Final Environmental Impact Report – Response to Comments for The Sanctuary Master Development Plan

State Clearinghouse #2006022028

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Acronyms and Abbreviations

AB	Assembly Bill
ACOE	U.S. Army Corps of Engineers
APN	Assessor's Parcel Number
ARB	California Air Resources Board
BMO	Basin Management Objective
BMP	Best Management Practice
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CGC	California Government Code
City	City of Stockton
CO_2	carbon dioxide
COSMA	City of Stockton Metropolitan Area
COSMUD	City of Stockton Municipal Utility Department
County	San Joaquin County
CVGSM	California Department of Water Resources Regional Central Valley Groundwater Model
CVP	Central Valley Project
CWA	Clean Water Act
CWC	California Water Code
DEIR	draft environmental impact report
DWR	California Department of Water Resources
DWSP	Delta Water Supply Project
DWSP Report	DWSP Feasibility Report
EFH	essential fish habitat
EPAP	Existing plus Approved Projects
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
GHG	greenhouse gas
GMP	Groundwater Management Plan
HCP	habitat conservation program
HOV	high occupancy vehicle
I-#	Interstate #
IS	initial study

LAFCO	Local Agency Formation Commission
LEED	Leadership in Energy and Environmental Design
LOS	level of service
M&I	Municipal and Industrial
MAA	Morada Area Association
MGD	million gallons per day
MMRP	mitigation monitoring and reporting plan
NESJCBA	Northeastern San Joaquin County Groundwater Banking Authority
NOP	notice of preparation
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
OPR	Governor's Office of Planning and Research
PA/ED	Project Approval/Environmental Document
PSR	Project Study Report
RD	Reclamation District
RTIF	Regional Transportation Improvement Fees
RTP	Regional Transportation Plan
RWCF	Regional Wastewater Control Facility
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SEWD	Stockton East Water District
SJC IGSM	San Joaquin County Integrated Groundwater Surface Water Model
SJCOG	San Joaquin Council of Governments
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMDP	Sanctuary Master Development Plan
SR #	State Route #
SVAB	Sacramento Valley Air Basin
SWRCB	State Water Resources Control Board
TAF	thousand acre-feet
TDS	total dissolved solids
UWMP	Urban Water Management Plan
VOC	volatile organic compound
WDR	waste discharge requirement
Western	Western Area Power Administration
WSA	Water Supply Assessment
WSE	Water Supply Evaluation
WTP	Water Treatment Plant

Chapter 1
Introduction

Purpose of This Document

This document and the draft environmental impact report (DEIR) that was circulated in July 2007 constitute the final EIR for the Sanctuary Master Plan. The information presented in this document has been provided in accordance with the requirements of the State California Environmental Quality Act (CEQA) Guidelines and includes the following chapters:

- Chapter 1, "Introduction," discusses the purpose of this document, public review process, CEQA requirements, and use of this document.
- Chapter 2, "Text Changes to Draft EIR," contains changes to the text of the D EIR made in response to comments received during the public review period for the DEIR.
- Chapter 3, "Comments on Draft EIR and Responses to Comments," contains comments received during the public review period for the DEIR and the City of Stockton's (City's) responses to those comments.
- Chapter 4, "Revised Summary of Impacts and Mitigation Measures," contains an updated table summarizing the impacts that would result from the proposed project, mitigation measures proposed, and levels of significance before and after mitigation.
- Chapter 5, "Mitigation Monitoring and Reporting Plan," contains a proposed mitigation monitoring and reporting plan (MMRP) pursuant to State CEQA Guidelines Section 15041(a).

Public Review Process

The DEIR was distributed to various public agencies, citizen groups, and interested individuals for a 45-day public review period, from July 13, 2007 through August 27, 2007. The DEIR was circulated to state agencies for review through the State Clearinghouse of the Governor's Office of Planning and Research. Copies of the DEIR were available for public review during normal business hours at the City of Stockton Community Development Department and

at Central Library and three branch libraries. Copies of the DEIR were also available for review on the City's website.

During the review period written comments were received from members of the public and several agencies.

CEQA Requirements

As lead agency under CEQA, the City must provide each public agency that commented on the DEIR with a copy of its responses to comments at least 10 days before certifying the final EIR. The lead agency may also provide an opportunity for members of the public to review the final EIR before certification, although this is not a requirement of CEQA.

Use of This Document

The final EIR allows the public and the lead agency to review revisions to the DEIR, comments, responses to comments, and other components of the EIR (e.g., the MMRP) before approval of the project. This final EIR, including the DEIR incorporated by reference, will serve as the environmental document used by the City when considering approval of the project.

After completing the final EIR and before approving the project, the lead agency must make the following three certifications (State CEQA Guidelines Section 15090):

- The final EIR has been completed in compliance with CEQA.
- The final EIR was presented to the decision-making body of the lead agency, and the decision-making body reviewed and considered the information in the final EIR before approving the project.
- The final EIR reflects the lead agency's independent judgment and analysis.

In addition, if an EIR that has been certified for a project identifies one or more significant environmental impacts, the lead agency must adopt findings of fact (State CEQA Guidelines Section 15091[a]). For each significant impact, the lead agency must make one of the following findings:

- Changes or alterations have been required in or incorporated into the project that avoid or substantially lessen the significant environmental effect as identified in the EIR.
- Such changes or alterations are within the responsibility and jurisdiction of another public agency, 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.

- 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.

Each finding must be accompanied by a brief explanation of the rationale for the finding. In addition, the lead agency must adopt, in conjunction with the findings, a program for reporting or monitoring the changes that it has either required in the project or made a condition of approval to avoid or substantially lessen impacts (State CEQA Guidelines Section 15091[d]). These measures must be fully enforceable through permit conditions, agreements, or other measures. This program is referred to as the MMRP.

In addition, when a lead agency approves a project that would result in significant and unavoidable impacts that are disclosed in the final EIR, the agency must state in writing its reasons for supporting the approved action (State CEQA Guidelines Section 15093[b]). This statement of overriding considerations will be supported by substantial information in the record, including the final EIR. Because the proposed project would result in significant and unavoidable impacts, the City is required to adopt a statement of overriding considerations if it approves the project. The statement of overriding considerations is not a substitute for the findings of fact described above.

The certifications, findings of fact, and statement of overriding considerations will be included in a separate findings document that accompanies the City's staff report. The DEIR (incorporated by reference), final EIR, findings of fact, and statement of overriding considerations will be submitted to the City for consideration of the proposed project.

Chapter 2
Text Changes to Draft EIR

Introduction

This chapter contains revisions to the text of the DEIR. Text changes are intended to clarify or correct information in the DEIR in response to comments received on the document. Changes initiated by the lead agency (City) staff are included. Revisions are shown with strikethrough text for deletions (~~strikethrough~~) and underlined text for additions (underline). The changes appear in the order of their location in the DEIR, and are organized by chapter or major section. No text changes are identified for sections or chapters that are not listed below.

Executive Summary

The following correction is made to the text of the DEIR, to correct the Executive Summary to match the text of the DEIR. The following change is made to the text of the DEIR at the top of page ES-6.

> EIR, which include development of a Master Drainage Plan, BMPs to protect water quality during and after construction, conformance with federal and state construction standards, and the development of a maintenance dredging plan. ~~Water quality impacts from discharges to surface water where water bodies are 303(d) listed would remain significant and unavoidable.~~ Water supplies would be sufficient for the project at buildout, although, in the short term, water supplies may not be sufficient if the Delta Water Supply Project is not completed in a timely fashion. This impact would be reduced to a less-than-significant level by mitigation identified in this EIR. However, the project's contribution to cumulative impacts to water quality is considered significant and unavoidable even with implementation of the mitigation identified in the EIR.

The following correction is made to the text of the DEIR, to correct the Executive Summary to match the text of the DEIR. The following changes are made to Table ES-1.

Table ES-1. Summary of Significant and Unavoidable Impacts

Impact	Description
Impact AES-4	Substantial Degradation of Existing Visual Character or Quality Following Implementation of Project
Impact AG-1	Conversion of Important Farmland
Impact AG-3	Conflict with Existing Zoning for Agricultural Use or Williamson Act Contract from Levee Improvements
Impact CE-2	Cumulative Loss of Agricultural Lands
Impact AQ-3	Generation of Emissions of Reactive Organic Gases and Oxides of Nitrogen in Excess of San Joaquin Valley Air Pollution Control District Thresholds
Impact AQ-5	Conflicts with or Obstruction of the Implementation of the Applicable Air Quality Management Plan
Impact CE-3	Cumulative Effect on Air Quality
Impact CE-4	Global Climate Change
~~Impact CE-9~~	~~Cumulative Water Quality Impacts to an Impaired Waterway~~
Impact CE-11	Cumulative Loss of Open Space Lands
Impact CE-13	Cumulative Effect on Noise
~~Impact CE-14~~	~~Cumulative Effects Related to Population Growth~~
Impact TRA-2	Worsened Conditions at Eight Mile Road/Interstate 5 Northbound Ramps Intersection under Existing plus Approved Projects plus Project Conditions
Impact TRA-6	Worsened Conditions at Hammer Lane/Mariners Drive Intersection under Existing plus Approved Projects plus Project Conditions
Impact TRA-7	Unacceptable Operations at Hammer Lane/Interstate 5 Southbound Ramps Intersection under Existing plus Approved Projects plus Project Conditions
Impact TRA-8	Unacceptable Operations at Hammer Lane/ Interstate -5 Northbound Ramps Intersection under Existing plus Approved Project plus Projects Conditions
Impact TRA-9	Unacceptable Operations at Hammer Lane/Kelley Drive Intersection under Existing plus Approved Projects plus Project Conditions
Impact TRA-10	Unacceptable Operations at Hammer Lane/Pershing Avenue Intersection under Existing plus Approved Projects plus Project Conditions
Impact TRA-12	Worsened Conditions on Hammer Lane from West of Mariners Drive to East of Interstate 5 under Existing plus Approved Projects plus Project Conditions
Impact TRA-13	Worsened Conditions at Northbound and Southbound Segments of Interstate 5 South of Hammer Lane under Existing plus Approved Projects plus Project Conditions
Impact TRA-15	Worsened Conditions at Eight Mile Road/Interstate 5 Northbound Ramps Intersection under Future 2025 plus Project Conditions
Impact TRA-19	Worsened Conditions at Otto Drive/Interstate 5 Southbound Ramps Intersection under Future 2025 plus Project Conditions
Impact TRA-20	Worsened Conditions at Otto Drive/Interstate 5 Northbound Ramps Intersection under Future 2025 plus Project Conditions

