey Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	10		412		0	0		163		10	10		0		10	0		0		0
ApproachDel:	xxxxxx					xxxxxx					11.3					xxxxxx				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=20]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=615]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #16 Yettner Road/ S. Manthey Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	10		412		0	0		163		10	10		0		10	0		0		0

Major Street Volume: 595
Minor Approach Volume: 20
Minor Approach Volume Threshold: 358

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #17 Mathews Road/South Manthey Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	1!	0	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0
Initial Vol:	10		46		30	94		36		23	33		590		10	30		310		64

Major Street Volume: 1037
Minor Approach Volume: 153
Minor Approach Volume Threshold: 358

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #18 Mathews Road/I-5 SB Ramps

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	1	0	1	0	0
Initial Vol:	0		0		0	120		0		160	0		606		108	50		244		0
ApproachDel:	xxxxxx					13.9					xxxxxx					xxxxxx				

Approach[southbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.1]
   FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=280]
   SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1288]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #18 Mathews Road/I-5 SB Ramps

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	1	0	1	0	0
Initial Vol:	0		0		0	120		0		160	0		606		108	50		244		0

Major Street Volume: 1008
Minor Approach Volume: 280
Minor Approach Volume Threshold: 371

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #19 Mathews Road/I-5 NB Ramps

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	1	0	0	1	0	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Initial Vol:	138		0		280	0		0		0	470		256		0	0		156		630
ApproachDel:	360.9					xxxxxx					xxxxxx					xxxxxx				

Approach[northbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=41.9]
   SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=418]
   SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1930]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #19 Mathews Road/I-5 NB Ramps

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	1	0	0	1	0	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Initial Vol:	138		0		280	0		0		0	470		256		0	0		156		630

Major Street Volume: 1512
Minor Approach Volume: 418
Minor Approach Volume Threshold: 196

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #20 Howard Road/ Wolfe Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	10	150			20	20		10		13	153	343			10	10	103			20
ApproachDel:	40.0					28.9					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=2.0]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=180]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=862]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=43]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=862]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #20 Howard Road/ Wolfe Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	10	150			20	20		10		13	153	343			10	10	103			20

Major Street Volume: 639
Minor Approach Volume: 180
Minor Approach Volume Threshold: 339

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Scenario Report

Scenario:	Cumulative AM
Command:	Cumulative AM
Volume:	Cumulative AM With Project
Geometry:	Cumulative
Impact Fee:	Default Impact Fee
Trip Generation:	Project AM
Trip Distribution:	Peak Hour
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 5 Downing/Turnpike	??? / ???	No / No
# 8 McDougald/Henry Long	???	No
# 9 Manthey/Henry Long	???	No
# 16 Yettner/Manthey	??? / ???	No / No
# 17 Mathews/S. Manthey	???	No
# 18 Mathews/I5 SB Ramps	??? / ???	Yes / Yes
# 19 Mathews/I5 NB Ramps	??? / ???	No / No
# 20 Howard/Wolfe	??? / ???	No / No

Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #5 Downing/Turnpike

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	60		20		50	10		10		50	81		471		30	10		190		70
ApproachDel:	26.5					14.0					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.0]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=130]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1052]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=70]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1052]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #5 Downing/Turnpike

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	60		20		50	10		10		50	81		471		30	10		190		70

Major Street Volume: 852
Minor Approach Volume: 130
Minor Approach Volume Threshold: 340

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #8 McDougald/Henry Long

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	51		83		10	10		375		130	140		10		110	10		10		30

Major Street Volume: 659
Minor Approach Volume: 260
Minor Approach Volume Threshold: 553

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #9 Manthey/Henry Long

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
Initial Vol:	0		0		0	0		0		237	122		0		0	0		0		0

Major Street Volume: 237
Minor Approach Volume: 122
Minor Approach Volume Threshold: 603

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #16 Yettner/Manthey

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	20	173			10	10	622			20	10	10			30	10	10			20
ApproachDel:	xxxxxx					xxxxxx					16.5					15.1				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=50]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=945]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=40]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=945]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #16 Yettner/Manthey

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	20	173			10	10	622			20	10	10			30	10	10			20

Major Street Volume: 855
Minor Approach Volume: 50
Minor Approach Volume Threshold: 339

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #17 Mathews/S. Manthey

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	1!	0	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0
Initial Vol:	20		23		30	68		34		31	61		210		20	70		550		168

Major Street Volume: 1079
Minor Approach Volume: 133
Minor Approach Volume Threshold: 341

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #18 Mathews/I5 SB Ramps

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	1	0	1	0	0
Initial Vol:	0		0		0	410		0		470	0		234		74	30		318		0
ApproachDel:	xxxxxx					24.6					xxxxxx					xxxxxx				

Approach[southbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=6.0]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=880]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1536]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #18 Mathews/I5 SB Ramps

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	1	0	1	0	0
Initial Vol:	0		0		0	410		0		470	0		234		74	30		318		0

Major Street Volume: 656
Minor Approach Volume: 880
Minor Approach Volume Threshold: 555

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #19 Mathews/I5 NB Ramps

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	1	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Initial Vol:	155		0		30	0		0		0	180		464		0	0		193		120
ApproachDel:	46.9					xxxxxx					xxxxxx					xxxxxx				

Approach[northbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=2.4]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=185]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1142]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #19 Mathews/I5 NB Ramps

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	1	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Initial Vol:	155		0		30	0		0		0	180		464		0	0		193		120

Major Street Volume: 957
Minor Approach Volume: 185
Minor Approach Volume Threshold: 393

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #20 Howard/Wolfe

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	10		10		10	10		10		46	13		271		30	20		151		60
ApproachDel:	12.9					11.0					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=30]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=641]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=66]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=641]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****
Intersection #20 Howard/Wolfe
****
Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	1	0	0	1 0	1	0	0	1 0
Initial Vol:	10		10	10	10		10	46	13		271	30	20		151	60

Major Street Volume: 545
Minor Approach Volume: 66
Minor Approach Volume Threshold: 494

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 5 Downing/Turnpike	??? / ???	No / No
# 8 McDougald/Henry Long	???	No
# 9 Manthey/Henry Long	???	No
# 16 Yettner/Manthey	??? / ???	No / No
# 17 Mathews/S. Manthey	???	No
# 18 Mathews/I5 SB Ramps	??? / ???	No / No
# 19 Mathews/I5 NB Ramps	??? / ???	No / No
# 20 Howard/Wolfe	??? / ???	No / No

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #5 Downing/Turnpike

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	70		10		10	60		50		71	31		281		130	10		391		10
ApproachDel:	31.0					25.4					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.8]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=90]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1124]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.3]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=181]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1124]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #5 Downing/Turnpike

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	70		10		10	60		50		71	31		281		130	10		391		10

Major Street Volume: 853
Minor Approach Volume: 181
Minor Approach Volume Threshold: 340

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #8 McDougald/Henry Long

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	100	472		20		20	381		132		62	10		91		10	10		10	

Major Street Volume: 1125
Minor Approach Volume: 163
Minor Approach Volume Threshold: 323

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #9 Manthey/Henry Long

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
Initial Vol:	0	0		0		0	0		319		635	0		0		0	0		0	

Major Street Volume: 635
Minor Approach Volume: 319
Minor Approach Volume Threshold: 341

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #16 Yettner/Manthey

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	30	557			10	10	217			20	20	10			20	10	10			20
ApproachDel:	xxxxxx					xxxxxx					16.9					16.6				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=50]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=934]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=40]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=934]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #16 Yettner/Manthey

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	30	557			10	10	217			20	20	10			20	10	10			20

Major Street Volume: 844
Minor Approach Volume: 50
Minor Approach Volume Threshold: 343

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #17 Mathews/S. Manthey

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	0	0	1!	0	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0
Initial Vol:	10		49		30	125		49		73	43		720		20	40		280		124

Major Street Volume: 1227
Minor Approach Volume: 247
Minor Approach Volume Threshold: 286

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #18 Mathews/I5 SB Ramps

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	1	0	1	0	0
Initial Vol:	0		0		0	120		0		170	0		739		136	30		274		0
ApproachDel:	xxxxxx					13.9					xxxxxx					xxxxxx				

Approach[southbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.1]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=290]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1469]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #18 Mathews/I5 SB Ramps

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	1	0	1	0	0
Initial Vol:	0		0		0	120		0		170		0	739		136	30		274		0

Major Street Volume: 1179
Minor Approach Volume: 290
Minor Approach Volume Threshold: 303

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #19 Mathews/I5 NB Ramps

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	1	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Initial Vol:	55		0		20	0		0		0	500		359		0	0		249		380
ApproachDel:	195.8					xxxxxx					xxxxxx					xxxxxx				

Approach[northbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=4.1]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=75]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1563]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #19 Mathews/I5 NB Ramps

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	1	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Initial Vol:	55		0		20	0		0		0	500		359		0	0		249		380

Major Street Volume: 1488
Minor Approach Volume: 75
Minor Approach Volume Threshold: 203

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #20 Howard/Wolfe

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	10		10		10	10		10		18	180		403		10	20		133		10
ApproachDel:	19.7					17.1					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=30]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=824]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=38]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=824]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Future 2025 With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****
Intersection #20 Howard/Wolfe
****
Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	1	0	0	1 0	1	0	0	1 0
Initial Vol:	10		10	10	10		10	18	180		403	10	20		133	10

Major Street Volume: 756
Minor Approach Volume: 38
Minor Approach Volume Threshold: 381

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Future 2035 With Project
AM Peak Hour

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 5 Downing/Turnpike	??? / ???	Yes / Yes
# 8 McDougald/Henry Long	???	No

Weston Ranch Towne Center EIR
Future 2035 With Project
AM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #5 Downing/Turnpike

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	110	320			60	80	100			140	150	391			240	150	273			70
ApproachDel:	xxxxxx					xxxxxx					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=OVERFLOW]
   SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=490]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2084]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=OVERFLOW]
   SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=320]
   SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2084]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Future 2035 With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #5 Downing/Turnpike

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	110	320			60	80	100			140	150	391			240	150	273			70

Major Street Volume: 1274
Minor Approach Volume: 490
Minor Approach Volume Threshold: 201

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2035 With Project
AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****
Intersection #8 McDougald/Henry Long
****
Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Stop Sign					Stop Sign				
Lanes:	1	0	1	1	0	1	0	1	1	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	91	108			0		0	158		190	140			0	122		0		0	0

Major Street Volume: 547
Minor Approach Volume: 262
Minor Approach Volume Threshold: 634

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 5 Downing/Turnpike	??? / ???	Yes / Yes
# 8 McDougald/Henry Long	???	No

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #5 Downing/Turnpike

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	280		20		60	60		10		150	180		310		140	60		405		60
ApproachDel:	1458.1					106.8					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=145.8]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=360]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1735]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=6.5]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=220]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1735]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #5 Downing/Turnpike

****

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	280		20		60	60		10		150	180		310		140	60		405		60

Major Street Volume: 1155
Minor Approach Volume: 360
Minor Approach Volume Threshold: 235

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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```
Cumulative PM              Wed Apr 9, 2008 17:36:50                  Page 6-3
--------------------------------------------------------------------------------
                         Weston Ranch Towne Center EIR
                           Future 2035 With Project
                                 PM Peak Hour
--------------------------------------------------------------------------------
                 Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #8 McDougald/Henry Long
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Lanes:        1  0  1  1  0    1  0  1  1  0    1  0  0  1  0    1  0  0  1  0
Initial Vol:  105  623    20    20  122   100    90   10   164    10   10    10
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             990
Minor Approach Volume:           264
Minor Approach Volume Threshold: 378
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.

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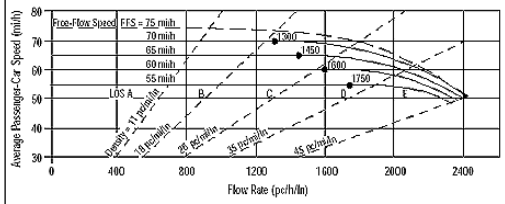
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

General Information		Site Information	
Analyst	*MEL*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing*
Date Performed	*12/19/2005*	Jurisdiction	*Stockton*
Analysis Time Period	*Near Term AM Peak Hour*	Analysis Year	*Near Term Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3840*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs / Calc Speed Adj and FFS

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures / Design (N)

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1455*	pc/h/ln	Design LOS		
S	*69.9*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*20.8*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary / Factor Location

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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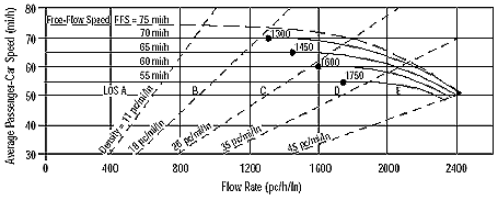
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*MEL*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*12/19/2005*	Jurisdiction	*Stockton*
Analysis Time Period	*Near Term AM Peak Hour*	Analysis Year	*Near Term Without Project*