Impact	Description
Impact TRA-22	Worsened Conditions at Hammer Lane/Interstate 5 Southbound Ramps Intersection under Future 2025 plus Project Conditions
Impact TRA-23	Worsened Conditions at Hammer Lane/Interstate 5 Northbound Ramps Intersection under Future 2025 plus Project Conditions
Impact TRA-24	Worsened Conditions at Hammer Lane/Kelley Drive Intersection under Future 2025 plus Project Conditions
Impact TRA-26	Worsened Conditions at Hammer Lane/Pershing Avenue Intersection under Future 2025 plus Project Conditions
Impact TRA-29	Worsened Conditions on Trinity Parkway Bridge over Bear Creek under Future 2025 plus Project Conditions
Impact TRA-30	Worsened Conditions on Hammer Lane from West of Mariners Drive to East of Interstate 5 under Future 2025 plus Project Conditions
Impact TRA-31	Worsened Conditions on Northbound and Southbound I-5 South of Hammer Lane and from Hammer Lane to Otto Drive under Future 2025 plus Project Conditions
Impact TRA-34	Worsened Conditions at Eight Mile Road/Interstate 5 Southbound Ramps Intersection under Future 2035 plus Project Conditions
Impact TRA-35	Worsened Conditions at Eight Mile Road/Thornton Road Intersection under Future 2035 plus Project Conditions
Impact TRA-37	Worsened Conditions at Otto Drive/Trinity Parkway Intersection under Future 2035 plus Project Conditions
Impact TRA-38	Worsened Conditions at Otto Drive/Interstate 5 Southbound Ramps Intersection under Future 2035 plus Project Conditions
Impact TRA-39	Worsened Conditions at Otto Drive/Interstate 5 Northbound Ramps Intersection under Future 2035 plus Project Conditions
Impact TRA-41	Worsened Conditions at Hammer Lane/Interstate 5 Southbound Ramps Intersection under Future 2035 plus Project Conditions
Impact TRA-42	Worsened Conditions at Hammer Lane/Interstate 5 Northbound Ramps Intersection under Future 2035 plus Project Conditions
Impact TRA-43	Worsened Conditions at Hammer Lane/Kelley Drive Intersection under Future 2035 plus Project Conditions
Impact TRA-45	Worsened Conditions at Hammer Lane/Pershing Avenue Intersection under Future 2035 plus Project Conditions
Impact TRA-46	Unacceptable Operations on Trinity Parkway Over Bear Creek Under Future 2035 plus Project Conditions
Impact TRA-47	Worsened Conditions on Hammer Lane East of Interstate 5 under Future 2035 plus Project Conditions
Impact TRA-48	Worsened Conditions on Northbound and Southbound Interstate 5 South of Hammer Lane and from Hammer Lane to Otto Drive under Future 2035 plus Project Conditions
~~Impact GI-1~~	~~Fosters Economic or Population Growth, or Additional Housing~~

Table ES-2 has been updated to include changes made to the DEIR in this final EIR. Table ES-2 is found in Chapter 4 of this document.

Chapter 2 – Project Description

The following changes are made to the text of the DEIR in the last paragraph on page 2-8.

> Table 2-1 provides a summary of the parks and open space elements proposed in the Master Development Plan. ~~As shown, the entire allocation of land proposed for open space would total approximately 428.79 acres.~~ This includes a blend of both publicly accessible and privately accessible areas.

In response to Comment 14-15, the following addition is made to the text of the DEIR on page 2-11 as follows.

> **Public Facilities**
>
> The Sanctuary will be served by the following service providers:
>
> - Water—Stockton Municipal Utilities Department
> - Levee maintenance—Reclamation District 2115
> - Sanitary sewer—Stockton Municipal Utilities Department and Regional Wastewater Control Facility (RWCF)
> - Solid waste—Sunrise Sanitation (a franchisee of the City)
> - Electricity and natural gas—PG&E
> - Telephone service/fiber optics—SBC
> - Cable television—Comcast
> - Fire protection—Stockton Fire Department
> - Police protection—Stockton Police Department

In response to Comment 14-11, the following addition is made to the text of the DEIR on page 2-13.

> - Encroachment permits as needed from San Joaquin County

Section 3.2 – Agricultural Resources

The following clarifications are made to the text of the DEIR in the last paragraph on page 3.2-10 of the DEIR.

> The City of Stockton recently adopted an Agricultural Land Mitigation Program for mitigation of the loss of agricultural land through conversion to private urban uses. The program currently requires that, for projects of 40 acres or more, the proponent must provide in-kind, direct purchase/acquisition of an agricultural mitigation easement at a 1:1 ratio and dedicate it to a qualifying entity. For projects of less than 40 acres, the program provides the option to pay an in-lieu fee. This project will participate in the City's Agricultural Land Mitigation

Program. ~~would be required to provide in-kind, direct purchase/acquisition of an agricultural mitigation easement at a 1:1 ratio and dedicate it to a qualifying entity.~~ This would reduce the impacts, but not to a less-than-significant level. For this reason, the impact is considered significant and unavoidable.

Section 3.3 – Air Quality

As described in Response to Comment 12-25, Tables 3.3-4 and 3.3-5, which follow page 3.3-20 in the DEIR, have been revised and are provided following this page.

Section 3.4 – Biological Resources

The following corrections are made to the text of the DEIR. In the following places, the references to the Ecological Constraints Report Appendix are corrected to Appendix H. This change is to the text of the DEIR in the second paragraph on page 3.4-5, the second paragraph on page 3.4-8, the third full paragraph on page 3.4-10, the second paragraph of Impact BIO-3, on page 3.4-43, and the last paragraph on page 3.4-45.

Appendix ~~J~~ H

In response to Comment 11-1 and for clarification, the following changes are made to the text of the DEIR on page 3.4-21.

Impact BIO-2: Loss of Special-Status Plants or Degradation of Habitat (Less than Significant with Mitigation Incorporated)

Construction activities associated with development could result in loss of special-status plants. Two special-status plants have been identified as occurring in the project area. Construction activities that could remove special-status plants include relocation of existing ditches that could support rose-mallow, and construction of the marina and placement of bank stabilization on the water side of levees that could support rose-mallow, and Mason's lilaeopsis. Because the potential loss of rose-mallow and Mason's lilaeopsis would have an adverse effect on special-status species, this would be considered a potentially significant impact. Participation in the San Joaquin Multi-Species Habitat and Open Space Conservation Plan (SJMSCP) would reduce this impact to a less-than-significant level. If participation in the SJMSCP is not possible, ~~I~~implementation of Mitigation Measures BIO-1a, BIO-2a, and BIO-2b will reduce this impact to a less-than-significant level.

Impact BIO-4: Loss of Agricultural Habitat Lands (Less than Significant with Mitigation Incorporated)

The study area is designated as agriculture habitat lands under the SJMSCP. These lands provide suitable foraging, breeding, and sheltering habitat for SJMSCP covered species. Construction of the proposed project will result in the conversion of ~~all~~ most of the project site to non–open space use. The agriculture

habitat lands within the study area provide potential aquatic habitat for giant garter snakes and western pond turtles; nesting and foraging habitat for Swainson's hawks, white-tailed kites, western burrowing owls, loggerhead shrikes, Cooper's hawks, and northern harriers; winter foraging habitat for white-faced ibis, greater sandhill cranes, long-billed curlews, and mountain plovers; and roosting habitat for Yuma myotis. This impact is considered significant.~~,~~ Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, ~~but~~ implementation of Mitigation Measure BIO-4a will reduce this impact to a less-than-significant level.

Mitigation Measure BIO-4a: Compensate for Loss of Agriculture Habitat Lands

Proponents undertaking new development projects pursuant to the SJMSCP ~~will~~ pay the applicable development fee or provide in-lieu land dedication for the conversion of agriculture habitat lands to non-open-space use at a compensation ratio of 1:1 (1 acre preserved for every 1 acre converted to non-open-space use). If participation in the SJMSCP is not possible, the project proponent will secure a conservation easement on appropriate agricultural lands at a ratio of 1:1, and provide an endowment for monitoring and management of those lands in perpetuity.

In response to Comment 11-1, the following changes are made to the text of the DEIR on page 3.4-46.

Impact BIO-5: Construction-Related Impacts on Giant Garter Snakes (Less than Significant with Mitigation Incorporated)

Conversion of the study area from agriculture habitat land to non–open space use would result in the loss of agricultural ditches that provide potential aquatic and upland giant garter snake habitat. Construction-related activities in the agriculture ditches in the study area and in the vicinity could result in take of giant garter snakes. Habitat-related impacts are mitigated for by the implementation of Mitigation Measures BIO-3c and BIO-4a. Construction-related impacts are considered significant. Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, ~~but~~ implementation of Mitigation Measures BIO-5a and BIO-5b will reduce this impact to a less-than-significant level.

In response to Comment 11-1, the following changes are made to the text of the DEIR on page 3.4-47.

Mitigation Measure BIO-5b: Implement Take Minimization Measures from SJMSCP for Impacts on Giant Garter Snakes

The following minimization measures are required for impacts on potential aquatic giant garter snake habitat.

- Construction in potential giant garter snake habitat will occur during the active period for giant garter snakes, between May 1 and October 1.
- Vegetation clearing within 200 feet of the banks of potential giant garter snake aquatic habitat will be limited to the minimal area necessary.

Table 3.3-4. 2025 Operational Stationary and Mobile Source Air Emissions during Project Operation

	Emissions (Tons per Year)					
Area	ROG	NO_X	CO	PM10	PM2.5	CO_2
Village Center						
Electricity Use						
Residential	–	–	–	–	–	816.84
Commercial/Municipal	–	–	–	–	–	1,691.58
Area source emissions						
Natural gas	0.18	2.44	1.41	0.00	0.00	3,046.03
Hearth	3.18	0.57	28.90	4.71	4.54	804.91
Landscaping	0.22	0.02	1.70	0.01	0.01	2.91
Consumer products	7.75	–	–	–	–	–
Architectural coatings	1.66	–	–	–	–	–
Vehicular emissions	3.92	3.59	34.91	13.55	2.62	8,772.39
Subtotal	**16.91**	**6.62**	**66.92**	**18.27**	**7.17**	**15,134.66**
North Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	503.44
Commercial/Municipal	–	–	–	–	–	1,900.80
Area source emissions						
Natural gas	0.27	3.63	2.68	0.01	0.01	4,425.99
Hearth	3.18	0.68	34.59	5.64	5.43	960.03
Landscaping	0.35	0.02	2.00	0.01	0.01	3.24
Consumer products	3.05	–	–	–	–	–
Architectural coatings	2.55	–	–	–	–	–
Vehicular emissions	4.17	3.62	34.87	13.60	2.63	8,791.86
Subtotal	**13.57**	**7.95**	**74.14**	**19.26**	**8.08**	**16,585.36**
South Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	1,003.61
Commercial/Municipal	–	–	–	–	–	844.80
Area source emissions						
Natural gas	0.23	3.01	1.78	0.01	0.01	3,746.81
Hearth	7.59	1.35	68.95	11.25	10.83	1,913.84
Landscaping	0.68	0.04	3.85	0.01	0.01	6.21
Consumer products	6.07	–	–	–	–	–
Architectural coatings	2.10	–	–	–	–	–
Vehicular emissions	4.92	5.22	50.82	19.66	3.80	12,736.59
Subtotal	**21.59**	**9.62**	**125.40**	**30.93**	**14.65**	**20,251.86**

Area	Emissions (Tons per Year)					
	ROG	NO_X	CO	PM10	PM2.5	CO_2
Marina Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	575.85
Commercial/Municipal	–	–	–	–	–	–
Area source emissions						
Natural gas	0.11	1.43	0.61	0.00	0.00	1,822.03
Hearth	4.09	0.73	37.18	6.07	5.84	1,033.46
Landscaping	0.49	0.03	2.87	0.01	0.01	4.66
Consumer products	5.22	–	–	–	–	–
Architectural coatings	0.96	–	–	–	–	–
Vehicular emissions	10.02	2.28	32.80	4.78	4.60	2,961.08
Subtotal	**20.89**	**4.47**	**73.46**	**10.86**	**10.45**	**6,397.08**
Great Park Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	1,596.21
Commercial/Municipal	–	–	–	–	–	1,689.60
Area source emissions						
Natural gas	0.40	5.28	3.25	0.01	0.01	6,555.66
Hearth	12.08	2.15	109.67	17.89	17.22	3,043.89
Landscaping	1.08	0.07	6.04	0.02	0.02	9.72
Consumer products	9.66	–	–	–	–	–
Architectural coatings	3.69	–	–	–	–	–
Vehicular emissions	7.90	8.09	78.70	30.45	5.89	19,726.70
Subtotal	**34.81**	**15.59**	**197.66**	**48.37**	**23.14**	**32,621.78**
Northeast Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	836.45
Commercial/Municipal	–	–	–	–	–	382.11
Area source emissions						
Natural gas	0.14	1.84	0.92	0.00	0.00	2,326.03
Hearth	3.48	0.62	31.57	5.15	4.96	878.32
Landscaping	0.52	0.04	3.20	0.01	0.01	5.26
Consumer products	5.64	–	–	–	–	–
Architectural coatings	1.25	–	–	–	–	–
Vehicular emissions	3.63	4.05	39.53	15.27	2.95	9,896.56
Subtotal	**14.66**	**6.55**	**75.22**	**20.43**	**7.92**	**14,324.73**

Table 3.3-4. Continued

Area	Emissions (Tons per Year)					
	ROG	NO_X	CO	PM10	PM2.5	CO_2
Lake Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	1,506.86
Commercial/Municipal	–	–	–	–	–	–
Area source emissions						
Natural gas	0.21	2.69	1.15	0.01	0.01	3,439.19
Hearth	11.40	2.03	103.54	16.89	16.26	2,873.87
Landscaping	1.01	0.06	5.57	0.01	0.01	8.94
Consumer products	9.12	–	–	–	–	–
Architectural coatings	1.87	–	–	–	–	–
Vehicular emissions	6.17	7.35	71.61	27.68	5.35	17,934.64
Subtotal	**29.78**	**12.13**	**181.87**	**44.59**	**21.63**	**25,763.50**
Water Supply						
All Neighborhoods	**–**	**–**	**–**	**–**	**–**	**600.16**
Total	**152.21**	**62.93**	**794.67**	**192.71**	**93.04**	**131,679.13**

Table 3.3-5. 2035 Operational Stationary and Mobile Source Air Emissions during Project Operation

	Emissions (Tons per Year)					
Area	ROG	NO_X	CO	PM10	PM2.5	CO_2
Village Center						
Electricity Use						
Residential	–	–	–	–	–	816.84
Commercial/Municipal	–	–	–	–	–	1,691.58
Area source emissions						
Natural gas	0.18	2.44	1.41	0.00	0.00	3,046.03
Hearth	3.18	0.57	28.90	4.71	4.54	804.91
Landscaping	0.22	0.02	1.70	0.01	0.01	2.91
Consumer products	7.75	–	–	–	–	–
Architectural coatings	1.66	–	–	–	–	–
Vehicular emissions	2.79	2.43	26.83	13.52	2.59	8,820.03
Subtotal	**15.78**	**5.46**	**58.84**	**18.24**	**7.14**	**15,182.30**
North Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	503.44
Commercial/Municipal	–	–	–	–	–	1,900.80
Area source emissions						
Natural gas	0.27	3.63	2.68	0.01	0.01	4,425.99
Hearth	3.81	0.68	34.59	5.64	5.43	960.03
Landscaping	0.35	0.02	2.00	0.01	0.01	3.24
Consumer products	3.05	–	–	–	–	–
Architectural coatings	2.55	–	–	–	–	–
Vehicular emissions	2.92	2.44	26.81	13.57	2.61	8,838.75
Subtotal	**12.95**	**6.77**	**66.08**	**19.23**	**8.06**	**16,632.25**
South Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	1,003.61
Commercial/Municipal	–	–	–	–	–	844.80
Area source emissions						
Natural gas	0.23	3.01	1.78	0.01	0.01	3,746.81
Hearth	7.59	1.35	68.95	11.25	10.83	1,913.84
Landscaping	0.68	0.04	3.85	0.01	0.01	6.21
Consumer products	6.07	–	–	–	–	–
Architectural coatings	2.10	–	–	–	–	–
Vehicular emissions	3.58	3.54	39.06	19.63	3.77	12,804.68
Subtotal	**20.25**	**7.94**	**113.64**	**30.90**	**14.62**	**20,319.95**

Area	Emissions (Tons per Year)					
	ROG	NO_X	CO	PM10	PM2.5	CO_2
Marina Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	575.85
Commercial/Municipal	–	–	–	–	–	–
Area source emissions						
Natural gas	0.11	1.43	0.61	0.00	0.00	1,822.03
Hearth	3.22	0.57	29.22	4.77	4.59	812.85
Landscaping	0.49	0.03	2.87	0.01	0.01	4.66
Consumer products	5.22	–	–	–	–	–
Architectural coatings	0.96	–	–	–	–	–
Vehicular emissions	2.24	2.36	26.05	13.08	2.52	8,537.38
Subtotal	**12.24**	**4.39**	**58.75**	**17.86**	**7.12**	**11,752.77**
Great Park Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	1,596.21
Commercial/Municipal	–	–	–	–	–	1,689.60
Area source emissions						
Natural gas	0.40	5.28	3.25	0.01	0.01	6,555.66
Hearth	12.08	2.15	109.67	17.89	17.22	3,043.89
Landscaping	1.08	0.07	6.04	0.02	0.02	9.72
Consumer products	9.66	–	–	–	–	–
Architectural coatings	3.69	–	–	–	–	–
Vehicular emissions	8.64	7.75	78.96	30.55	5.96	21,238.22
Subtotal	**35.55**	**15.25**	**197.92**	**48.47**	**23.21**	**34,133.30**
Northeast Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	836.45
Commercial/Municipal	–	–	–	–	–	382.11
Area source emissions						
Natural gas	0.14	1.84	0.92	0.00	0.00	2,326.03
Hearth	3.48	0.62	31.57	5.15	4.96	878.32
Landscaping	0.52	0.04	3.20	0.01	0.01	5.26
Consumer products	5.64	–	–	–	–	–
Architectural coatings	1.25	–	–	–	–	–
Vehicular emissions	2.67	2.74	30.36	15.25	2.93	9,949.49
Subtotal	**13.70**	**5.24**	**66.05**	**20.41**	**7.90**	**14,377.66**

Table 3.3-5. Continued

Area	Emissions (Tons per Year)					
	ROG	NO_X	CO	PM10	PM2.5	CO_2
Lake Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	1,506.86
Commercial/Municipal	–	–	–	–	–	–
Area source emissions						
Natural gas	0.21	2.69	1.15	0.01	0.01	3,439.19
Hearth	11.40	2.03	103.54	16.89	16.26	2,873.87
Landscaping	1.01	0.06	5.57	0.01	0.01	8.94
Consumer products	9.12	–	–	–	–	–
Architectural coatings	1.87	–	–	–	–	–
Vehicular emissions	4.61	4.97	55.02	27.63	5.31	18,030.56
Subtotal	**28.22**	**9.75**	**165.28**	**44.54**	**21.59**	**25,859.42**
Water Supply						
All Neighborhoods	–	–	–	–	–	**600.16**
Total	**138.69**	**54.80**	**726.56**	**199.65**	**89.64**	**138,857.81**

- The movement of heavy equipment within 200 feet of the banks of potential giant garter snake aquatic habitat will be confined to existing roadways to minimize habitat disturbance.
- Before ground disturbance, all onsite construction personnel will be given instruction regarding the presence of SJMSCP covered species and importance of avoiding impacts on these species and their habitats.
- If wetlands, irrigation ditches, marshes, etc. will not be relocated in the vicinity of the project, the aquatic habitat will be dewatered at least 2 weeks before beginning construction.
- Preconstruction surveys for giant garter snakes (conducted after environmental reviews and before ground disturbance) will occur within 24 hours of ground disturbance.
- Any other applicable provisions of the USFWS Standard Avoidance and Minimization Measures during Construction Activities in Giant Garter Snake Habitat (U.S. Fish and Wildlife Service 1997) and Section 5.2.48 of the SJMSCP (San Joaquin County 2000) will be implemented.