Project Description Weston Ranch Towne Center EIR`

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2950*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1118*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*16.0*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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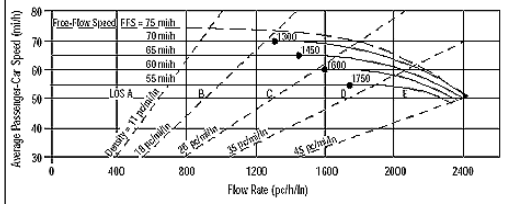
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*MEL*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*12/19/2005*	Jurisdiction	*Stockton*
Analysis Time Period	*Near Term AM Peak Hour*	Analysis Year	*Near Term Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2680*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1016*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*14.5*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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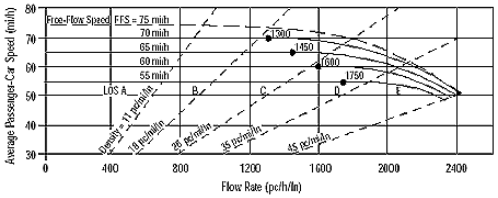
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*MEL*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*12/19/2005*	Jurisdiction	*Stockton*
Analysis Time Period	*Near Term AM Peak Hour*	Analysis Year	*Near Term Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3600*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1364*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*19.5*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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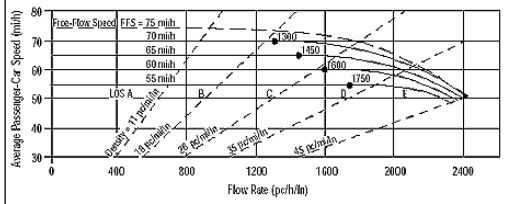

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*MEL*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing*
Date Performed	*12/19/2005*	Jurisdiction	*Stockton*
Analysis Time Period	*Near Term AM Peak Hour*	Analysis Year	*Near Term Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*5230*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1982*	pc/h/ln	Design LOS		
S	*65.2*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*30.4*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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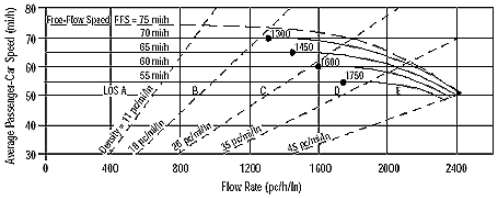

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*MEL*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*12/19/2005*	Jurisdiction	*Stockton*
Analysis Time Period	*Near Term AM Peak Hour*	Analysis Year	*Near Term Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4640*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1758*	pc/h/ln	Design LOS		
S	*68.3*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*25.7*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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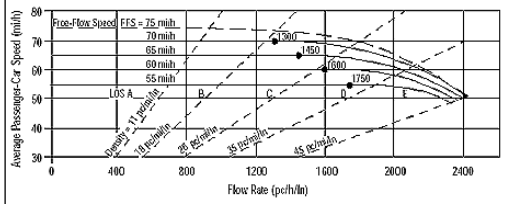

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*MEL*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*12/19/2005*	Jurisdiction	*Stockton*
Analysis Time Period	*Near Term AM Peak Hour*	Analysis Year	*Near Term Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4370*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1656*	pc/h/ln	Design LOS		
S	*69.1*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*24.0*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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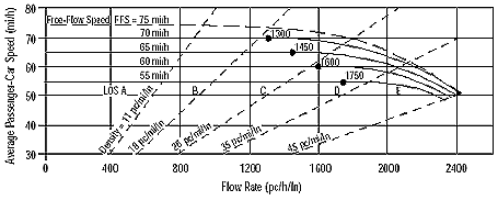

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*MEL*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*12/19/2005*	Jurisdiction	*Stockton*
Analysis Time Period	*Near Term AM Peak Hour*	Analysis Year	*Near Term Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3920*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1485*	pc/h/ln	Design LOS		
S	*69.8*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*21.3*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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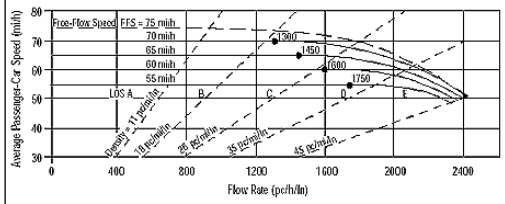

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*MEL*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing*
Date Performed	*12/19/2005*	Jurisdiction	*Stockton*
Analysis Time Period	*Near Term PM Peak Hour*	Analysis Year	*Near Term Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*5450*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2065*	pc/h/ln	Design LOS		
S	*63.5*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*32.5*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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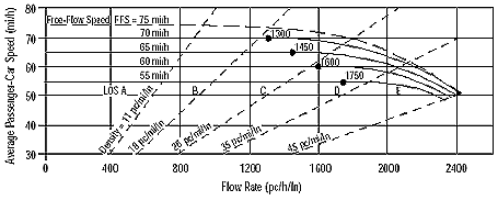
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*MEL*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*12/19/2005*	Jurisdiction	*Stockton*
Analysis Time Period	*Near Term PM Peak Hour*	Analysis Year	*Near Term Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4830*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1830*	pc/h/ln	Design LOS		
S	*67.5*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*27.1*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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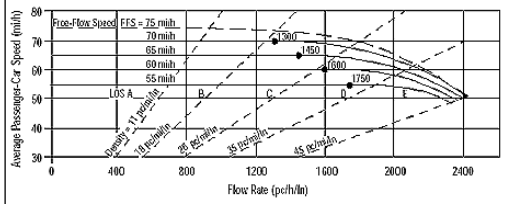

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*MEL*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*12/19/2005*	Jurisdiction	*Stockton*
Analysis Time Period	*Near Term PM Peak Hour*	Analysis Year	*Near Term Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4460*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1690*	pc/h/ln	Design LOS		
S	*68.9*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*24.5*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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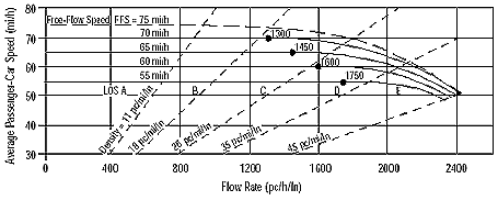

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*MEL*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*12/19/2005*	Jurisdiction	*Stockton*
Analysis Time Period	*Near Term PM Peak Hour*	Analysis Year	*Near Term Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3770*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1429*	pc/h/ln	Design LOS		
S	*69.9*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*20.4*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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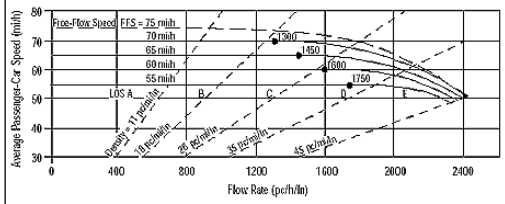

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*MEL*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing*
Date Performed	*12/19/2005*	Jurisdiction	*Stockton*
Analysis Time Period	*Near Term PM Peak Hour*	Analysis Year	*Near Term Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4780*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1811*	pc/h/ln	Design LOS		
S	*67.7*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*26.7*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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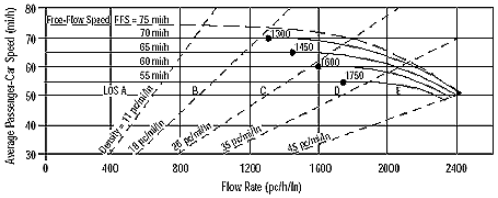

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*MEL*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*12/19/2005*	Jurisdiction	*Stockton*
Analysis Time Period	*Near Term PM Peak Hour*	Analysis Year	*Near Term Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3790*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1436*	pc/h/ln	Design LOS		
S	*69.9*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*20.5*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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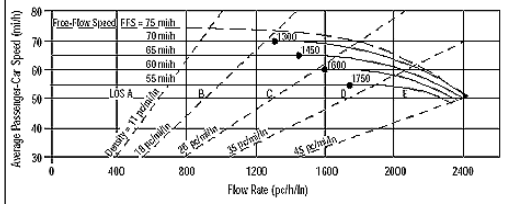

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*MEL*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*12/19/2005*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*Near Term Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3440*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1304*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*18.6*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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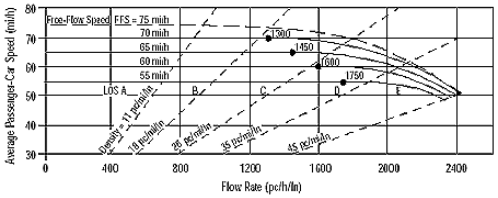

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*MEL*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*12/19/2005*	Jurisdiction	*Stockton*
Analysis Time Period	*Near Term PM Peak Hour*	Analysis Year	*Near Term Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3310*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1254*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*17.9*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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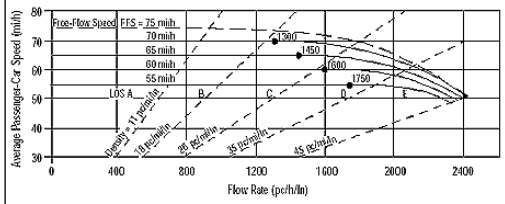

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2025 Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4330*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1169*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*16.7*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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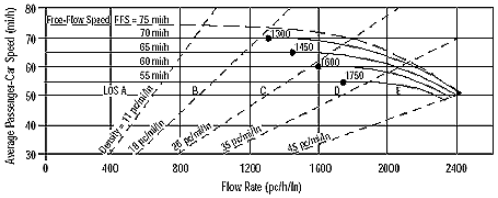

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2025 Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3960*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1069*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*15.3*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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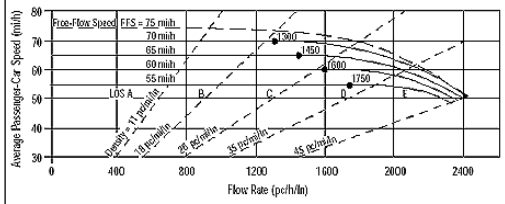

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2025 Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3340*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1202*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*17.2*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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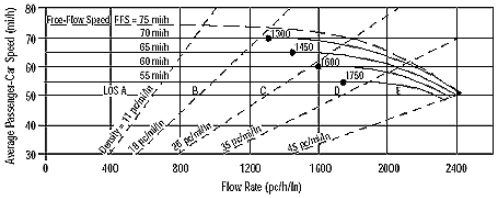

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2025 Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3250*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1170*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*16.7*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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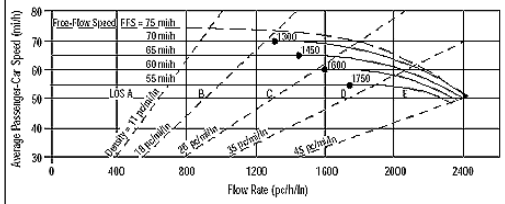

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2025 Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*6590*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1779*	pc/h/ln	Design LOS		
S	*68.1*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*26.1*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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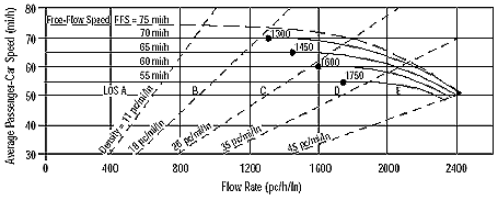

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2025 Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*6030*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1628*	pc/h/ln	Design LOS		
S	*69.3*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*23.5*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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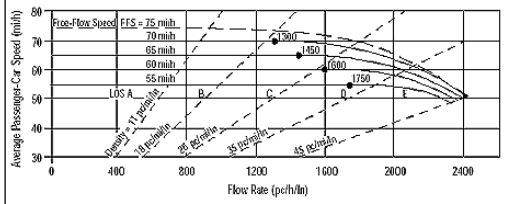

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2025 Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*5060*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1822*	pc/h/ln	Design LOS		
S	*67.6*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*27.0*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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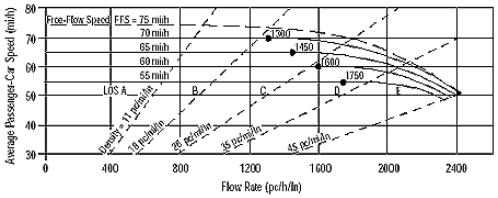
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2025 Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4930*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1775*	pc/h/ln	Design LOS		
S	*68.1*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*26.1*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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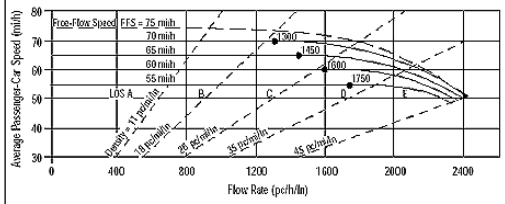

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2025 Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*6760*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1825*	pc/h/ln	Design LOS		
S	*67.6*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*27.0*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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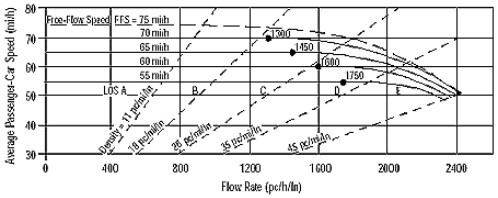

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2025 Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*6140*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1658*	pc/h/ln	Design LOS		
S	*69.1*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*24.0*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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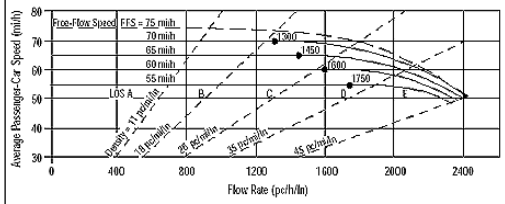

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2025 Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*5200*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1872*	pc/h/ln	Design LOS		
S	*67.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*28.0*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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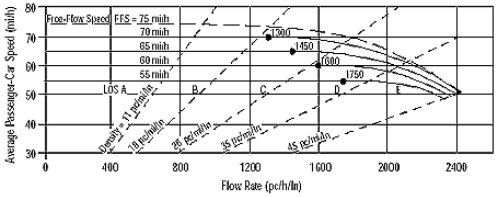