~~If preconstruction surveys determine that giant garter snakes occupy habitat within the project area, full avoidance of occupied habitat is generally required. However, conversion of occupied giant garter snake habitat will be permitted if (1) the project proponent implements Mitigation Measure BIO-5b and receives incidental take authorization from the USFWS under Section 7 or 10 of the federal ESA (authorization may include additional avoidance and minimization measures); or (2) the HCP JPA, in consultation with the TAC and with the concurrence of the permitting agencies, accomplishes the following:~~

- ~~provides alternative documentation to the permitting agencies' representatives on the TAC that the range of the giant garter snake has expanded sufficiently within areas where take is not anticipated sufficient to allow additional take to occur;~~
- ~~such take will not jeopardize the species or adversely modify critical habitat;~~
- ~~such take is mitigated and minimized to the maximum extent feasible; and~~
- ~~a major plan amendment is undertaken in accordance with SJMSCP Section 8.8.5.~~

In response to Comment 11-1, the following changes are made to the text of the DEIR on page 3.4-48.

Impact BIO-6: Construction-Related Impacts on Western Pond Turtles (Less than Significant with Mitigation Incorporated)

Conversion of the project area from agriculture habitat land to non–open space use would result in the loss of agricultural ditches that provide potential aquatic western pond turtle habitat and therefore impacts on the turtles. Construction-related activities in agricultural ditches located in the study area and in the vicinity could result in loss of western pond turtles. Habitat-related impacts are mitigated for by the implementation of Mitigation Measures BIO-3c and BIO-4a. Construction-related impacts are considered significant. Participation in the SJMSCP would reduce this impact to a less-than-significant level. If

participation in the Plan is not possible, ~~but~~ implementation of Mitigation Measures BIO-6a and BIO-6b will reduce this impact to a less-than-significant level.

Impact BIO-7: Construction-Related Impacts to Nesting Swainson's Hawks (Less than Significant with Mitigation Incorporated)

Construction activities such as earthmoving with heavy construction equipment occurring within the study area could cause nest failure or a reduction of available nesting habitat for Swainson's hawks, potentially contributing to local and regional declines of this species. Although nesting Swainson's hawk surveys were conducted by Huffman-Broadway and the results were negative, nesting sites can vary from year to year and Swainson's hawks could nest on the site in the future. Habitat-related impacts are mitigated for by the implementation of Mitigation Measure BIO-4a. Construction-related impacts are considered significant. Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, ~~but~~ implementation of Mitigation Measures BIO-7a and BIO-7b will reduce this impact to a less-than-significant level.

In response to Comment 11-1, the following changes are made to the text of the DEIR on page 3.4-49.

Impact BIO-8: Construction-Related Impacts on Western Burrowing Owls (Less than Significant with Mitigation Incorporated)

Construction activities such as earthmoving with heavy construction equipment occurring within the study area could cause nest failure or a reduction of available nesting and wintering habitat for western burrowing owls, potentially contributing to local and regional declines of this species. Habitat-related impacts are mitigated for by the implementation of Mitigation Measure BIO-4a. Construction-related impacts are considered significant. Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, ~~but~~ implementation of Mitigation Measures BIO-8a and BIO-8b will reduce this impact to a less-than-significant level.

In response to Comment 11-1, the following changes are made to the text of the DEIR on page 3.4-51.

Impact BIO-9: Construction-Related Impacts to Nesting Northern Harriers (Less than Significant with Mitigation Incorporated)

Construction activities such as earthmoving with heavy construction equipment occurring within the study area could cause nest failure or a reduction of available nesting habitat for northern harriers, potentially contributing to local and regional declines of this species. Habitat-related impacts are mitigated for by the implementation of Mitigation Measure BIO-4a. Construction-related impacts are considered significant. Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, ~~but~~ implementation of Mitigation Measures BIO-9a and BIO-9b will reduce this impact to a less-than-significant level.

Impact BIO-10: Construction-Related Impacts on Nesting Loggerhead Shrikes, Cooper's Hawks, and White-Tailed Kites (Less than Significant with Mitigation Incorporated)

Construction activities such as earthmoving with heavy construction equipment occurring within the study area could cause nest failure or a reduction of available nesting habitat for loggerhead shrikes, Cooper's hawks, and white-tailed kites, potentially contributing to local and regional declines of these species. Although surveys for these species were conducted by Huffman-Broadway and the results were negative, nesting sites can vary from year to year and these species could nest on the island in the future. Habitat-related impacts are mitigated for by the implementation of Mitigation Measure BIO-4a. Construction-related impacts are considered significant. Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, ~~but~~ implementation of Mitigation Measures BIO-10a and BIO-10b will reduce this impact to a less-than-significant level.

In response to Comment 11-1, the following changes are made to the text of the DEIR on page 3.4-52.

Impact BIO-12: Indirect Impacts on Nesting California Black Rails (Less than Significant with Mitigation Incorporated)

Nesting California black rails could be indirectly affected by increased wake activity from boating activities in nearby Disappointment Slough and Fourteen Mile Slough. The marina that is proposed as part of the development will allow for increased boat and jet ski activity within these sloughs. This increase in boat and jet ski activity could result in an increase in wakes in Disappointment Slough and Fourteen Mile Slough that could flood nearby nests and could cause the failure of California black rail nests and a reduction of available nesting habitat, potentially contributing to local and regional declines of these species. This loss would be considered significant because it could have a substantial adverse effect, either directly or through habitat removal, on a species listed as threatened and designated as fully protected by the DFG and would impede the use of nesting habitat. Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, i~~I~~mplementation of Mitigation Measures BIO-12a and BIO-12b will reduce this impact to a less-than-significant level.

Impact BIO-13: Construction-Related Impacts on Roosting Yuma Myotis (Less than Significant with Mitigation Incorporated)

Construction activities such as earthmoving with heavy construction equipment occurring within the study area could cause the abandonment of roosting sites by Yuma myotis, and the removal of buildings could destroy occupied roosting habitat. This loss would be considered significant. Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, ~~but~~ implementation of Mitigation Measures BIO-13a and BIO-13b will reduce this impact to a less-than-significant level. Habitat-related impacts are mitigated for by the implementation of Mitigation Measure BIO-4a.

The following correction is made to the text of the DEIR on page 3.4-53.

Mitigation Measure BIO-13b: Implement Take Minimization Measures from the SJMSCP for Impacts to Roosting Yuma Myotis

When Yuma myotis roost sites must be removed, removal will occur ~~will occur~~ outside the nursery season (May through August) and during dusk or evening hours after the bats have left the roosting site.

Section 3.8 – Hydrology and Water Quality

In response to Comment 12-11, the following addition is made to Mitigation Measure HYD-11a on page 3.8-42 of the DEIR.

Mitigation Measure HYD-11a: Require that the Project have Sufficient Interim Water Supplies

To ensure that water supply is adequate to support the project, as a condition of project approval, the City shall require that the project does not increase water demand unless and until sufficient water supply exists to serve the increment of demand generated by a particular phase of project development. Sufficient water supply shall be provided by either (1) the DWSP, or (2) an alternative source of water to supply the project. The alternative source of water, if implemented, shall be demonstrated to not result in adverse effects such as groundwater overdraft or impacts on other water rights holders. Potential alternative sources of water could include new supply sources (i.e., surface or groundwater supplies) or demand offsets (e.g., installation of low-flow fixtures in existing development, water recycling, etc.). <u>COSMUD must verify that the water supply capacity and infrastructure are in place before the City may issue building permits for construction of each phase of the project.</u>

Section 3.9 – Land Use and Planning

In response to Comment 12-30, page 10 of Table 3.9-2 following page 3.9-14 of the DEIR is corrected to reflect the accurate numbers as below.

Chapter	Policy	Consistency
	DV-5.4 Village Types Housing Mix The City shall ensure that village areas maintain a mix of residential types and densities, and that the residential mix will provide appropriate transitional features that integrate the villages with the surrounding area. Within each village, the land area designated for residential use will be distributed (on an acreage basis) using the ranges specified in Table 7-3 of the Master Development Plan listed below. Percent of Residential Acreage • Village Residential Estates (VRE)—5% min • Village Low Density Residential (VLDR)—72–78% min • Village Medium Density Residential (VMDR)—13–17% min • Village High Density Residential (VHDR)—4–6% min	Consistent. Although the exact locations of housing types are not known at this time (to be later determined in the subdivision process), the project will provide a variety of new residential types and densities for each of the villages described in the Master Development Plan. Although the lot types and densities proposed for the project do not exactly match those in the General Plan, the project does provide for a variety of housing types and densities. Furthermore, the Master Development Plan, once adopted, can replace the City's zoning regulations. The zoning designations shown in the General Plan will be used for requirements not specifically addressed in the Master Development Plan. • Customs and Semi-Customs are similar to VRE in terms of density, and the plan includes approximately ~~15~~10% of residential acreage—generally consistent. • SF Medium lots, SF Large lots, and SF Small lots are all generally similar to VLDR in terms of density, and the plan includes approximately 71% of residential acreage—generally consistent. • Green Courts and Paseos alley lots, medium-density alley lots and SF attached townhomes are similar to VMDR in terms of density, and the plan includes approximately ~~12~~13% of residential acreage—generally consistent. • Multi-Family Residential lots are similar to VHDR in terms of density and the plan includes approximately ~~2.5~~6% of residential acreage—generally consistent.

Section 3.11 – Noise

The following correction is made to Mitigation Measure N-2a on page 3.11-8 of the DEIR:

Mitigation Measure N-2a: Employ Noise Control Practices

To reduce operational noise impacts from traffic activity, the project applicant shall implement noise control practices to meet City standards (Table 3.11-8).

Treatments may include using noise-reducing pavement, constructing soundwalls, constructing berms between noise sources and noise-sensitive receivers, and reducing posted speed limits on major arterial roadways including Aksland Drive and Hammer Lane. The applicant shall retain a qualified acoustical consultant to design the noise control practices to ensure that the City's standards are met.

Section 3.13 – Public Services and Utilities

In response to Comment 13-1, the following text changes are made to Table 3.13-1 on page 3.13-2 and the "Library Services" discussion on page 3.13-4 in the DEIR.

Table 3.13-1. Existing Service Providers

Service	Service Provider
Public works	San Joaquin County
Water	None (Wells and Delta Water District)
Wastewater Collection, Treatment, and Disposal	None
Stormwater Drainage	Reclamation District 2115
Solid Waste	None
Law Enforcement/Fire	San Joaquin County/Delta Fire
Parks and Recreation	None
Schools	Lincoln and Lodi Unified School Districts
Transportation/Roads	San Joaquin County
Libraries	~~City of Lodi/~~City of Stockton
Power	Pacific Gas & Electric

Library Services

~~The City of Lodi Public Library, located at 201 W. Locust Street in Lodi, California, has a staff of 15 full time employees, including five professional librarians and a literacy specialist, and eight part-time employees. The library currently contains approximately 150,000 books as well as collections of audio-books, videos, music CDs, and CD-ROM software. The library subscribes to 235 magazines and 12 newspapers. About 52,000 registered borrowers check out about 340,000 items annually.~~

In response to Comment 13-2, the following changes are made to the text of the DEIR on page 3.13-4.

The Stockton-San Joaquin County Public Library is made up of the Cesar Chavez Central Library (located at 605 North El Dorado Street) and four branch libraries in Stockton. The Weston Ranch branch library is located at 1453 West French Camp Road. The Troke branch library is located at 502 West Benjamin Holt Drive. The Fair Oaks branch library is located at 2370 East Main Street. The Angelou branch library is located at 2324 Pock Lane. Branch libraries are also located in Escalon, Lathrop, Linden, Manteca, Ripon, Thornton, and Tracy.

> There is a mobile library service in the County and in Stockton. The library also provides ~~literary~~literacy services, including a mobile family literacy unit, and online catalog and reservation services.

The following correction is made to the text of the DEIR in the second paragraph page 3.13-25:

> The Water Master Plan Addendum: Evaluation of the Sanctuary Development Project's Hydraulic Impacts on the City of Stockton's Water System (West Yost & Associates 2006a) and the City of Stockton Wastewater Collection System 10 Master Plan Revision #7 (Appendix ~~O~~ P; West Yost & Associates 2006b) were reviewed to ascertain whether the proposed project would necessitate improvements that would exceed thresholds of significance.

The following correction is made to the text of the DEIR under Impact PSU-7 on page 3.13-30:

> Total demand within COSMA's service area, including the proposed project, is expected to grow from 69,810 AF/year to 85,330 AF/year by 2015 and to 156,082 AF/year by 2035~~or an increase of 16,520 AF/year~~. Phase 1 of the DWSP would provide approximately 33,660 AF/year from the Delta and will be sufficient along with existing water supplies to meet the needs of the project, as well as existing and reasonably foreseeable planned future uses.

The following correction is made to the text of the DEIR in the last sentence of the first paragraph of Impact PSU-10 on page 3.13-32:

> The *City of Stockton Wastewater Collection System 10 Master Plan Revision #7* (WCSMPR) (Appendix ~~O~~ P; West Yost & Associates 2006b) was prepared to assess the nature and extent of necessary improvements.

Section 3.15 – Transportation

In response to Comment 14-6, the following change is made to the text of the DEIR on page 3.15-6.

> **Thornton Road (County Road 8*)*** is primarily a two- to four-lane north-south major arterial that extends from north of Eight Mile Road to Hammer Lane, where it continues south as Pacific Avenue. Speed limits range from 45 to 55 mph along the roadway. Sidewalks are provided along improved sections of Thornton Road throughout the study area.

In response to Comment 14-7, the following changes are made to the text of the DEIR on page 3.15-6.

> **Lower Sacramento Road (County Road 10)** is a two- to four-lane north-south ~~rural road~~ arterial that extends from north of Eight Mile Road to Thornton Road. No bicycle or pedestrian facilities are provided on this roadway in the study area. The posted speed limit is 55 mph.

In response to Comments 10-5 and 10-6, the following changes are made to the text of the DEIR on page 3.15-18.

Future 2025 Intersection Operations

As shown in Table 3.15-13, ~~20~~19 of the 27 study intersections would operate at an acceptable LOS (LOS D or better) in the Future 2025 scenario. Eight study intersections would operate at an unacceptable LOS:

- Eight Mile Road/Mokelumne Circle: LOS E (PM peak hour)
- Eight Mile Road/I-5 Northbound Ramps: LOS F (PM peak hour)
- Trinity Parkway/McAuliffe Road: LOS F (PM peak hour)
- Otto Drive/Trinity Parkway: LOS E (PM peak hour)
- Otto Drive/I-5 Southbound Ramps: LOS F (AM peak hour)
- Hammer Lane/I-5 Northbound Ramps: LOS E (PM peak hour)
- Hammer Lane/Kelley Drive: LOS F (PM peak hour)
- Hammer Lane/Pershing Avenue: LOS F (PM peak hour)

In response to Comments 10-5 and 10-6, the following changes are made to the text of the DEIR on page 3.15-22.

Future 2035 Intersection Operations

The added land use development and roadway improvements in 2035 result in more intersections on Eight Mile Road operating at an unacceptable LOS. As shown in Table 3.15-17, ~~16~~ 15 of the 27 study intersections would operate at an acceptable LOS (i.e., LOS D or better) in the Future 2035 scenario, while ~~11~~ 12 would operate at an unacceptable LOS:

- Eight Mile Road/Trinity Parkway: LOS E (AM peak hour)
- Eight Mile Road/I-5 Southbound Ramps: LOS F (AM and PM peak hours)
- Eight Mile Road/I-5 Northbound Ramps: LOS F (PM peak hour)
- Eight Mile Road/Thornton Road: LOS E (AM peak hour) and LOS F (PM peak hour)
- Eight Mile Road/Davis Road: LOS E (AM peak hour) and LOS F (PM peak hour)
- Eight Mile Road/Lower Sacramento Road: LOS E (AM and PM peak hours)
- Trinity Parkway/Cosumnes Drive: LOS E (PM peak hour)
- Otto Drive/Trinity Parkway: LOS E (AM and PM peak hours)
- Otto Drive/I-5 Southbound Ramps: LOS F (AM peak hour)
- Hammer Lane/I-5 Southbound Ramps: LOS E (AM peak hour)
- Hammer Lane/Kelley Drive: LOS E (AM and PM peak hours)
- Hammer Lane/Pershing Avenue: LOS F (PM peak hour)

In response to Comment 10-3, the following changes are made to the text of the DEIR on page 3.5-37.

Freeway Segment Analysis

Traffic from the proposed Project was added to the EPAP forecasts for the "with-project" analysis. Each mainline segment was analyzed based on the peak hour traffic volumes shown in Table 3.15-12. The results indicate that with the addition of Project traffic, I-5 south of Hammer Lane would degrade from LOS E to LOS F in the northbound direction in the PM peak hour. In addition, I-5 south of Hammer Lane in the southbound direction would degrade from LOS E to LOS F in the AM peak hour and from LOS D to LOS F in the PM peak hour. Congestion on these I-5 segments resulting from Sanctuary, as well as existing and approved but not yet constructed development projects in Stockton, will extend through several interchanges to the south of Hammer Lane.

In response to Comment 10-3, the text of Mitigation Measure TRA-13a on page 3.15-48 has also been modified for clarification.

Mitigation Measure TRA-13a: Widen Interstate 5 to Provide Four Mixed-Flow Travel Lanes in Each Direction

The mitigation measure is to widen I-5 to provide four mixed-flow travel lanes in each direction south of Hammer Lane to the Monte Diablo undercrossing. Freeway operations would be better under Project conditions with mitigation versus under without-project conditions (i.e., no mitigation). ~~Therefore, the Project impact could be considered less than significant with the implementation of the mitigation measure.~~ However, portions of I-5 would still operate at an unacceptable LOS E.

The widening of I-5 from the Monte Diablo undercrossing to Eight Mile Road is included in the SJCOG 2025 Regional Transportation Plan (RTP) as a Tier 1 project sponsored by Caltrans. Additionally, the I-5 North Stockton PSR specifies planned improvements to widen I-5 from Eight Mile Road to Country Club Drive to eight lanes. However, the RTP notes that full project funding has not yet been identified and full funding has not been identified for the PSR improvements. Therefore, the impact is considered significant and unavoidable. Once identified and approved, the ~~The~~ Project applicant will ~~should~~ pay its fair-share contribution toward these improvements.

In response to Comments 10-5 and 10-6, the following changes are made to the text of the DEIR on page 3.15-50.

- **Otto Drive/Trinity Parkway:** The addition of Project traffic would degrade LOS D conditions to LOS F in the AM peak hour and LOS E conditions to LOS F in the PM peak hour.
- **Otto Drive/I-5 Southbound Ramps:** The addition of Project traffic would ~~degrade LOS D conditions to~~ worsen LOS F operations in the AM peak hour by increasing the delay by more than 5 seconds and degrade LOS C operations to LOS E in the PM peak hour.
- **Otto Drive/I-5 Northbound Ramps:** The addition of Project traffic would degrade LOS D conditions to LOS F in the PM peak hour.

In response to Comment 10-3, the following changes are made to the text of the DEIR on page 3.15-52.

Freeway Segment Analysis

Traffic from the proposed Project was added to the Future 2025 without Project forecasts for the with Project analysis. Each mainline segment was analyzed for the DEIR based on the peak hour traffic volumes shown in Table 3.15-16. The results indicate that with the addition of Project traffic, I-5 between Hammer Lane and Otto Drive in the northbound direction in the PM peak hour and in the southbound direction in the AM and PM peak hours would degrade from LOS D conditions to LOS E. I-5 south of Hammer Lane would degrade from LOS E conditions to LOS F in the southbound direction in the PM peak hour. In addition, LOS F conditions would worsen on I-5 south of Hammer Lane in the southbound direction in the AM peak hour and in the northbound direction in the PM peak hour. Congestion on these I-5 segments resulting from Sanctuary and buildout of Stockton's 1990 General Plan will extend through several interchanges to the south of Hammer Lane.

In response to Comments 10-5 and 10-6, the following changes are made to the text of the DEIR on page 3.15-57.

Impact TRA-19: Worsened Conditions at Otto Drive/Interstate 5 Southbound Ramps Intersection under Future 2025 plus Project Conditions (Significant and Unavoidable)

~~The addition of project~~ Increased traffic from the Project at the Otto Drive/I-5 southbound ramps intersection would ~~degrade LOS D operations to~~ further degrade the existing LOS F operations during the AM peak hour and degrade LOS C operations to LOS E during the PM peak hour. This is considered a significant impact. With implementation of the improvements in Mitigation Measure TRA-19a, the impact is reduced to a less-than-significant level, as shown in Table 3.15-27.