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2025 Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*5070*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1825*	pc/h/ln	Design LOS		
S	*67.6*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*27.0*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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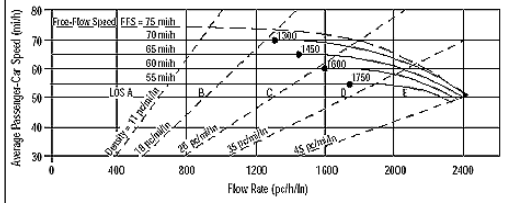
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2025 Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4780*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1291*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*18.4*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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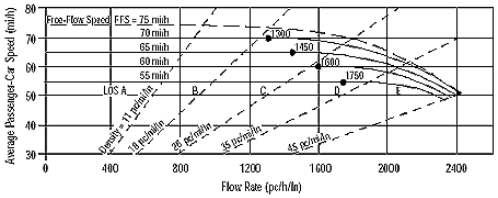
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2025 Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4320*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1166*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*16.7*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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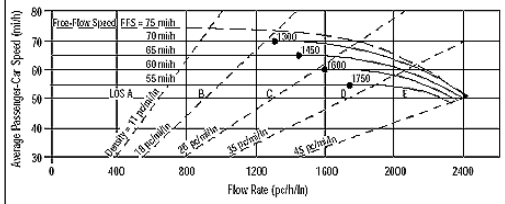

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2025 Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3680*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1325*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*18.9*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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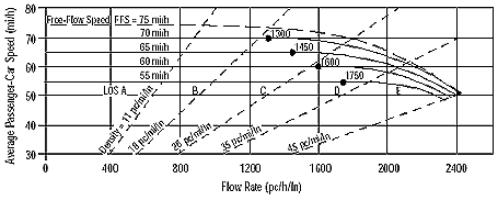

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2025 Without Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3580*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1289*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*18.4*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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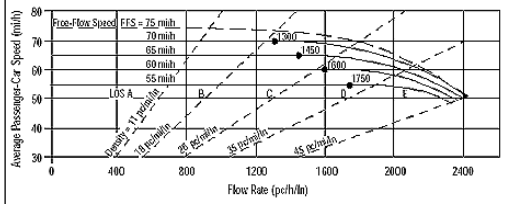

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2035 - No Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*9800*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2117*	pc/h/ln	Design LOS		
S	*62.3*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*34.0*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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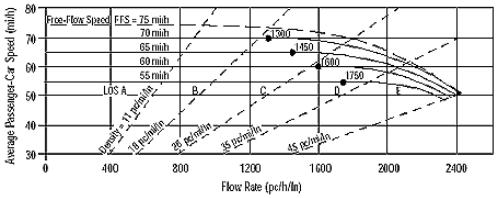

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2035 - No Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*8670*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1873*	pc/h/ln	Design LOS		
S	*66.9*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*28.0*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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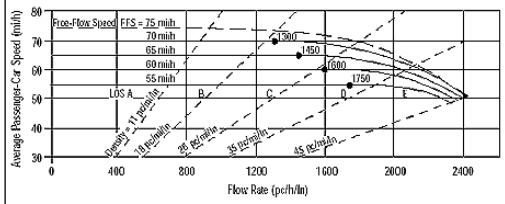

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2035 - No Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*7700*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1663*	pc/h/ln	Design LOS		
S	*69.1*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*24.1*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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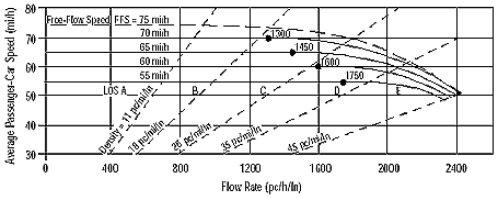

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2035 - No Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*7570*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1635*	pc/h/ln	Design LOS		
S	*69.2*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*23.6*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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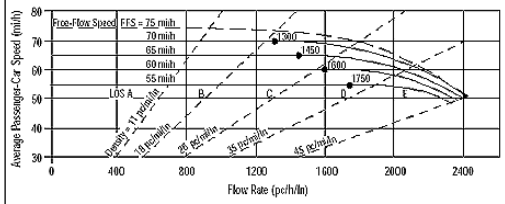
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2035 - No Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*10880*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2350*	pc/h/ln	Design LOS		
S	*55.2*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*42.5*	pc/mi/ln	S		mi/h
LOS	*E*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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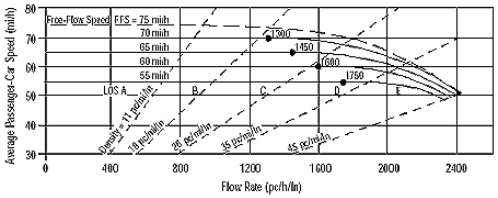

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2035 - No Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*9500*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2052*	pc/h/ln	Design LOS		
S	*63.8*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*32.2*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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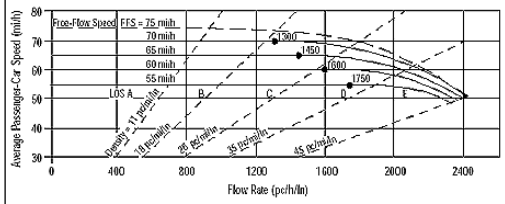

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2035 - No Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*9540*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2061*	pc/h/ln	Design LOS		
S	*63.6*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*32.4*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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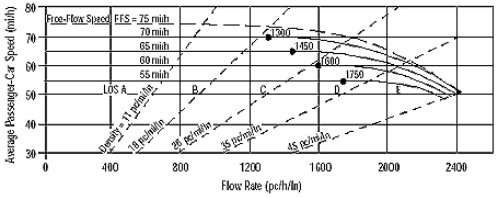

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2035 - No Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*9500*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2052*	pc/h/ln	Design LOS		
S	*63.8*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*32.2*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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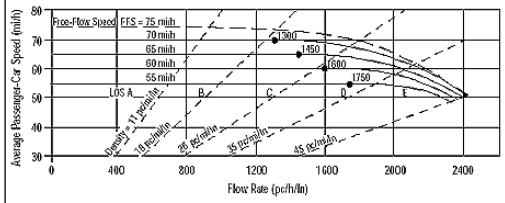

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2035 - No Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*11050*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2387*	pc/h/ln	Design LOS		
S	*53.8*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*44.3*	pc/mi/ln	S		mi/h
LOS	*E*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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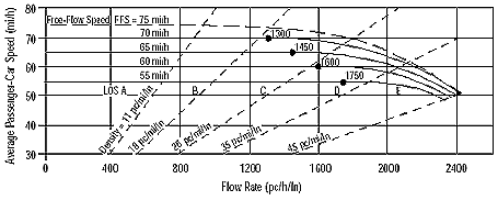

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2035 - No Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*9550*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2063*	pc/h/ln	Design LOS		
S	*63.6*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*32.5*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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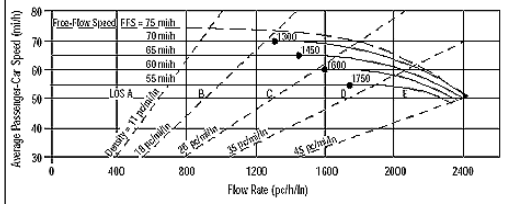

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2035 - No Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*8650*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1868*	pc/h/ln	Design LOS		
S	*67.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*27.9*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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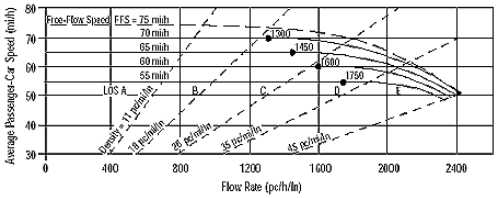

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2035 - No Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*8610*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1860*	pc/h/ln	Design LOS		
S	*67.1*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*27.7*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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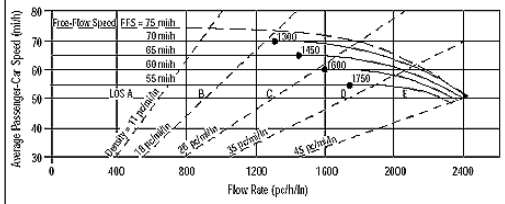

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2035 - No Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*10930*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2361*	pc/h/ln	Design LOS		
S	*54.8*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*43.1*	pc/mi/ln	S		mi/h
LOS	*E*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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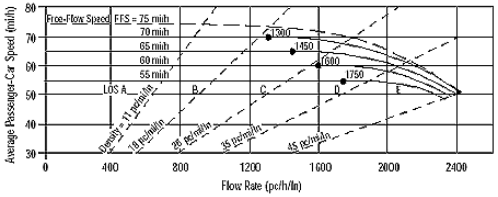

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2035 - No Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*9750*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2106*	pc/h/ln	Design LOS		
S	*62.6*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*33.7*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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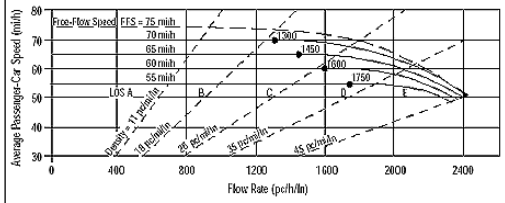

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2035 - No Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*8460*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1827*	pc/h/ln	Design LOS		
S	*67.5*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*27.1*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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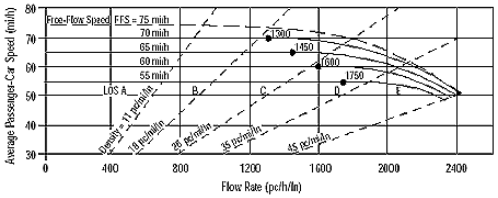

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*1/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2035 - No Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*7180*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1551*	pc/h/ln	Design LOS		
S	*69.6*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*22.3*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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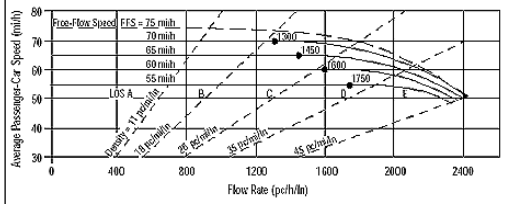

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*Near Term + Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3893*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1475*	pc/h/ln	Design LOS		
S	*69.9*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*21.1*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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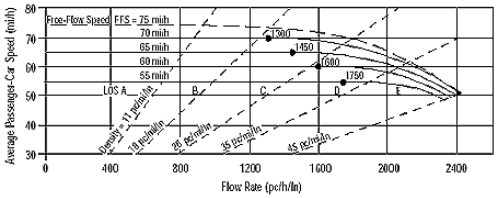
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*Near Term + Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2998*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1136*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*16.2*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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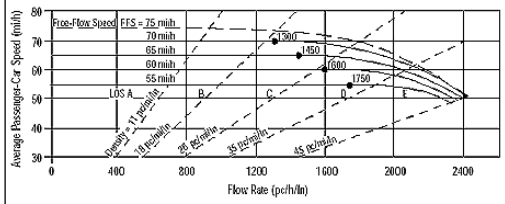

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*Near Term + Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2763*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1047*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*15.0*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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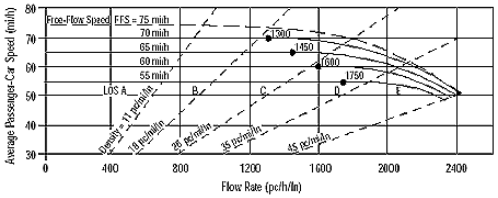

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*Near Term + Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3685*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1396*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*20.0*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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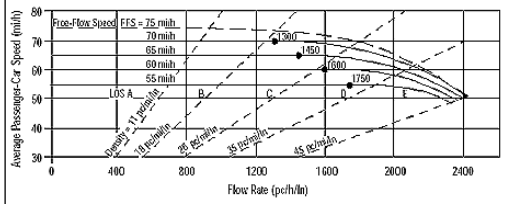

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*Near Term + Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*5315*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2014*	pc/h/ln	Design LOS		
S	*64.6*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*31.2*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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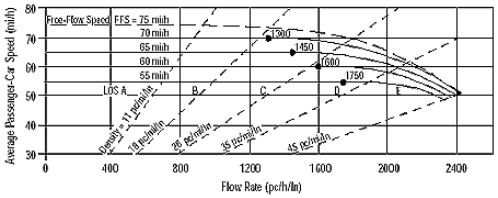

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*Near Term + Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4717*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1787*	pc/h/ln	Design LOS		
S	*68.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*26.3*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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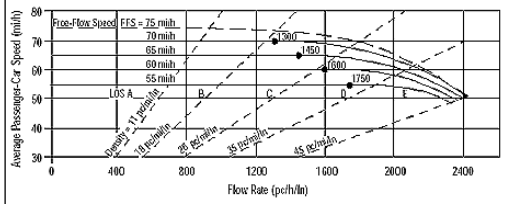

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*Near Term + Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4422*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1676*	pc/h/ln	Design LOS		
S	*69.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*24.3*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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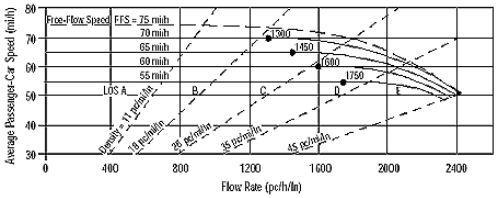

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*Near Term + Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3973*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1506*	pc/h/ln	Design LOS		
S	*69.8*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*21.6*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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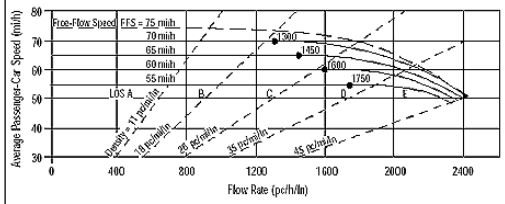
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*Near Term + Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*5661*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2145*	pc/h/ln	Design LOS		
S	*61.6*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*34.8*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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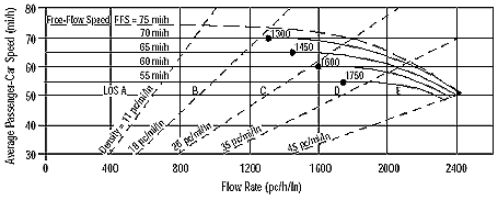