A PA/ED is being prepared for interchanges on I-5, including the Otto Drive interchange. Through the PA/ED process, the ultimate interchange configuration will be identified. The improvement is not fully funded, and it will require Caltrans approval. Neither the City nor the applicant can control the timing or the implementation of this mitigation measure. Therefore, the impact is considered significant and unavoidable.

Mitigation Measure TRA-19a: Add Capacity to Otto Drive/Interstate 5 Southbound Ramps Intersection

The mitigation measure is to add a westbound left-turn lane and to convert an eastbound through lane to a shared through/right-turn lane and convert the eastbound right-turn lane to a free right-turn lane. The project sponsor ~~should~~ will pay its fair-share contribution toward these improvements.

In response to Comments 10-5 and 10-6, the following changes are made to the text of the DEIR on page 3.15-65.

- **Otto Drive/I-5 Southbound Ramps:** The addition of Project traffic would degrade ~~operations from LOS C to~~ LOS F operations in the AM peak hour and increase the delay by more than 5 seconds and degrade operations from LOS C to LOS E in the PM peak hour.
- **Otto Drive/I-5 Northbound Ramps:** The addition of Project traffic would degrade operations from LOS D to LOS F in the PM peak hour.

In response to Comments 10-5 and 10-6, the following changes are made to the text of the DEIR on page 3.15-71.

Mitigation Measure TRA-34a: Add Two Westbound Through Lanes and ~~an~~ a Free Eastbound Right-Turn Lane to Eight Mile Road/Interstate 5 Southbound Ramps Intersection

The mitigation measure is to add two westbound through lanes and ~~an~~a free eastbound right-turn lane. The Project applicant ~~should~~will pay its fair-share contribution toward these improvements.

In response to Comments 10-5 and 10-6, the following changes are made to the text of the DEIR on page 3.15-71.

Impact TRA-38: Worsened Conditions at Otto Drive/Interstate 5 Southbound Ramps Intersection under Future 2035 plus Project Conditions (Significant and Unavoidable)

The addition of Project traffic at the Otto Drive/I-5 southbound ramps intersection would ~~degrade LOS C conditions to~~ worsen LOS F operations in the AM peak hour and increase the delay by more than 5 seconds and degrade LOS C operations to LOS E in the PM peak hour. This is considered a significant impact. With implementation of the improvements in Mitigation Measure TRA-19a, the impact would be reduced to a less-than-significant level. A PA/ED is being prepared for interchanges on I-5, including the Otto Drive interchange. Through the PA/ED process, the ultimate interchange configuration will be identified. The improvement is not fully funded, and it will require Caltrans approval. Neither the City nor the applicant can control the timing or the implementation of this mitigation measure. Therefore, the impact is considered significant and unavoidable.

The following corrections are made to the text of the DEIR on page 3.15-80.

Mitigation Measure TRA-49a: Provide Traffic-Calming Devices on Public Residential Streets Where Block Lengths Are More Than 600 Feet

Internal access and circulation of individual neighborhoods shall be reviewed and modifications made as needed to ensure consistency with the City's guidelines. Traffic-calming devices will be provided on public residential streets where block lengths are more than 600 feet. A traffic-calming plan will be prepared to City of Stockton specifications by a qualified traffic engineer for

each individual neighborhood prior to recordation of the tentative map for any of the parcels in the neighborhood.

Tables 3.15-5, 3.15-9, 3.15-13, 3.15-17, 3.15-27, and 3.15-31, which follow this page, are corrected as shown.

Chapter 4 – Other CEQA Considerations

In response to Comment 12-56, the text of the DEIR is corrected as follows in the third paragraph on page 4-4 of the DEIR.

Related Projects

The analysis in this chapter is primarily based upon the projections of the 1990 General Plan regarding future development within the City's sphere of influence. This analysis incorporates reasonably foreseeable, relevant projects and focuses on those that, when combined with the proposed project, could contribute to cumulative effects. The basis for the analysis of cumulative traffic impacts is described in detail in Section 3.15 of this document. A summary is below. ~~For all other issue areas, the background for the cumulative impact analysis was considered to be the buildout of the 1990 General Plan.~~

The following changes are made to the text of the DEIR in the third paragraph on page 4-14. This change is required for consistency with Impact GI-1 on page 4-2 of the DEIR.

Impact CE-14: Cumulative Effects Related to Population Growth (Less than Cumulatively Considerable ~~and Unavoidable~~)

As discussed above, under Growth-Inducing Impacts (Impact GI-1), the proposed project would not make a cumulatively considerable contribute~~ion~~ to the significant and unavoidable growth-inducing impact identified in the Draft EIR for the 2035 Draft Stockton General Plan Update as associated with the General Plan Update. The project, therefore, would not contribute to cumulative impacts related to population growth. No mitigation is available to reduce this impact to a less-than-significant level. For this reason, the impact is considered to be less than cumulatively considerable ~~significant and unavoidable~~.

The following changes are made to the text of the DEIR beginning with the last paragraph on page 4-35. This change in the summary section is required for consistency with the text of the DEIR.

~~**Impact HYD-7: Water Quality Impacts from Discharges to Surface Water Where Water Bodies are 303(d) Listed (Significant and Unavoidable)**~~

~~The Delta waterways and DWSC have been designated as impaired for a variety of contaminants, including pesticides (Chlorpyrifos, DDT, Diazinon, and Group A pesticides), mercury, electrical conductivity, organic enrichment/low dissolved oxygen. Under this impairment, the Delta waterways and DWSC has~~

Table 3.15-5. Existing (2005) Peak Hour Intersection Levels of Service

Intersection		Control[a]	Peak Hour	Delay[b, c]	LOS
1.	Eight Mile Road/Regatta Drive	–	–	–	–
2.	Eight Mile Road/Mokelumne Circle	SSSC	AM	8 (NB 11)	A (B)
			PM	5 (NB 11)	A (B)
3.	Eight Mile Road/Trinity Parkway	Signal	AM	12	B
			PM	11	B
4.	Eight Mile Road/I-5 Southbound Ramps	Signal	AM	~~7~~8	A
			PM	~~5~~6	A
5.	Eight Mile Road/I-5 Northbound Ramps	Signal	AM	10	B
			PM	15	B
6.	Eight Mile Road/Thornton Road	Signal	AM	32	C
			PM	27	C
7.	Eight Mile Road/Davis Road	Signal	AM	32	C
			PM	30	C
8.	Eight Mile Road/Lower Sacramento Road	Signal	AM	53	D
			PM	42	D
9.	Trinity Parkway/Cosumnes Drive	Signal	AM	16	B
			PM	14	B
10.	Trinity Parkway/McAuliffe Road	SSSC	AM	9 (WB 10)	A (B)
			PM	8 (WB 9)	A (A)
11.	Otto Drive/Trinity Parkway	–	–	–	–
12.	Otto Drive/Mariners Drive	–	–	–	–
13.	Otto Drive/I-5 Southbound Ramps	–	–	–	–
14.	Otto Drive/I-5 Northbound Ramps	–	–	–	–
15.	Mariners Drive/Whitewater Lane	SSSC	AM	1 (EB 9)	A (A)
			PM	1 (EB 9)	A (A)
16.	Mariners Drive/Blackswain Place	AWSC	AM	8	A
			PM	8	A
17.	Mariners Drive/Sturgeon Road	AWSC	AM	8	A
			PM	8	A
18.	Loop Road/Trinity Parkway	–	–	–	–
19.	Hammer Lane/Trinity Parkway (Loop Road)	–	–	–	–
20.	Hammer Lane/Mariners Drive	Signal	AM	20	B
			PM	13	B
21.	Hammer Lane/I-5 Southbound Ramps	Signal	AM	16	B
			PM	17	B
22.	Hammer Lane/I-5 Northbound Ramps	Signal	AM	11	B
			PM	25	C
23.	Hammer Lane/Kelley Drive	Signal	AM	19	B
			PM	26	C

Table 3.15-5. Continued

Intersection		Control[a]	Peak Hour	Delay[b, c]	LOS
24.	Hammer Lane/Meadow Avenue /Don Avenue	Signal	AM	34	C
			PM	33	C
25.	Hammer Lane/Pershing Avenue	Signal	AM	**57**	**E**
			PM	**>80**	**F**
26.	Hammer Lane/Thornton Road	Signal	AM	32	C
			PM	39	D
27.	Hammer Lane/Lower Sacramento Road	Signal	AM	33	C
			PM	38	D

Notes:

– = not applicable (intersection analysis under future conditions only). **Bold** indicates unacceptable operations.

[a] Signal = signalized intersection; AWSC = all-way stop-controlled intersection; SSSC = side-street stop-controlled intersection.

[b] Signalized intersection average control delay (seconds per vehicle) and LOS calculated using the HCM method.

[c] All-way stop controlled and side-street stop-controlled intersection LOS is based on average delay per vehicle (seconds) according to the HCM. For the side-street stop controlled intersections, the worst-case stop-controlled movement delays are presented in parentheses.

Source: Fehr & Peers 2005.