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*Near Term + Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*5020*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1902*	pc/h/ln	Design LOS		
S	*66.5*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*28.6*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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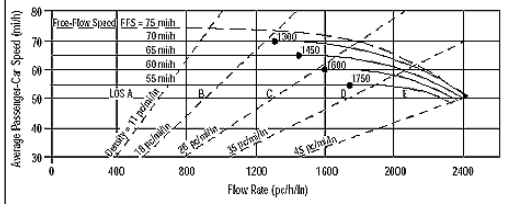

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*Near Term + Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4655*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1764*	pc/h/ln	Design LOS		
S	*68.2*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*25.9*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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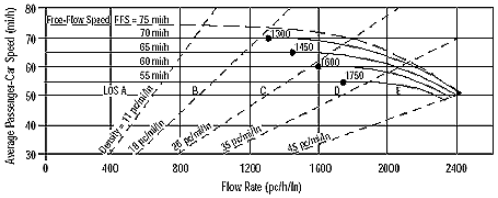

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*Near Term + Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3969*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1504*	pc/h/ln	Design LOS		
S	*69.8*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*21.5*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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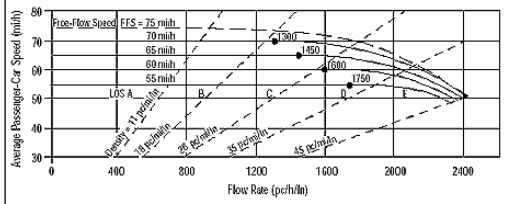

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*Near Term + Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4979*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1887*	pc/h/ln	Design LOS		
S	*66.7*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*28.3*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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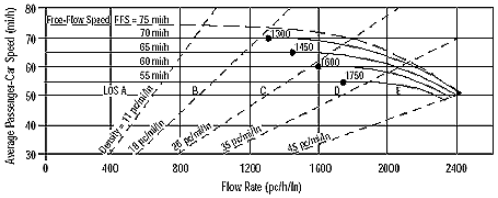

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*Near Term + Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3969*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1504*	pc/h/ln	Design LOS		
S	*69.8*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*21.5*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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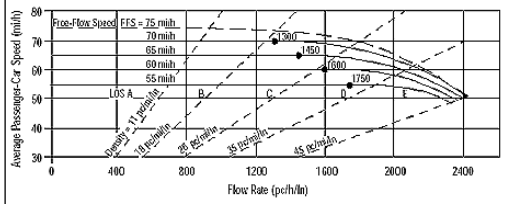

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*Near Term + Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3647*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1382*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*19.7*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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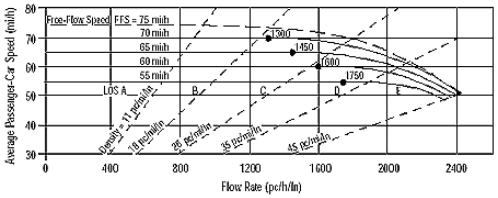
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*Near Term + Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3521*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1334*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*19.1*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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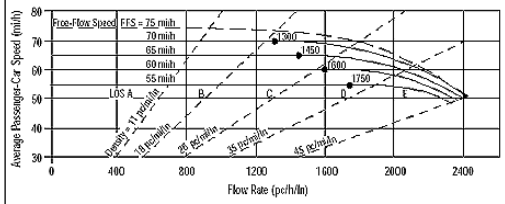

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2025 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4383*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1183*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*16.9*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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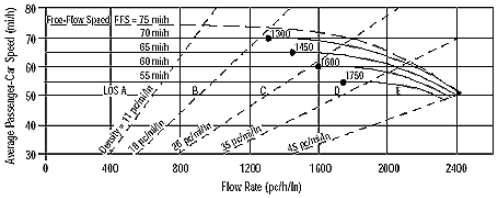

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2025 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4008*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1082*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*15.5*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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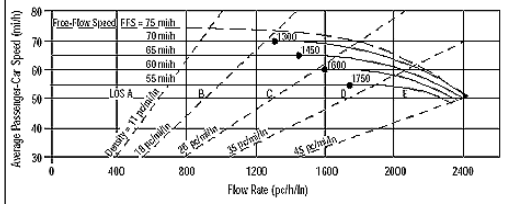

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2025 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3423*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1232*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*17.6*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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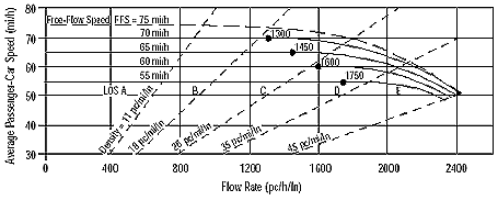

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2025 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3335*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1201*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*17.2*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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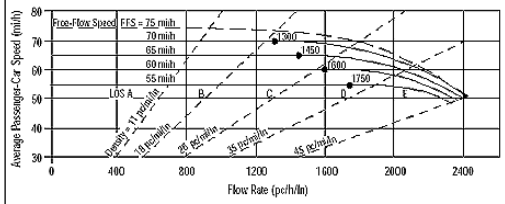

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2025 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*6675*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1802*	pc/h/ln	Design LOS		
S	*67.8*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*26.6*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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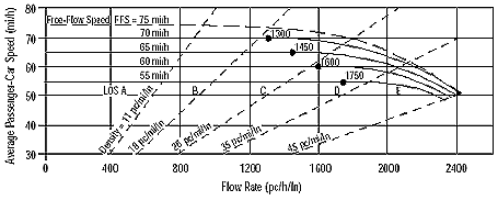
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2025 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*6107*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1649*	pc/h/ln	Design LOS		
S	*69.2*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*23.8*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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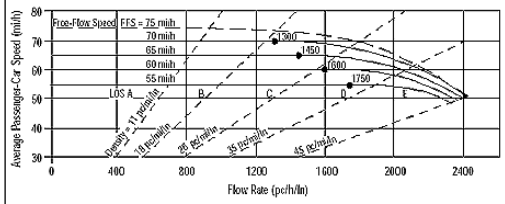
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2025 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*5112*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1840*	pc/h/ln	Design LOS		
S	*67.4*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*27.3*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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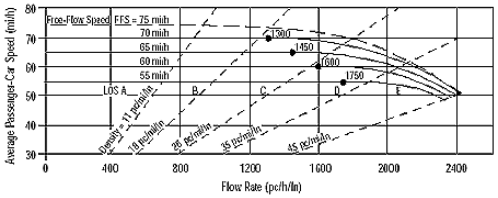

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2025 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4983*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1794*	pc/h/ln	Design LOS		
S	*67.9*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*26.4*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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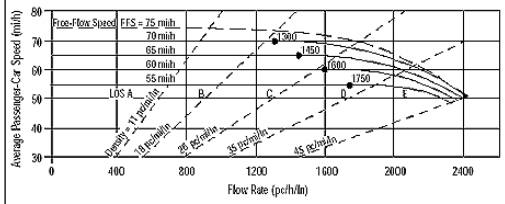

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2025 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*6971*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1882*	pc/h/ln	Design LOS		
S	*66.8*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*28.2*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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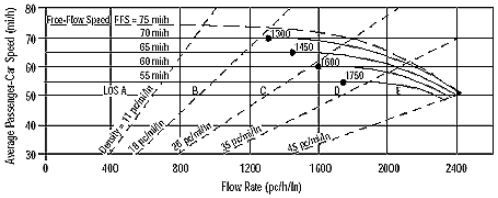

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2025 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*6330*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1709*	pc/h/ln	Design LOS		
S	*68.7*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*24.9*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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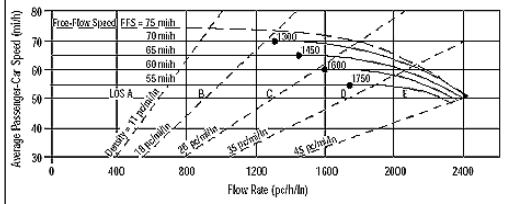

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2025 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*5395*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1942*	pc/h/ln	Design LOS		
S	*65.9*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*29.5*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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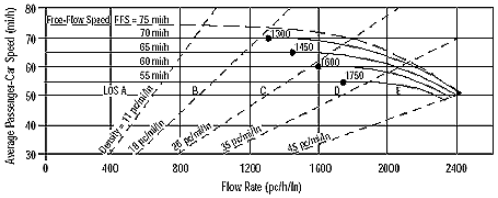

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2025 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*5269*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1897*	pc/h/ln	Design LOS		
S	*66.6*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*28.5*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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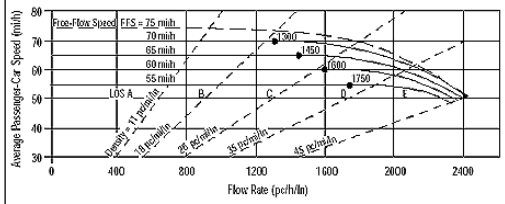
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2025 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4979*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1344*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*19.2*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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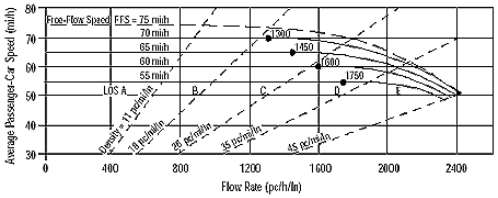

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2025 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4499*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*4*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1215*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*17.4*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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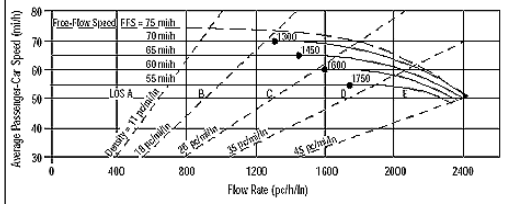

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2025 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3887*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1399*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*20.0*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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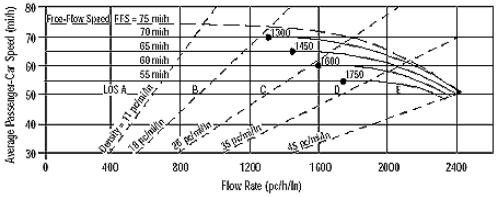

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2025 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3791*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1365*	pc/h/ln	Design LOS		
S	*70.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*19.5*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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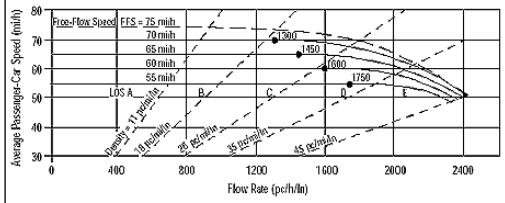

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2035 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*9838*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2125*	pc/h/ln	Design LOS		
S	*62.1*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*34.2*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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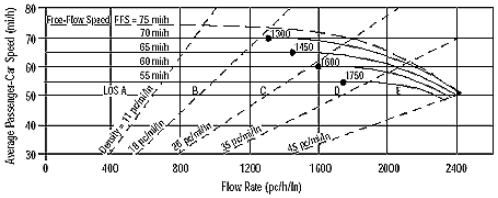

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2035 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*8704*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1880*	pc/h/ln	Design LOS		
S	*66.8*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*28.1*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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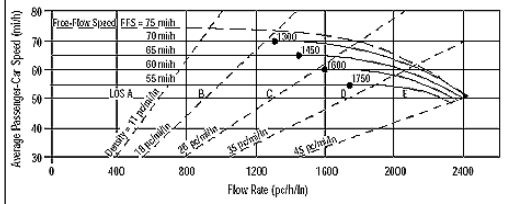

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2035 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*7760*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1676*	pc/h/ln	Design LOS		
S	*69.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*24.3*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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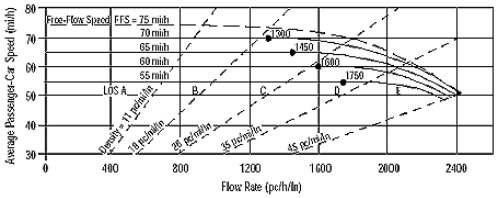
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2035 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*7631*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1648*	pc/h/ln	Design LOS		
S	*69.2*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*23.8*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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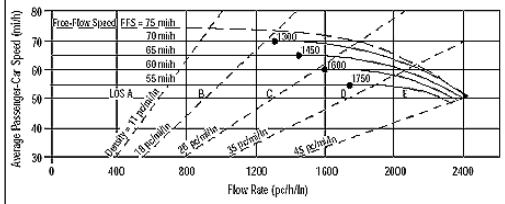
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2035 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*10941*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2363*	pc/h/ln	Design LOS		
S	*54.8*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*43.2*	pc/mi/ln	S		mi/h
LOS	*E*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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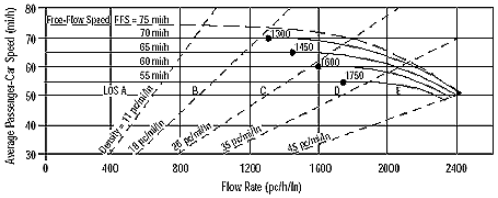
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2035 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*9555*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2064*	pc/h/ln	Design LOS		
S	*63.5*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*32.5*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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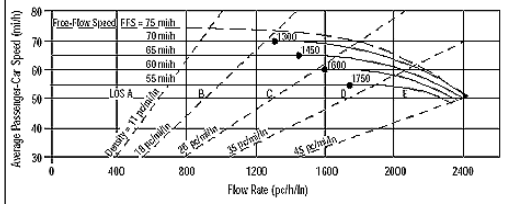