Table 3.15-9. Existing plus Approved Projects without and with Project Conditions Intersection LOS Summary

Intersection		Control[a]	Peak Hour	Existing plus Approved Projects		Existing plus Approved Projects plus Project	
				Delay[b, c]	LOS	Delay[b, c]	LOS
1.	Eight Mile Road/Regatta Drive	Signal	AM	13	B	17	B
			PM	11	B	13	B
2.	Eight Mile Road/Mokelumne Circle	Signal	AM	31	C	39	D
			PM	20	C	21	C
3.	Eight Mile Road/Trinity Parkway	Signal	AM	45	D	47	D
			PM	39	D	**71**	**E**
4.	Eight Mile Road/I-5 Southbound Ramps	Signal	AM	~~8~~15	~~A~~B	~~11~~17	B
			PM	~~23~~25	C	~~33~~35	~~C~~D
5.	Eight Mile Road/I-5 Northbound Ramps	Signal	AM	34	C	34	C
			PM	**>80**	**F**	**>80**	**F**
6.	Eight Mile Road/Thornton Road	Signal	AM	30	C	37	D
			PM	27	C	38	D
7.	Eight Mile Road/Davis Road	Signal	AM	**58**	**E**	**79**	**E**
			PM	**71**	**E**	**>80**	**F**
8.	Eight Mile Road/Lower Sacramento Road	Signal	AM	51	D	**66**	**E**
			PM	47	D	**62**	**E**
9.	Trinity Parkway/Cosumnes Drive	Signal	AM	21	C	22	C
			PM	28	C	55	D
10.	Trinity Parkway/McAuliffe Road	Signal	AM	20	B	25	C
			PM	22	C	31	C
11.	Otto Drive/Trinity Parkway[e]	Signal	AM	–	–	22	C
			PM	–	–	23	C
12.	Otto Drive/Mariners Drive	SSSC	AM	8 (EB 12)	A (B)	7 (EB 11)	A (B)
			PM	10 (EB 14)	B (B)	6 (EB10)	A (B)
13.	Otto Drive/I-5 Southbound Ramps	–	–	–	–	–	–
14.	Otto Drive/I-5 Northbound Ramps	–	–	–	–	–	–
15.	Mariners Drive/Whitewater Lane	SSSC	AM	1 (EB 15)	A (B)	1 (EB 12)	A (B)
			PM	1 (EB 22)	A (C)	1 (EB 12)	A (B)
16.	Mariners Drive/Blackswain Place	AWSC	AM	14	B	11[d]	B
			PM	**>50**	**F**	12[d]	B
17.	Mariners Drive/Sturgeon Road	AWSC	AM	15	B	11[d]	B
			PM	**>50**	**F**	13[d]	B
18.	Loop Road/Trinity Parkway	Signal	AM	–	–	32	C
			PM	–	–	23	C

Intersection		Control[a]	Peak Hour	Existing plus Approved Projects		Existing plus Approved Projects plus Project	
				Delay[b, c]	LOS	Delay[b, c]	LOS
19.	Hammer Lane/Trinity Parkway (Loop Road)	Signal	AM	–	–	31	C
			PM	–	–	**>80**	**F**
20.	Hammer Lane/Mariners Drive	Signal	AM	**>80**	**F**	**>80**	**F**
			PM	**>80**	**F**	**>80**	**F**
21.	Hammer Lane/I-5 Southbound Ramps	Signal	AM	21	C	**>80**	**F**
			PM	22	C	**>80**	**F**
22.	Hammer Lane/I-5 Northbound Ramps	Signal	AM	13	B	**72**	**E**
			PM	51	D	**>80**	**F**
23.	Hammer Lane/Kelley Drive	Signal	AM	49	D	**>80**	**F**
			PM	41	D	**>80**	**F**
24.	Hammer Lane/Meadow Avenue/Don Avenue	Signal	AM	27	C	30	C
			PM	28	C	49	D
25.	Hammer Lane/Pershing Avenue	Signal	AM	28	C	42	D
			PM	44	D	**>80**	**F**
26.	Hammer Lane/Thornton Road	Signal	AM	31	C	32	C
			PM	42	D	51	D
27.	Hammer Lane/Lower Sacramento Road	Signal	AM	34	C	37	D
			PM	45	D	**69**	**E**

Notes: – = not applicable (intersection analysis under future conditions only). **Bold** indicates unacceptable operations. **Bold/underline** indicates potentially significant impact.

[a] Signal = signalized intersection; AWSC = all-way stop-controlled intersection; SSSC = side-street stop-controlled intersection.

[b] Signalized intersection average control delay (seconds per vehicle) and LOS calculated using HCM method.

[c] All-way stop controlled and side-street stop-controlled intersection LOS is based on average delay per vehicle (seconds) according to HCM. For the side-street stop controlled intersections, the worst-case stop-controlled movement delays are presented in parentheses.

[d] With the construction of the project, Trinity Parkway would be connected to Loop Road. Trinity Parkway and Loop Road would be four- to six-lane arterials, whereas Mariners Drive is a two-lane residential street; therefore, traffic on Mariners Drive would decrease and LOS would improve at this intersection.

[e] This intersection exists under Existing plus Approved Projects conditions; however, it would have no conflicting movements (i.e., there would be only a north leg and an east leg), so it would operate at LOS A.

Source: Fehr & Peers 2007.

Table 3.15-13. Future 2025 without and with Project Conditions
Intersection LOS Summary

Intersection		Control[a]	Peak Hour	Future 2025		Future 2025 with Project	
				Delay[b, c]	LOS	Delay[b, c]	LOS
1.	Eight Mile Road/Regatta Drive	Signal	AM	14	B	17	B
			PM	18	B	19	B
2.	Eight Mile Road/Mokelumne Circle	Signal	AM	51	D	**58**	**E**
			PM	**65**	**E**	**69**	**E**
3.	Eight Mile Road/Trinity Parkway	Signal	AM	22	C	24	C
			PM	27	C	36	D
4.	Eight Mile Road/I-5 Southbound Ramps	Signal	AM	~~11~~18	B	~~11~~20	B
			PM	~~44~~48	D	~~51~~54	D
5.	Eight Mile Road/I-5 Northbound Ramps	Signal	AM	23	C	20[d]	C
			PM	**>80**	**F**	**>80**	**F**
6.	Eight Mile Road/Thornton Road	Signal	AM	29	C	30	C
			PM	35	C	37	D
7.	Eight Mile Road/Davis Road	Signal	AM	30	C	31	C
			PM	51	D	51	D
8.	Eight Mile Road/Lower Sacramento Road	Signal	AM	34	C	34	C
			PM	33	C	34	C
9.	Trinity Parkway/Cosumnes Drive	Signal	AM	34	C	39	D
			PM	40	D	**62**	**E**
10.	Trinity Parkway/McAuliffe Road	Signal	AM	36	D	49	D
			PM	**>80**	**F**	**>80**	**F**
11.	Otto Drive/Trinity Parkway	Signal	AM	52	D	**>80**	**F**
			PM	**64**	**E**	**>80**	**F**
12.	Otto Drive/Mariners Drive	Signal	AM	28	C	21[d]	C
			PM	27	C	46	D
13.	Otto Drive/I-5 Southbound Ramps	Signal	AM	~~44~~**>80**	~~D~~**F**	**>80**	**F**
			PM	~~16~~31	~~B~~C	~~30~~**79**	~~C~~**E**
14.	Otto Drive/I-5 Northbound Ramps	Signal	AM	28	C	38	D
			PM	37	D	**>80**	**F**
15.	Mariners Drive/Whitewater Lane	SSSC	AM	1 (EB 13)	A (B)	1 (EB 14)	A (B)
			PM	1 (EB 14)	A (B)	1 (EB 16)	A (C)
16.	Mariners Drive/Blackswain Place	AWSC	AM	11	B	12	B
			PM	13	B	16	C
17.	Mariners Drive/Sturgeon Road	AWSC	AM	12	B	13	B
			PM	14	B	16	C

Table 3.15-13. Continued

Intersection		Control[a]	Peak Hour	Future 2025		Future 2025 with Project	
				Delay[b, c]	LOS	Delay[b, c]	LOS
18.	Loop Road/Trinity Parkway	Signal	AM	–	–	22	C
			PM	–	–	27	C
19.	Hammer Lane/Trinity Parkway (Loop Road)	Signal	AM	38	D	36[d]	D
			PM	26	C	55	D
20.	Hammer Lane/Mariners Drive	Signal	AM	30	C	**>80**	**F**
			PM	24	C	**>80**	**F**
21.	Hammer Lane/I-5 Southbound Ramps	Signal	AM	35	C	**>80**	**F**
			PM	19	B	**57**	**E**
22.	Hammer Lane/I-5 Northbound Ramps	Signal	AM	27	C	**>80**	**F**
			PM	**70**	**E**	**>80**	**F**
23.	Hammer Lane/Kelley Drive	Signal	AM	54	D	**>80**	**F**
			PM	**>80**	**F**	**>80**	**F**
24.	Hammer Lane/Meadow Avenue/Don Avenue	Signal	AM	39	D	**62**	**E**
			PM	38	D	**60**	**E**
25.	Hammer Lane/Pershing Avenue	Signal	AM	49	D	**>80**	**F**
			PM	**>80**	**F**	**>80**	**F**
26.	Hammer Lane/Thornton Road	Signal	AM	32	C	34	C
			PM	50	D	**56**	**E**
27.	Hammer Lane/Lower Sacramento Road	Signal	AM	37	D	42	D
			PM	52	D	**62**	**E**

Notes: – = not applicable (intersection analysis under with project conditions only). **Bold** indicates unacceptable operations. **Bold/underline** indicates potentially significant impact.

[a] Signal = signalized intersection; AWSC = all-way stop-controlled intersection; SSSC = side-street stop-controlled intersection.

[b] Signalized intersection average control delay (in seconds per vehicle) and LOS calculated using the HCM method.

[c] All-way stop controlled and side-street stop-controlled intersection LOS is based on average delay per vehicle (seconds) according to the 2000 HCM. For the side-street stop controlled intersections, the worst-case stop-controlled movement delays are presented in parentheses.

[d] With the construction of the project, travel patterns would change due to the project internal roadway system; therefore, intersection delay would decrease and LOS would improve at this intersection.

Source: Fehr & Peers 2007.