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2035 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*9577*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2069*	pc/h/ln	Design LOS		
S	*63.4*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*32.6*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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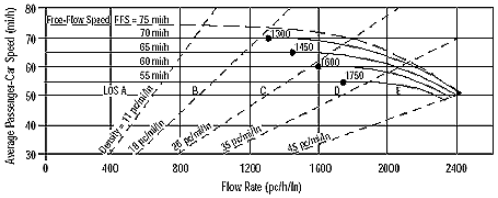

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado Street*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*AM Peak Hour*	Analysis Year	*2035 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*9538*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2060*	pc/h/ln	Design LOS		
S	*63.6*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*32.4*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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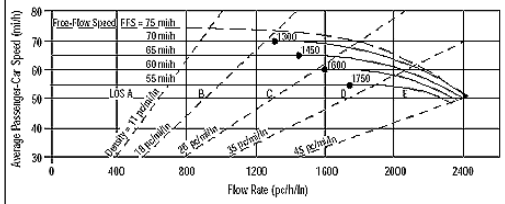
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2035 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*11201*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2419*	pc/h/ln	Design LOS		
S		mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S		pc/mi/ln	S		mi/h
LOS	*F*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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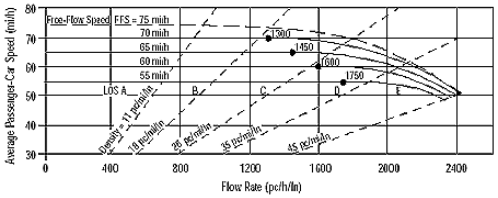
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2035 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*9686*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2092*	pc/h/ln	Design LOS		
S	*62.9*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*33.3*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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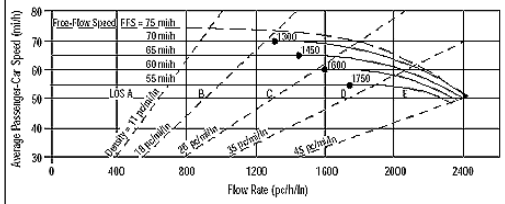

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2035 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*8789*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1898*	pc/h/ln	Design LOS		
S	*66.6*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*28.5*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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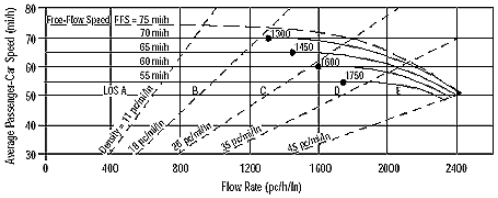
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Northbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2035 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*8752*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1890*	pc/h/ln	Design LOS		
S	*66.7*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*28.3*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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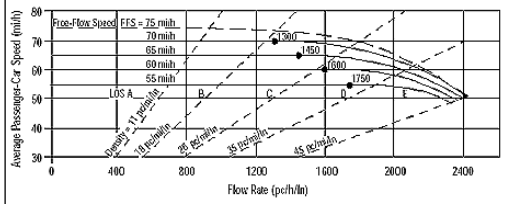

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Downing Avenue*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2035 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*11072*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2392*	pc/h/ln	Design LOS		
S	*53.6*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*44.6*	pc/mi/ln	S		mi/h
LOS	*E*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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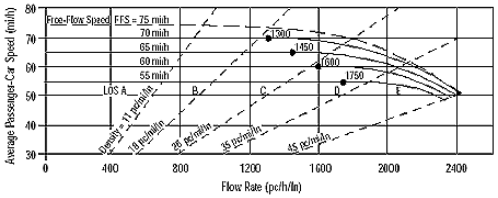

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of French Camp Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2035 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*9878*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2134*	pc/h/ln	Design LOS		
S	*61.9*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*34.5*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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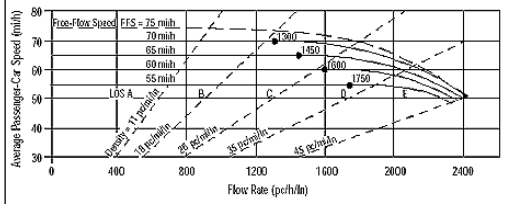

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of Mathews Road*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2035 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*8608*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1859*	pc/h/ln	Design LOS		
S	*67.1*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*27.7*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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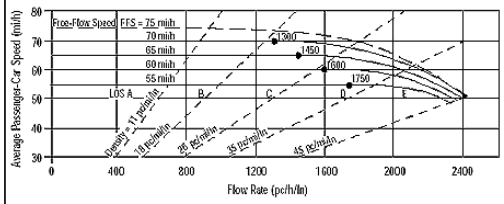

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*JH*	Highway/Direction of Travel	*I-5 Southbound*
Agency or Company	*Fehr & Peers Associates*	From/To	*North of El Dorado*
Date Performed	*4/10/2008*	Jurisdiction	*Stockton*
Analysis Time Period	*PM Peak Hour*	Analysis Year	*2035 With Project*

Project Description Weston Ranch Towne Center EIR

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*7331*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*16*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.926*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	I/mi	f_{ID}		mi/h
Number of Lanes, N	*5*		f_N		mi/h
FFS (measured)	*70.0*	mi/h	FFS	*70.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1583*	pc/h/ln	Design LOS		
S	*69.5*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*22.8*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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Exist+App+Proj PM          Tue May 13, 2008 13:44:18                Page 1-1
-------------------------------------------------------------------------------
                         Weston Ranch Towne Center EIR
                            Near-Term With Project
                                 PM Peak Hour
-------------------------------------------------------------------------------
                                Scenario Report
Scenario:              Exist+App+Proj PM

Command:               Ex+App+Proj PM
Volume:                Existing + Approved + Project PM
Geometry:              Existing Plus Approved Plus Project
Impact Fee:            Default Impact Fee
Trip Generation:       Project PM
Trip Distribution:     Existing
Paths:                 Default Path
Routes:                Default Route
Configuration:         Default Configuration

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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
#1001 French Camp Road/Driveway 1	??? / ???	No / No
#1002 French Camp Road/Driveway 2	??? / ???	No / No
#1004 French Camp Road/Driveway 3	??? / ???	No / No
#1006 Manthey Road/Driveway 4	??? / ???	No / No
#1007 Manthey Road/Driveway 5	??? / ???	No / No
#1010 Manthey Road/Major 1 Driveway	??? / ???	No / No

Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****
Intersection #1001 French Camp Road/Driveway 1
****
Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	0	0 0	0	0	0	0 1	0	0	2	0 0	0	0	2	0 1
Initial Vol:	0	0	0	0	0	0	0	14	0	1418	0	0	0	1564	146	
ApproachDel:	xxxxxx				16.8				xxxxxx				xxxxxx			

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=14]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=3142]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #1001 French Camp Road/Driveway 1

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	2	0	1
Initial Vol:	0		0		0	0		0		14	0	1418		0		0	1564		146	

Major Street Volume: 3128
Minor Approach Volume: 14
Minor Approach Volume Threshold: -108 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****

Intersection #1002 French Camp Road/Driveway 2

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	2	0	1
Initial Vol:	0		0		0	0		0		32	0	1418		0		0	1399		170	
ApproachDel:	xxxxxx					15.8					xxxxxx					xxxxxx				

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=32]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=3019]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1002 French Camp Road/Driveway 2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	2	0	1
Initial Vol:	0		0		0	0		0		32	0	1418		0		0	1399		170	

Major Street Volume: 2987
Minor Approach Volume: 32
Minor Approach Volume Threshold: -92 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #1004 French Camp Road/Driveway 3

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0
Initial Vol:	0		0		0	0		0		12	0	442		0		0	265		110	
ApproachDel:	xxxxxx					10.0					xxxxxx					xxxxxx				

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=12]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=829]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1004 French Camp Road/Driveway 3

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0
Initial Vol:	0		0		0	0		0		12	0		442		0	0		265		110

Major Street Volume: 817
Minor Approach Volume: 12
Minor Approach Volume Threshold: 273

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #1006 Manthey Road/Driveway 4

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	1	1	0	1	0	2	0	0	0	0	0	0	0	0	0	1!	0	0
Initial Vol:	0	332		194		11	416		0		0		0		0	218		0		12
ApproachDel:	xxxxxx					xxxxxx					xxxxxx					28.5				

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.8]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=230]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1183]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1006 Manthey Road/Driveway 4

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	1	1	0	1	0	2	0	0	0	0	0	0	0	0	0	1!	0	0
Initial Vol:	0	332			194	11	416			0	0		0		0	218		0		12

Major Street Volume: 953
Minor Approach Volume: 230
Minor Approach Volume Threshold: 301

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #1007 Manthey Road/Driveway 5

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	1	1	0	1	0	2	0	0	0	0	0	0	0	0	0	1!	0	0
Initial Vol:	0	212			132	11	151			0	0		0		0	276		0		12
ApproachDel:	xxxxxx					xxxxxx					xxxxxx					17.4				

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.4]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=288]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=794]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1007 Manthey Road/Driveway 5

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	1	1	0	1	0	2	0	0	0	0	0	0	0	0	0	1!	0	0
Initial Vol:	0	212			132	11	151			0	0			0	0	276			0	12

Major Street Volume: 506
Minor Approach Volume: 288
Minor Approach Volume Threshold: 520

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #1010 Manthey Road/Major 1 Driveway

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0
Initial Vol:	0	0			45	0	0			0	0			0	224			40	163	0
ApproachDel:	9.8					xxxxxx					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=45]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=472]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1010 Manthey Road/Major 1 Driveway

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	0	0 1	0	0	0	0 0	0	0	1	0 0	1	0	1	0 0
Initial Vol:	0		0	45	0		0	0	0		224	0	40		163	0

Major Street Volume: 427
Minor Approach Volume: 45
Minor Approach Volume Threshold: 578

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1001 French Camp Road/Driveway 1

Average Delay (sec/veh): 0.1 Worst Case Level Of Service: C[16.8]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	0	0	0 1	0	0	2	0 0	0	0	2	0 1
Volume Module:																
Base Vol:	0		0	0	0		0	0	0		530	0	0		840	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0		0	0	0		0	0	0		530	0	0		840	0
Added Vol:	0		0	0	0		0	6	0		888	0	0		724	138
PasserByVol:	0		0	0	0		0	8	0		0	0	0		0	8
Initial Fut:	0		0	0	0		0	14	0		1418	0	0		1564	146
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0		0	0	0		0	15	0		1493	0	0		1646	154
Reduct Vol:	0		0	0	0		0	0	0		0	0	0		0	0
FinalVolume:	0		0	0	0		0	15	0		1493	0	0		1646	154
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx		6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx		3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx		823	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx		321	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx		321	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx		0.05	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx			
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx		0.1	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx		16.8	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
LOS by Move:	*	*	*	*	*		C	*	*	*	*	*	*			
Movement:	LT -	LTR -	RT	LT -	LTR -	RT		LT -	LTR -	RT	LT -	LTR -	RT			
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Shared LOS:	*	*	*	*	*	*		*	*	*	*	*	*			
ApproachDel:	xxxxxx			16.8				xxxxxx			xxxxxx					
ApproachLOS:	*			C				*			*					

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1002 French Camp Road/Driveway 2

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C[15.8]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	0	0	0 1	0	0	2	0 0	0	0	2	0 1
Volume Module:																
Base Vol:	0	0	0	0	0	0	0	0	530	0	0	0	840	0		
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Initial Bse:	0	0	0	0	0	0	0	0	530	0	0	0	840	0		
Added Vol:	0	0	0	0	0	0	0	0	888	0	0	0	591	138		
Pass-by:	0	0	0	0	0	32	0	0	0	0	0	0	-32	32		
Initial Fut:	0	0	0	0	0	32	0	0	1418	0	0	0	1399	170		
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
PHF Volume:	0	0	0	0	0	34	0	0	1493	0	0	0	1473	179		
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
FinalVolume:	0	0	0	0	0	34	0	0	1493	0	0	0	1473	179		
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	736	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	366	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	366	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	0.09	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx				
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	0.3	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	15.8	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
LOS by Move:	*	*	*	*	*	C	*	*	*	*	*	*				
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*				
ApproachDel:	xxxxxx				15.8				xxxxxx				xxxxxx			
ApproachLOS:	*				C				*				*			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1004 French Camp Road/Driveway 3

Average Delay (sec/veh): 0.1 Worst Case Level Of Service: B[10.0]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	0	0	0 1	0	0	1	0 0	0	0	0	1 0
Volume Module:																
Base Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Added Vol:	0	0	0	0	0	12	0	442	0	0	265	110				
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0				
Initial Fut:	0	0	0	0	0	12	0	442	0	0	265	110				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Volume:	0	0	0	0	0	12	0	442	0	0	265	110				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
FinalVolume:	0	0	0	0	0	12	0	442	0	0	265	110				
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	320	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	725	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	725	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	0.02	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx				
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	0.1	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	10.0	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
LOS by Move:	*	*	*	*	*	B	*	*	*	*	*	*				
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*				
ApproachDel:	xxxxxx				10.0				xxxxxx				xxxxxx			
ApproachLOS:	*				B				*				*			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1006 Manthey Road/Driveway 4

Average Delay (sec/veh): 5.6 Worst Case Level Of Service: D[28.5]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1	1 0	1	0	2	0 0	0	0	0	0 0	0	0	1!	0 0
Volume Module:																
Base Vol:	0	200		0	0	140		0	0	0		0	0	0		0
Growth Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Initial Bse:	0	200		0	0	140		0	0	0		0	0	0		0
Added Vol:	0	122		152	11	244		0	0	0		0	198	0		12
PasserByVol:	0	10		42	0	32		0	0	0		0	20	0		0
Initial Fut:	0	332		194	11	416		0	0	0		0	218	0		12
User Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
PHF Adj:	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95
PHF Volume:	0	349		204	12	438		0	0	0		0	229	0		13
Reduct Vol:	0	0		0	0	0		0	0	0		0	0	0		0
FinalVolume:	0	349		204	12	438		0	0	0		0	229	0		13
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx		xxxxx	4.1	xxxx		xxxxx	xxxxx	xxxx		xxxxx	6.8	6.5		6.9
FollowUpTim:	xxxxx	xxxx		xxxxx	2.2	xxxx		xxxxx	xxxxx	xxxx		xxxxx	3.5	4.0		3.3
Capacity Module:																
Cnflict Vol:	xxxx	xxxx		xxxxx	554	xxxx		xxxxx	xxxx	xxxx		xxxxx	694	913		277
Potent Cap.:	xxxx	xxxx		xxxxx	1027	xxxx		xxxxx	xxxx	xxxx		xxxxx	381	276		727
Move Cap.:	xxxx	xxxx		xxxxx	1027	xxxx		xxxxx	xxxx	xxxx		xxxxx	378	273		727
Volume/Cap:	xxxx	xxxx		xxxx	0.01	xxxx		xxxx	xxxx	xxxx		xxxx	0.61	0.00		0.02
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx		xxxxx	0.0	xxxx		xxxxx	xxxx	xxxx		xxxxx	xxxx	xxxx		xxxxx
Control Del:	xxxxx	xxxx		xxxxx	8.5	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx
LOS by Move:	*	*		*	A	*		*	*	*		*	*	*		*
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	xxxx		xxxxx	xxxx	xxxx		xxxxx	xxxx	xxxx		xxxxx	xxxx	388		xxxxx
SharedQueue:	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	4.1		xxxxx
Shrd ConDel:	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	28.5		xxxxx
Shared LOS:	*	*		*	*	*		*	*	*		*	*	D		*
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				28.5			
ApproachLOS:	*				*				*				D			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1007 Manthey Road/Driveway 5

Average Delay (sec/veh): 6.4 Worst Case Level Of Service: C[17.4]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1	1 0	1	0	2	0 0	0	0	0	0 0	0	0	1!	0 0
Volume Module:																
Base Vol:	0	200		0	0	140		0	0	0		0	0	0		0
Growth Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Initial Bse:	0	200		0	0	140		0	0	0		0	0	0		0
Added Vol:	0	12		122	11	11		0	0	0		0	244	0		12
PasserByVol:	0	0		10	0	0		0	0	0		0	32	0		0
Initial Fut:	0	212		132	11	151		0	0	0		0	276	0		12
User Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
PHF Adj:	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95
PHF Volume:	0	223		139	12	159		0	0	0		0	291	0		13
Reduct Vol:	0	0		0	0	0		0	0	0		0	0	0		0
FinalVolume:	0	223		139	12	159		0	0	0		0	291	0		13
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx		xxxxx	4.1	xxxx		xxxxx	xxxxx	xxxx		xxxxx	6.8	6.5		6.9
FollowUpTim:	xxxxx	xxxx		xxxxx	2.2	xxxx		xxxxx	xxxxx	xxxx		xxxxx	3.5	4.0		3.3
Capacity Module:																
Cnflict Vol:	xxxx	xxxx		xxxxx	362	xxxx		xxxxx	xxxx	xxxx		xxxxx	395	475		181
Potent Cap.:	xxxx	xxxx		xxxxx	1208	xxxx		xxxxx	xxxx	xxxx		xxxxx	587	491		837
Move Cap.:	xxxx	xxxx		xxxxx	1208	xxxx		xxxxx	xxxx	xxxx		xxxxx	583	487		837
Volume/Cap:	xxxx	xxxx		xxxx	0.01	xxxx		xxxx	xxxx	xxxx		xxxx	0.50	0.00		0.02
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx		xxxxx	0.0	xxxx		xxxxx	xxxx	xxxx		xxxxx	xxxx	xxxx		xxxxx
Control Del:	xxxxx	xxxx		xxxxx	8.0	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx
LOS by Move:	*	*		*	A	*		*	*	*		*	*	*		*
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	xxxx		xxxxx	xxxx	xxxx		xxxxx	xxxx	xxxx		xxxxx	xxxx	590		xxxxx
SharedQueue:	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	2.9		xxxxx
Shrd ConDel:	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	17.4		xxxxx
Shared LOS:	*	*		*	*	*		*	*	*		*	*	C		*
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				17.4			
ApproachLOS:	*				*				*				C			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Near-Term With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

```
*******************************************************************************
Intersection #1010 Manthey Road/Major 1 Driveway
*******************************************************************************
Average Delay (sec/veh):      1.6       Worst Case Level Of Service: A[  9.8]
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  1    0  0  0  0  0    0  0  1  0  0    1  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0  200     0     0  140     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0     0     0  200     0     0  140     0
Added Vol:      0    0    45     0    0     0     0   24     0    40   23     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0    45     0    0     0     0  224     0    40  163     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:     0    0    49     0    0     0     0  243     0    43  177     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0    49     0    0     0     0  243     0    43  177     0
Critical Gap Module:
Critical Gp:xxxxx xxxx   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:xxxxx xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx   243  xxxx xxxx xxxxx  xxxx xxxx xxxxx   243 xxxx xxxxx
Potent Cap.: xxxx xxxx   800  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1335 xxxx xxxxx
Move Cap.:   xxxx xxxx   800  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1335 xxxx xxxxx
Volume/Cap:  xxxx xxxx  0.06  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.03 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx   0.2  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.1 xxxx xxxxx
Control Del:xxxxx xxxx   9.8 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.8 xxxx xxxxx
LOS by Move:   *    *     A     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:       9.8           xxxxxx            xxxxxx            xxxxxx
ApproachLOS:        A                 *                 *                 *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```


Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Scenario Report

Scenario:	Cumulative PM
Command:	Cumulative PM
Volume:	Cumulative PM
Geometry:	Cumulative
Impact Fee:	Default Impact Fee
Trip Generation:	Project PM
Trip Distribution:	Peak Hour
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
#1001 French Camp Road/Driveway 1	??? / ???	No / No
#1002 French Camp Road/Driveway 2	??? / ???	No / No
#1004 French Camp Road/Driveway 3	??? / ???	No / No
#1006 Manthey Road/Driveway 4	??? / ???	Yes / Yes
#1007 Manthey Road/Driveway 5	??? / ???	No / No
#1010 Manthey Road/Major 1	??? / ???	No / No

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

****
Intersection #1001 French Camp Road/Driveway 1
****
Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	0	0 0	0	0	0	0 1	0	0	3	0 0	0	0	3	0 1
Initial Vol:	0	0	0	0	0	0	12		0	1981	0		0	2895	119	
ApproachDel:	xxxxxx				19.6				xxxxxx				xxxxxx			

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=12]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=5007]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1001 French Camp Road/Driveway 1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	3	0	1
Initial Vol:	0		0		0	0		0		12	0	1981			0	0	2895			119

Major Street Volume: 4995
Minor Approach Volume: 12
Minor Approach Volume Threshold: -269 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #1002 French Camp Road/Driveway 2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	3	0	1
Initial Vol:	0		0		0	0		0		46	0	1981			0	0	2728			171
ApproachDel:	xxxxxx					20.3					xxxxxx					xxxxxx				

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=46]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=4926]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1002 French Camp Road/Driveway 2

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	3	0	1
Initial Vol:	0		0		0	0		0		46	0	1981			0	0	2728			171

Major Street Volume: 4880
Minor Approach Volume: 46
Minor Approach Volume Threshold: -261 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #1004 French Camp Road/Driveway 3

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	3	0	1
Initial Vol:	0		0		0	0		0		12	0	1274			0	0	2322			62
ApproachDel:	xxxxxx					15.8					xxxxxx					xxxxxx				

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=12]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=3670]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1004 French Camp Road/Driveway 3

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	3	0	1
Initial Vol:	0		0		0	0		0		12	0	1274			0	0	2322			62

Major Street Volume: 3658
Minor Approach Volume: 12
Minor Approach Volume Threshold: -162 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #1006 Manthey Road/Driveway 4

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	1	1	0	1	0	2	0	0	0	0	0	0	0	0	0	1!	0	0
Initial Vol:	0	796		200		35	466		0		0		0		0	141		0		37
ApproachDel:	xxxxxx					xxxxxx					xxxxxx					123.6				

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=6.1]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=178]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1675]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1006 Manthey Road/Driveway 4

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	1	1	0	1	0	2	0	0	0	0	0	0	0	0	0	1!	0	0
Initial Vol:	0	796			200	35	466			0	0			0	0	141			0	37

Major Street Volume: 1497
Minor Approach Volume: 178
Minor Approach Volume Threshold: 146

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #1007 Manthey Road/Driveway 5

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	1	1	0	1	0	1	1	0	0	0	0	0	0	0	0	1!	0	0
Initial Vol:	0	769			54	6	318			0	0			0	0	183			0	6
ApproachDel:	xxxxxx					xxxxxx					xxxxxx					65.7				

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=3.4]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=189]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1336]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1007 Manthey Road/Driveway 5

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	1	1	0	1	0	1	1	0	0	0	0	0	0	0	0	1!	0	0
Initial Vol:	0	769			54	6	318			0	0		0		0	183		0		6

Major Street Volume: 1147
Minor Approach Volume: 189
Minor Approach Volume Threshold: 238

SIGNAL WARRANT DISCLAIMER
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Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #1010 Manthey Road/Major 1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0
Initial Vol:	0	0			35	0	0			0	0	775			0	34	324			0
ApproachDel:	14.8					xxxxxx					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=35]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1168]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1010 Manthey Road/Major 1

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	0	0 1	0	0	0	0 0	0	0	1	0 0	1	0	1	0 0
Initial Vol:	0		0	35	0		0	0	0		775	0	34		324	0

Major Street Volume: 1133
Minor Approach Volume: 35
Minor Approach Volume Threshold: 242

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1001 French Camp Road/Driveway 1

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: C[19.6]

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	3	0	1
Volume Module:																				
Base Vol:	0		0		0	0		0		0	0		1001		0	0		2076		0
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	0		0		0	0		0		0	0		1001		0	0		2076		0
Added Vol:	0		0		0	0		0		4	0		980		0	0		819		111
PasserByVol:	0		0		0	0		0		8	0		0		0	0		0		8
Initial Fut:	0		0		0	0		0		12	0		1981		0	0		2895		119
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Volume:	0		0		0	0		0		12	0		1981		0	0		2895		119
Reduct Vol:	0		0		0	0		0		0	0		0		0	0		0		0
FinalVolume:	0		0		0	0		0		12	0		1981		0	0		2895		119
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx		xxxxx		xxxxx	xxxx			6.9	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
FollowUpTim:	xxxxx	xxxx		xxxxx		xxxxx	xxxx			3.3	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx		xxxxx		xxxx	xxxx			965	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
Potent Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx			259	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
Move Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx			259	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
Volume/Cap:	xxxx	xxxx		xxxx		xxxx	xxxx			0.05	xxxx	xxxx		xxxx		xxxx	xxxx		xxxx	
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx		xxxxx		xxxx	xxxx			0.1	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
Control Del:	xxxxx	xxxx		xxxxx		xxxxx	xxxx			19.6	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
LOS by Move:	*		*		*	*		*		C	*		*		*	*		*		*
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
SharedQueue:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
Shrd ConDel:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
Shared LOS:	*		*		*	*		*		*	*		*		*	*		*		*
ApproachDel:	xxxxxx					19.6					xxxxxx					xxxxxx				
ApproachLOS:	*					C					*					*				

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1002 French Camp Road/Driveway 2

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C[20.3]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	0	0	0 1	0	0	3	0 0	0	0	3	0 1
Volume Module:																
Base Vol:	0	0	0	0	0	0	0	0	1001	0	0	0	2076	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	0	1001	0	0	0	2076	0	0	0
Added Vol:	0	0	0	0	0	0	0	6	0	980	0	0	0	692	131	
Pass-by:	0	0	0	0	0	0	0	40	0	0	0	0	0	-40	40	
Initial Fut:	0	0	0	0	0	0	0	46	0	1981	0	0	2728	171		
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Volume:	0	0	0	0	0	0	0	46	0	1981	0	0	2728	171		
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
FinalVolume:	0	0	0	0	0	0	0	46	0	1981	0	0	2728	171		
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx			6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx			3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx			909	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx			281	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx			281	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx			0.16	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx		
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx			0.6	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx			20.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
LOS by Move:	*	*	*	*	*			C	*	*	*	*	*	*		
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
Shared LOS:	*	*	*	*	*	*			*	*	*	*	*	*		
ApproachDel:	xxxxxx				20.3				xxxxxx				xxxxxx			
ApproachLOS:	*				C				*				*			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1004 French Camp Road/Driveway 3

Average Delay (sec/veh): 0.1 Worst Case Level Of Service: C[15.8]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	0	0	0 1	0	0	3	0 0	0	0	3	0 1
Volume Module:																
Base Vol:	0	0	0	0	0	0	0	0	761	0	0	1906	0			
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Initial Bse:	0	0	0	0	0	0	0	0	761	0	0	1906	0			
Added Vol:	0	0	0	0	0	0	12	0	513	0	0	416	62			
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	0			
Initial Fut:	0	0	0	0	0	0	12	0	1274	0	0	2322	62			
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Volume:	0	0	0	0	0	0	12	0	1274	0	0	2322	62			
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0			
FinalVolume:	0	0	0	0	0	0	12	0	1274	0	0	2322	62			
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx			6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx			3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx			774	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx			346	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx			346	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx			0.03	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx		
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx			0.1	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx			15.8	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
LOS by Move:	*	*	*	*	*			C	*	*	*	*	*	*		
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
Shared LOS:	*	*	*	*	*	*			*	*	*	*	*	*		
ApproachDel:	xxxxxx				15.8				xxxxxx				xxxxxx			
ApproachLOS:	*				C				*				*			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1006 Manthey Road/Driveway 4

Average Delay (sec/veh): 13.4 Worst Case Level Of Service: F[123.6]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1	1 0	1	0	2	0 0	0	0	0	0 0	0	0	1!	0 0
Volume Module:																
Base Vol:	0	505		0	0	24		0	0	0		0	0	0		0
Growth Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Initial Bse:	0	505		0	0	24		0	0	0		0	0	0		0
Added Vol:	0	281		162	35	364		0	0	0		0	171	0		37
PasserByVol:	0	10		38	0	78		0	0	0		0	-30	0		0
Initial Fut:	0	796		200	35	466		0	0	0		0	141	0		37
User Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
PHF Adj:	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95
PHF Volume:	0	838		211	37	491		0	0	0		0	148	0		39
Reduct Vol:	0	0		0	0	0		0	0	0		0	0	0		0
FinalVolume:	0	838		211	37	491		0	0	0		0	148	0		39
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx		xxxxx	4.1	xxxx		xxxxx	xxxxx	xxxx		xxxxx	6.8	6.5		6.9
FollowUpTim:	xxxxx	xxxx		xxxxx	2.2	xxxx		xxxxx	xxxxx	xxxx		xxxxx	3.5	4.0		3.3
Capacity Module:																
Cnflict Vol:	xxxx	xxxx		xxxxx	1048	xxxx		xxxxx	xxxx	xxxx		xxxxx	1262	1507		524
Potent Cap.:	xxxx	xxxx		xxxxx	671	xxxx		xxxxx	xxxx	xxxx		xxxxx	165	122		503
Move Cap.:	xxxx	xxxx		xxxxx	671	xxxx		xxxxx	xxxx	xxxx		xxxxx	158	115		503
Volume/Cap:	xxxx	xxxx		xxxx	0.05	xxxx		xxxx	xxxx	xxxx		xxxx	0.94	0.00		0.08
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx		xxxxx	0.2	xxxx		xxxxx	xxxx	xxxx		xxxxx	xxxx	xxxx		xxxxx
Control Del:	xxxxx	xxxx		xxxxx	10.7	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx
LOS by Move:	*	*		*	B	*		*	*	*		*	*	*		*
Movement:	LT -	LTR -		RT	LT -	LTR -		RT	LT -	LTR -		RT	LT -	LTR -		RT
Shared Cap.:	xxxx	xxxx		xxxxx	xxxx	xxxx		xxxxx	xxxx	xxxx		xxxxx	xxxx	184		xxxxx
SharedQueue:	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	8.6		xxxxx
Shrd ConDel:	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	124		xxxxx
Shared LOS:	*	*		*	*	*		*	*	*		*	*	F		*
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				123.6			
ApproachLOS:	*				*				*				F			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1007 Manthey Road/Driveway 5

Average Delay (sec/veh): 9.3 Worst Case Level Of Service: F[65.7]

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1	1 0	1	0	1	1 0	0	0	0	0 0	0	0	1!	0 0
Volume Module:																
Base Vol:	0	505		0	0	24		0	0	0		0	40	0		0
Growth Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Initial Bse:	0	505		0	0	24		0	0	0		0	40	0		0
Added Vol:	0	264		54	6	294		0	0	0		0	105	0		6
PasserByVol:	0	0		0	0	0		0	0	0		0	38	0		0
Initial Fut:	0	769		54	6	318		0	0	0		0	183	0		6
User Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
PHF Adj:	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95
PHF Volume:	0	809		57	6	335		0	0	0		0	193	0		6
Reduct Vol:	0	0		0	0	0		0	0	0		0	0	0		0
FinalVolume:	0	809		57	6	335		0	0	0		0	193	0		6
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx		xxxxx	4.1	xxxx		xxxxx	xxxxx	xxxx		xxxxx	6.8	6.5		6.9
FollowUpTim:	xxxxx	xxxx		xxxxx	2.2	xxxx		xxxxx	xxxxx	xxxx		xxxxx	3.5	4.0		3.3
Capacity Module:																
Cnflict Vol:	xxxx	xxxx		xxxxx	866	xxxx		xxxxx	xxxx	xxxx		xxxxx	1018	1185		433
Potent Cap.:	xxxx	xxxx		xxxxx	786	xxxx		xxxxx	xxxx	xxxx		xxxxx	237	190		576
Move Cap.:	xxxx	xxxx		xxxxx	786	xxxx		xxxxx	xxxx	xxxx		xxxxx	235	189		576
Volume/Cap:	xxxx	xxxx		xxxx	0.01	xxxx		xxxx	xxxx	xxxx		xxxx	0.82	0.00		0.01
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx		xxxxx	0.0	xxxx		xxxxx	xxxx	xxxx		xxxxx	xxxx	xxxx		xxxxx
Control Del:	xxxxx	xxxx		xxxxx	9.6	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx
LOS by Move:	*	*		*	A	*		*	*	*		*	*	*		*
Movement:	LT -	LTR -		RT	LT -	LTR -		RT	LT -	LTR -		RT	LT -	LTR -		RT
Shared Cap.:	xxxx	xxxx		xxxxx	xxxx	xxxx		xxxxx	xxxx	xxxx		xxxxx	xxxx	240		xxxxx
SharedQueue:	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	6.4		xxxxx
Shrd ConDel:	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx		xxxxx	xxxxx	65.7		xxxxx
Shared LOS:	*	*		*	*	*		*	*	*		*	*	F		*
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				65.7			
ApproachLOS:	*				*				*				F			

Note: Queue reported is the number of cars per lane.

Weston Ranch Towne Center EIR
Future 2035 With Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1010 Manthey Road/Major 1

Average Delay (sec/veh): 0.7 Worst Case Level Of Service: B[14.8]

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0
Volume Module:																				
Base Vol:	0	0	0	0	0	0	0	0	0	0	0	505	0	0	0	0	24	0		
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	505	0	0	0	0	24	0		
Added Vol:	0	0	35	0	0	0	0	0	0	0	0	270	0	0	34	300	0			
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Initial Fut:	0	0	35	0	0	0	0	0	0	0	0	775	0	0	34	324	0			
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Volume:	0	0	35	0	0	0	0	0	0	0	0	775	0	0	34	324	0			
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
FinalVolume:	0	0	35	0	0	0	0	0	0	0	0	775	0	0	34	324	0			
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	775	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	775	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	401	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	850	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	401	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	850	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	0.09	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.04	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	0.3	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	14.8	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.4	xxxx	xxxxx								
LOS by Move:	*	*	B	*	*	*	*	*	*	A	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*								
ApproachDel:	14.8			xxxxxx			xxxxxx			xxxxxx										
ApproachLOS:	B			*			*			*										

Note: Queue reported is the number of cars per lane.

Appendix B
Notices

CITY OF STOCKTON
PUBLIC NOTICE OF AVAILABILITY/ NOTICE OF PUBLIC MEETING
DRAFT ENVIRONMENTAL IMPACT REPORT
(Pursuant to Public Resources Code Sections 21092 and 21092.3 and Cal. Code of Regulations Title 14, Sections 15072, 15073 and 15087)

The City of Stockton Community Development Department has completed, independently reviewed and analyzed the following Environmental Impact Report:

1. Draft Environmental Impact Report (DEIR5-04) for the Weston Ranch Towne Center Project – The project proposes a commercial development including up to 710,000 square feet of shopping center retail space including large retail stores, in-line shops, retail pad stores, restaurants, and fuel centers on 65.8 acres. The project also proposes parking, landscaping, and utility relocation and upgrades. The proposed project will include a general plan amendment, rezone, tentative maps, development agreements, and a use permit with project plan. The property is located at the southern boundary of the City of Stockton immediately north of French Camp Road, west of Manthey Road and Interstate 5, and east of McDougal Boulevard. The property is entirely within Stockton city limits.

A copy of the Draft EIR may be reviewed and/or obtained at the following addresses:

Community Development Department
Planning Division
345 North El Dorado Street
Stockton, CA 95202

The Draft EIR may also be reviewed at the following public library locations:

Cesar Chavez Central Library
605 North El Dorado Street
Stockton, CA 95202

Fair Oaks Branch Library
2370 East Main Street
Stockton, CA

Maya Angelou Branch Library
2324 Pock Lane
Stockton, CA 95205

Margaret K. Troke Branch Library
502 West Benjamin Holt Drive
Stockton, CA 95207

Any written comments on this document must be received at this same address no later than **February 5, 2007** by 5:00 p.m. Further information may be obtained by contacting the City Planning Division at (209) 937-8266.

CHRISTINE TIEN, INTERIM DIRECTOR
COMMUNITY DEVELOPMENT DEPARTMENT

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CITY OF STOCKTON
ENVIRONMENTAL DOCUMENT TRANSMITTAL LETTER

December 4, 2006

TO: (See Attached List)

FROM: Lead Agency
City of Stockton
c/o Community Development Dept.
Planning Division
345 North El Dorado Street
Stockton, CA 95202

SUBJECT: **PUBLIC REVIEW OF THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE WESTON RANCH TOWNE CENTER PROJECT (EIR5-04)**

Enclosed is a copy of the Notice of Completion (NOC) for the above-named environmental document. Also, a copy of the environmental document, with applicable attachments, is also being transmitted to each "Responsible", "Trustee", and other public agency included on the attached list, as applicable. State agencies, however, should obtain the environmental document, with attachments, directly from the State Clearinghouse.

The remaining agencies, organizations and individuals on the attached list are receiving only this transmittal letter and the NOC. Public agencies may obtain a free copy of the above-named environmental document at the above-noted Lead Agency address. Private individuals, organizations, and corporations may purchase a copy of the environmental document for a fee of $25.00. If mailing is requested, please remit an additional fee of $5.00 for postage and handling. Checks should be made payable to the City of Stockton and any written orders must identify the project title and document identification number, as noted above.

Any written comments regarding the above-named environmental document must be received at the Lead Agency address no later than February 5, 2007 by 5:00 p.m. If no comments are received by the date indicated, it will be assumed that the document is acceptable. Further information may be obtained by contacting Mark Martin, Project Manager III of the Community Development Department, Planning Division at (209) 937-8569.

CHRISTINE TIEN, INTERIM DIRECTOR
COMMUNITY DEVELOPMENT DEPARTMENT

By _____ Date November 28, 2006
Mark Martin, Project Manager III

CT:MM

::ODMA\GRPWISE\COS.CDD.CDD_Library:57739.1

Form A

Notice of Completion and Environmental Document Transmittal

SCH # 2005012056

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 916/445-0613

Project Title: Weston Ranch Towne Center

Lead Agency: City of Stockton Contact Person: Mark Martin, Project Manager III

Street Address: 345 N. El Dorado Street Phone: (209) 937-8266

City: Stockton Zip: 95202 County: San Joaquin

Project Location:

County: San Joaquin City/Nearest Community: Stockton

Cross Streets: French Camp Road & Manthey Road Zip Code: 95206 Total Acres: 65.8

Assessor's Parcel No(s):168-190-06, -07, -10, 168-190-08, -09, Portion of 168-170-07 Twp. T1N Range: R6E Base: MD

Within 2 Miles: State Hwy #: I-5 Waterways: San Joaquin River, French Camp Slough, Walker Slough

Airports: N/A Railways: UPRR, TSRR Schools: Taft Elementary, August Knodt Jr. Elementary, Weston Ranch High School, Great Valley Elementary, Taylor Magnet School, Marshall Middle School, McKinley Elementary

Document Type:

CEQA:
- ☐ NOP
- ☐ Early Cons
- ☐ Neg Dec
- ☒ Draft EIR
- ☐ Supplement/Subsequent EIR (Prior SCH No.) _____
- ☐ Other _____

NEPA:
- ☐ NOI
- ☐ EA
- ☐ Draft EIS
- ☐ FONSI

Other:
- ☐ Joint Document
- ☐ Final Document
- ☐ Other _____

Local Action Type:

- ☐ General Plan Update
- ☒ General Plan Amendment
- ☐ General Plan Element
- ☐ Community Plan
- ☐ Specific Plan
- ☐ Master Plan
- ☐ Planned Unit Development
- ☒ Site Plan
- ☒ Rezone
- ☐ Prezone
- ☒ Use Permit
- ☒ Land Division (Subdivision, etc.)
- ☐ Annexation
- ☐ Redevelopment
- ☐ Coastal Permit
- ☒ Other Development Agreement

Development Type:

	Residential:	Units _____	Acres _____	
☐	Office:	Sq. ft. _____	Acres _____	Employees _____
X	Commercial:	Sq. ft. 710,000	Acres 65.8	Employees _____
☐	Industrial:	Sq. ft. _____	Acres _____	Employees _____
☐	Educational			
☐	Recreational			

- ☐ Water Facilities: Type _____ MGD _____
- ☐ Transportation: Type _____
- ☐ Mining: Mineral _____
- ☐ Power: Type _____ Watts _____
- ☐ Waste Treatment: Type _____
- ☐ Hazardous Waste: Type _____
- ☐ Other: _____

Funding (approx.): Federal $ _____ State $ _____ Total $ _____

Project Issues Discussed in Document:

- ☒ Aesthetic/Visual
- ☒ Agricultural Land
- ☒ Air Quality
- ☒ Archeological/Historical
- ☐ Coastal Zone
- ☒ Drainage/Absorption
- ☒ Economic/Jobs
- ☐ Fiscal
- ☐ Flood Plain/Flooding
- ☐ Forest Land/Fire Hazard
- ☒ Geologic/Seismic
- ☐ Minerals
- ☒ Noise
- ☐ Population/Housing Balance
- ☒ Public Services/Facilities
- ☐ Recreation/Parks
- ☐ Schools/Universities
- ☐ Septic Systems
- ☒ Sewer Capacity
- ☐ Soil Erosion/Compaction/Grading
- ☒ Solid Waste
- ☒ Toxic/Hazardous
- ☒ Traffic/Circulation
- ☐ Vegetation
- ☒ Water Quality
- ☒ Water Supply/Groundwater
- ☐ Wetland/Riparian
- ☒ Wildlife
- ☒ Growth Inducing
- ☒ Landuse
- ☒ Cumulative Effects
- ☐ Other _____

Present Land Use/Zoning/General Plan Designation: **Present LU:** Vacant & 4 single family structures, **Z:** CG - Commercial General, RL – Single-Family Residential, **GP:** Commercial, Low-Medium Density Residential

Project Description: The project proposes a commercial development which would include up to 710,000 square feet of shopping center retail space including large retail stores, in-line shops, retail pad stores, restaurants, and fuel

Revised 07-15-02

centers on 65.8 acres. The project also proposes parking, landscaping, and utility relocation and upgrades. The proposed project will include a general plan amendment, rezone of the site, tentative maps, development agreements, and a use permit with project plan. The property is located at the southern boundary of the City of Stockton immediately north of French Camp Road, west of Manthey Road and Interstate 5, and east of McDougal Boulevard. The property is entirely within Stockton city limits.

REVIEWING AGENCIES CHECKLIST

Form A, continued

KEY
S = Document sent by lead agency
X = Document sent by SCH
√ = Suggested distribution

_____ **Resources Agency**
_____ Boating & Waterways
_____ Coastal Commission
_____ Coastal Conservancy
_____ Colorado River Board
_____ Conservation
_____ Fish & Game
_____ Forestry & Fire Protection
_____ Office of Historic Preservation
_____ Parks & Recreation
_____ Reclamation Board
_____ S.F. Bay Conservation & Development Commission
_____ Water Resources (DWR)

Business, Transportation & Housing
_____ Aeronautics
_____ California Highway patrol
_____ CALTRANS District #_____
_____ Department of Transportation Planning (Headquarters)
_____ Housing & Community Development

_____ **Food & Agriculture**

Health & Welfare
_____ Health Services _____

State & Consumer Services
_____ General Services
_____ OLA (Schools)

Environmental Protection Agency
_____ Air Resources Board
_____ California Waste Management Board
_____ SWRCB: Clean Water Grants
_____ SWRCB: Delta Unit
_____ SWRCB: Water Quality
_____ SWRCB: Water Rights
_____ Regional WQCB # _____ (_____)

Youth & Adult Corrections
_____ Corrections

Independent Commissions & Offices
_____ Energy Commission
_____ Native American Heritage Commission
_____ Public Utilities Commission
_____ Santa Monica Mountains Conservancy
_____ State Lands Commission
_____ Tahoe Regional Planning Agency

Other _____

Public Review Period (to be filled in by lead agency)

Starting Date: December 4, 2006

Ending Date: February 5, 2006

Signature _____

Date: November 28, 2006

Lead Agency (Complete if applicable):
Consulting Firm: ESA Associates
Address: 8950 Cal Center Drive, Bldg 3, Suite 300
City/State/Zip: Sacramento, CA 95826
Contact: Brian Gratfidge
Phone: (916) 564-4500

Applicant: Vestar Development Company, et al.
Address: 7575 Carson Blvd.
City/State/Zip: Long Beach, CA 90808
Phone: (916) 564-4500

For SCH Use Only:
Date Received at SCH _____
Date Review Starts _____
Date to Agencies _____
Date to SCH _____
Clearance Date _____
Notes:

Weston Ranch Towne Center DEIR (EIR5-04)

PUBLIC CIRCULATION MAILING LIST

GROUP	*Agency*	*Representative:*				*EnvDoc*	*NOA*	*Tech CD*	*Tech Appd*
COS	Cesar Chavez Library	Attn: Reference Dept.				☑	☐	☐	☐
COS	City Attorney	Attn: Guy Petzold	City Hall			☑	☐	☐	☐
COS	City Clerk	*** HOLD FOR LATER DISTRIB				☑	☐	☐	☑
COS	City Council (11) Includes City Manager C	*** HOLD FOR LATER DISTRIB				☑ 11	☐	☐	☑ 11
COS	Community Dev. Dept.	Planning Division	CDD			☑	☐	☐	☑ 5
COS	Community Dev. Dept.	Building Division	CDD			☑	☐	☐	☐
COS	Community Dev. Dept.	Administration Division	CDD			☑	☐	☐	☐
COS	Fair Oaks Branch Library		2370 E. Main Street	Stockton, CA	95202	☑	☐	☐	☐
COS	Fire Prevention Division					☑	☐	☐	☐
COS	Housing & Redevelopment	Steve Pinkerton	SEB			☑	☐	☐	☐
COS	M.K. Troke Library		502 W. Benjamin Holt Drive	Stockton, CA	95207	☑	☐	☐	☐
COS	Maya Angelou SE Library		2324 Pock Lane	Stockton, CA	95205	☑	☐	☐	☐
COS	Municipal Utilities Dept.	Murdoch/Tovar	City Hall			☑	☐	☐	☑
COS	Municipal Utilities Dept.	Mark Madison				☑	☐	☐	☐
COS	Parks & Rec Dept	Attn: Victor Machado	City Hall			☑	☐	☐	☐
COS	Planning Commission (10)	*** HOLD FOR LATER DISTRIB				☑ 10	☐	☐	☑ 10
COS	Police Dept	Attn: Bob Marconi	City Hall			☑	☐	☐	☐
COS	Public Works (2)	Ray Deyto	SEB 3rd Floor			☑ 2	☐	☐	☑
COS	Public Works Dept	Development Services, Attn: N.	City Hall			☑	☐	☐	☐
COS	Public Works Dept (2)	Admin/Engin. Attn: Giottonini/M	City Hall			☑ 2	☐	☐	☑
COS	Public Works Dept (2)	Development Services	City Hall			☑ 2	☐	☐	☑ 2
NOA		Debbie Dowdell	1987 Erickson Circle	Stockton, CA	95206-6354	☐	☑	☐	☐
NOA		Charlie Tseng	21911 Lone Oak Circle	San Jose, CA	95120	☐	☑	☐	☐
NOA		Jim Watt	286 Grizzly Peak Blvd.	Berkeley, CA	94708	☐	☑	☐	☐
NOA	Hoge Fenton Jones & Appel	Joseph M. Karnes	60 South Market Street, Ste. 1400	San Jose, CA	95113	☐	☑	☐	☐
NOA	Protect Weston Ranch Coalition	c/o Keith G. Wagner	3400 Cottage Way, Suite K	Sacramento, CA	95825	☐	☑	☐	☐
NOA	William Copper	Attorney at Law	417 E Street	Davis, CA	95616	☐	☑	☐	☐
OTHER	Weston Ranch Organizing Committee	c/o Mitzi Stites	1667 Erickson Circle	Stockton, CA	95205	☑	☐	☐	☐

GROUP	Agency	Representative:				EnvDoc	NOA	Tech CD	Tech Appd
OTHER	Wildlands Inc.	Kim Erickson	3855 Atherton Road	Rocklin, CA	95765	☑	☐	☐	☑
OTHERS	BIA of the Delta	Kevin Sharrar	509 West Weber Ave., Ste. 410	Stockton, CA	95203	☐	☑	☐	☐
OTHERS	Campaign for Common Ground	Trevor Atkinson	6561 Gadwall Circle	Stockton, CA	95207	☑	☐	☐	☐
OTHERS	Downtown Stockton Alliance	Don Geiger	306 East Main Street, Suite 200-A	Stockton, CA	95201-0173	☐	☑	☐	☐
OTHERS	French Camp	Municipal Advisory council	P.O. Box 681	French Camp, CA	95231	☑	☐	☐	☐
OTHERS	North Valley Yokut Tribe	Katherine Perez	1234 Luna Lane	Stockton, CA	95206	☑	☐	☐	☐
OTHERS	San Joaquin Business Council	Ron Addington	2800 W. March Lane, suite 470	Stockton, CA	95219	☐	☑	☐	☐
OTHERS	San Joaquin Partnership	Mike Locke	2800 W. March Lane, suite 470	Stockton, CA	95219	☐	☑	☐	☐
OTHERS	Sierra Club	Delta Sierra Group	P.O. Box 9258	Stockton, CA	95208	☑	☐	☐	☐
OTHERS	The Record		P.O. Box 989	Stockton, CA	95201	☑	☐	☑	☐
PUBLIC	City of Lathrop	Planning Department	P O Box 1429	Lathrop, CA	95330	☑	☐	☐	☐
PUBLIC	San Joaquin Regional Transit District (SJ		1533 East Lindsay Street	Stockton, CA	95205	☑	☐	☐	☐
SCHOOL	Stockton Unified School District	Steve Breakfield	1944 El Pinal Drive	Stockton, CA	95205-2551	☑	☐	☐	☐
SJCO	Administrator	Manuel Lopez	222 East Weber Ave, Room 707	Stockton, CA	95202	☑	☐	☐	☐
SJCO	Airport Land Use Commission	SJCOG	555 E. Weber Avenue,	Stockton, CA	95202	☑	☐	☐	☐
SJCO	County Clerk	Patricia Paulson	6 South El Dorado Street, 2nd Floor	Stockton, CA	95202	☑	☐	☐	☐
SJCO	Public Health Services	Environmental Health Division	304 E. Weber Avenue, 3rd Floor	Stockton, CA	95202-2708	☑	☐	☐	☐
SJCO	Public Works Department (2)	Environ. Real Prop./Env. Div.	P O Box 1810	Stockton, CA	95201	☑	2 ☐	☐	☐
SJCO	SJ COG		555 E. Weber Avenue	Stockton, CA	95202	☑	☐	☐	☐
SPECIAL	SJV Air Pollution Control District	CEQA/ISR	4230 Kiernan Ave, Suite 130	Modesto, CA	95365	☑	☐	☐	☐
STATE	Caltrans (2)	IGR Coordinator, Intermodal Pla	P O Box 2048	Stockton, CA	95201	☑	2 ☐	☐	☐
STATE	Clearinghouse (15)	Office of Planning & Research	P O Box 3044	Sacramento, CA	95812-3044	☑	15 ☐	☑	15 ☐
STATE	Office of Historic Preservation		P O Box 942896	Sacramento, CA	94296-0001	☑	☐	☐	☐
STATE	Toxic Substance Control	Jesus Sotelo (Equinoa Property)	8800 Cal Center Dr	Sacramento, CA	95826-3200	☑	☐	☐	☐
UTILITY	AT&T		2300 East Eight Mile Road, Room 101	Stockton, CA	95210	☑	☐	☐	☐
UTILITY	Comcast		6505 Tam O'Shanter Drive	Stockton, CA	95210	☑	☐	☐	☐
UTILITY	PG&E-Stockton Division	Land Department	4040 West Lane	Stockton, CA	95204	☑	☐	☐	☐
UTILITY	Sunrise Sanitation		1145 West Charter Way	Stockton, CA	95206	☑	☐	☐	☐

CITY OF STOCKTON
PUBLIC NOTICE OF AVAILABILITY/NOTICE OF PUBLIC MEETING
DRAFT ENVIRONMENTAL IMPACT REPORT
(Pursuant to Public Resources Code Sections 21092 and 21092.3 and Cal. Code of Regulations Title 14, Sections 15072, 15073 and 15087)

The City of Stockton Community Development Department has completed, independently reviewed and analyzed the following Environmental Impact Report:

1. **Draft Environmental Impact Report (DEIR5-04) for the Weston Ranch Towne Center Project** - The project proposes a commercial development including up to 710,000 square feet of shopping center retail space including large retail stores, in-line shops, retail pad stores, restaurants, and fuel centers on 65.8 acres. The project also proposes parking, landscaping, and utility relocation and upgrades. The proposed project will include a general plan amendment, rezone, tentative maps, development agreements, and a use permit with project plan. The property is located at the southern boundary of the City of Stockton immediately north of French Camp Road, west of Manthey Road and Interstate 5, and east of McDougal Boulevard. The property is entirely within Stockton city limits.

A copy of the Draft EIR may be reviewed and/or obtained at the following addresses:

Community Development Department
Planning Division
345 North El Dorado Street
Stockton, CA 95202

The Draft EIR may also be reviewed at the following public library locations:

Cesar Chavez Central Library
605 North El Dorado Street
Stockton, CA 95202

Maya Angelou Branch Library
2324 Pock Lane
Stockton, CA 95205

Fair Oaks Branch Library
2370 East Main Street
Stockton, CA

Margaret K. Troke Branch Library
502 West Benjamin Holt Drive
Stockton, CA 95207

Any written comments on this document must be received at this same address no later than **February 5, 2007 by 5:00 p.m.** Further information may be obtained by contacting the City Planning Division at (209) 937-8266.

CHRISTINE TIEN, INTERIM DIRECTOR
COMMUNITY DEVELOPMENT DEPARTMENT

#559650 12/4/06