Table 3.15-17. Future 2035 without and with Project Conditions
Intersection LOS Summary

Intersection		Control[a]	Peak Hour	Future 2035		Future 2035 with Project	
				Delay[b, c]	LOS	Delay[b, c]	LOS
1.	Eight Mile Road/Regatta Drive	Signal	AM	23	C	28	C
			PM	16	B	19	B
2.	Eight Mile Road/Mokelumne Circle	Signal	AM	55	D	**66**	**E**
			PM	36	D	47	D
3.	Eight Mile Road/Trinity Parkway	Signal	AM	**55**	**E**	**80**	**E**
			PM	48	D	**62**	**E**
4.	Eight Mile Road/I-5 Southbound Ramps	Signal	AM	**>80**	**F**	**>80**	**F**
			PM	**>80**	**F**	**>80**	**F**
5.	Eight Mile Road/I-5 Northbound Ramps	Signal	AM	27	C	39	D
			PM	**>80**	**F**	**>80**	**F**
6.	Eight Mile Road/Thornton Road	Signal	AM	**>80**	**F**	**>80**	**F**
			PM	**>80**	**F**	**>80**	**F**
7.	Eight Mile Road/Davis Road	Signal	AM	**64**	**E**	**64**	**E**
			PM	**>80**	**F**	**>80**	**F**
8.	Eight Mile Road/Lower Sacramento Road	Signal	AM	**67**	**E**	**68**	**E**
			PM	**79**	**E**	**>80**	**F**
9.	Trinity Parkway/Cosumnes Drive	Signal	AM	46	D	42	D
			PM	**58**	**E**	**>80**	**F**
10.	Trinity Parkway/McAuliffe Road	Signal	AM	10	A	13	B
			PM	23	C	31	C
11.	Otto Drive/Trinity Parkway	Signal	AM	**58**	**E**	**>80**	**F**
			PM	**57**	**E**	**>80**	**F**
12.	Otto Drive/Mariners Drive	Signal	AM	18	B	16[d]	B
			PM	22	C	53	D
13.	Otto Drive/I-5 Southbound Ramps	Signal	AM	~~34~~**>80**	~~C~~**F**	**>80**	**F**
			PM	~~18~~32	~~B~~C	~~43~~**77**	D**E**
14.	Otto Drive/I-5 Northbound Ramps	Signal	AM	28	C	32	C
			PM	55	D	**>80**	**F**
15.	Mariners Drive/Whitewater Lane	SSSC	AM	1 (EB 11)	A (B)	1 (EB 12)	A (B)
			PM	1 (EB 13)	A (B)	1 (EB 15)	A (B)
16.	Mariners Drive/Blackswain Place	AWSC	AM	10	A	10	B
			PM	12	B	14	B

Intersection		Control[a]	Peak Hour	Future 2035		Future 2035 with Project	
				Delay[b, c]	LOS	Delay[b, c]	LOS
17.	Mariners Drive/Sturgeon Road	AWSC	AM	10	A	11	B
			PM	12	B	14	B
18.	Loop Road/Trinity Parkway	Signal	AM	–	–	16	B
			PM	–	–	18	B
19.	Hammer Lane/Trinity Parkway (Loop Road)	Signal	AM	22	C	37	D
			PM	25	C	34	C
20.	Hammer Lane/Mariners Drive	Signal	AM	37	D	**>80**	**F**
			PM	29	C	62	E
21.	Hammer Lane/I-5 Southbound Ramps	Signal	AM	**56**	**E**	**>80**	**F**
			PM	30	C	**71**	**E**
22.	Hammer Lane/I-5 Northbound Ramps	Signal	AM	12	B	51	D
			PM	38	D	**>80**	**F**
23.	Hammer Lane/Kelley Drive	Signal	AM	**51**	**D**	**>80**	**F**
			PM	**63**	**E**	**>80**	**F**
24.	Hammer Lane/Meadow Avenue/Don Avenue	Signal	AM	43	D	37	D
			PM	36	D	**57**	**E**
25.	Hammer Lane/Pershing Avenue	Signal	AM	50	D	**>80**	**F**
			PM	**>80**	**F**	**>80**	**F**
26.	Hammer Lane/Thornton Road	Signal	AM	31	C	37	D
			PM	42	D	51	D
27.	Hammer Lane/Lower Sacramento Road	Signal	AM	33	C	35	C
			PM	48	D	47	D

Notes: – = not applicable (intersection analysis under with project conditions only). **Bold** indicates unacceptable operations. **Bold/underline** indicates potentially significant project impact.

[a] Signal = signalized intersection; AWSC = all-way stop-controlled intersection; SSSC = side-street stop-controlled intersection.

[b] Signalized intersection average control delay (seconds per vehicle) and LOS calculated using the HCM method.

[c] All-way stop controlled and side-street stop-controlled intersection LOS is based on average delay per vehicle (in seconds) according to the HCM. For the side-street stop controlled intersections, the worst-case stop-controlled movement delays are presented in parentheses.

Source: Fehr & Peers 2007.

Table 3.15-27. Future 2025 plus Project Conditions Intersection LOS with Mitigation

Intersection		Peak Hour	Future 2025 without Project		Future 2025 plus Project		Future 2025 plus Project with Mitigation	
			Delay*	LOS	Delay*	LOS	Delay*	LOS
2.	Eight Mile Road/ Mokelumne Circle	AM	51	D	**58**	**E**	43	D
		PM	**65**	**E**	**69**	**E**	54	D
5.	Eight Mile Road/I-5 Northbound Ramps	AM	23	C	20	C	5	A
		PM	**>80**	**F**	**>80**	**F**	11	B
9.	Trinity Parkway/ Cosumnes Drive	AM	34	C	39	D	41	D
		PM	40	D	**62**	**E**	30	C
10.	Trinity Parkway/ McAuliffe Road	AM	36	D	49	D	27	C
		PM	**>80**	**F**	**>80**	**F**	46	D
11.	Otto Drive/ Trinity Parkway	AM	52	D	**>80**	**F**	54	D
		PM	**64**	**E**	**>80**	**F**	54	D
13.	Otto Drive/I-5 Southbound Ramps	AM	~~44~~**>80**	~~D~~**F**	**>80**	**F**	~~32~~33	C
		PM	~~16~~31	~~B~~C	~~30~~**79**	~~C~~**E**	28	C
14.	Otto Drive/I-5 Northbound Ramps	AM	28	C	38	D	35	D
		PM	37	D	**>80**	**F**	44	D
20.	Hammer Lane/ Mariners Drive	AM	30	C	**>80**	**F**	21	C
		PM	24	C	**>80**	**F**	20	B
21.	Hammer Lane/I-5 Southbound Ramps	AM	35	C	**>80**	**F**	52	D
		PM	19	B	**57**	**E**	50	D
22.	Hammer Lane/I-5 Northbound Ramps	AM	27	C	**>80**	**F**	29	C
		PM	**70**	**E**	**>80**	**F**	52	D
23.	Hammer Lane/ Kelley Drive	AM	54	D	**>80**	**F**	53	D
		PM	**>80**	**F**	**>80**	**F**	**68**	**E**
24.	Hammer Lane/ Meadow Avenue/ Don Avenue	AM	39	D	**62**	**E**	45	D
		PM	38	D	**60**	**E**	54	D
25.	Hammer Lane/ Pershing Avenue	AM	49	D	**>80**	**F**	53	D
		PM	**>80**	**F**	**>80**	**F**	52	D
26.	Hammer Lane/ Thornton Road	AM	32	C	34	C	32	C
		PM	50	D	**56**	**E**	46	D
27.	Hammer Lane/ Lower Sacramento Road	AM	37	D	42	D	42	D
		PM	52	D	**62**	**E**	52	D

Note: **Bold** indicates unacceptable operations.

* Measured in seconds per vehicle. Signalized intersection average control delay and LOS calculated using the HCM method.

Source: Fehr & Peers 2007.

Table 3.15-31. Future 2035 plus Project Intersection LOS with Mitigation

Intersection		Peak Hour	Future 2035 without Project		Future 2035 plus Project		Future 2035 plus Project with Mitigation	
			Delay*	LOS	Delay*	LOS	Delay*	LOS
2.	Eight Mile Road/ Mokelumne Circle	AM	55	D	**66**	**E**	41	D
		PM	36	D	47	D	42	D
3.	Eight Mile Road/Trinity Parkway	AM	**55**	**E**	**80**	**E**	37	D
		PM	48	D	**62**	**E**	39	D
4.	Eight Mile Road/I-5 southbound ramps	AM	**>80**	**F**	**>80**	**F**	~~32~~33	C
		PM	**>80**	**F**	**>80**	**F**	31	C
6.	Eight Mile Road/ Thornton Road	AM	**>80**	**F**	**>80**	**F**	45	D
		PM	**>80**	**F**	**>80**	**F**	55	D
9.	Trinity Parkway/ Cosumnes Drive	AM	46	D	42	D	38	D
		PM	**58**	**E**	**>80**	**F**	51	D
11.	Otto Drive/Trinity Parkway	AM	**58**	**E**	**>80**	**F**	54	D
		PM	**57**	**E**	**>80**	**F**	54	D
13.	Otto Drive/I-5 southbound ramps	AM	~~34~~**>80**	~~C~~**F**	**>80**	**F**	51	D
		PM	~~18~~32	~~B~~C	~~43~~**77**	~~D~~**E**	35	D
14.	Otto Drive/I-5 northbound ramps	AM	28	C	32	C	30	C
		PM	55	D	**>80**	**F**	54	D
20.	Hammer Lane/ Mariners Drive	AM	37	D	**>80**	**F**	52	D
		PM	29	C	**62**	**E**	34	D
21.	Hammer Lane/I-5 southbound ramps	AM	**56**	**E**	**>80**	**F**	**76**	**E**
		PM	30	C	**71**	**E**	36	D
22.	Hammer Lane/I-5 northbound ramps	AM	12	B	51	D	27	C
		PM	38	D	**>80**	**F**	52	D
23.	Hammer Lane/ Kelley Drive	AM	51	D	**>80**	**F**	47	D
		PM	**63**	**E**	**>80**	**F**	51	D
24.	Hammer Lane/ Meadow Avenue/Don Avenue	AM	43	D	37	D	33	C
		PM	36	D	**57**	**E**	48	D
25.	Hammer Lane/ Pershing Avenue	AM	50	D	**>80**	**F**	46	D
		PM	**>80**	**F**	**>80**	**F**	47	D

Notes: **Bold** indicates unacceptable operations.

* Measured in seconds per vehicle. Signalized intersection average control delay and LOS calculated using the HCM method.

Source: Fehr & Peers 2007.

~~no remaining assimilative capacity or ability to accommodate additional quantities of these contaminants, irrespective of concentration.~~

~~These constituents could be gathered from lawn runoff, rooftops, and even indoor household runoff. However, the concentration of these constituents is expected to be relatively low. In addition, all drainage from The Sanctuary will be channeled toward on-site water features that would provide some level of stormwater treatment, reducing the potential for such contaminants to reach the surrounding sloughs and DWSC. However, because full removal of listed constituents is not possible, and no assimilating capacity remains in the receiving water bodies, this remains a significant impact. For this reason, this impact is considered significant and unavoidable.~~

~~Impact CE-9: Cumulative Water Quality Impacts to an Impaired Waterway (Cumulatively Considerable and Unavoidable)~~

~~As discussed in section 3.8, "Hydrology and Water Quality," the proposed project facilities are expected to result in an increase in urban uses, including the development of increased impervious surfaces. This will result in an incremental reduction in the amount of natural soil surfaces available for infiltration of rainfall and causing additional stormwater runoff. As such, the proposed project has the potential to contribute to the overall load of contaminants to Delta waterways, through urban stormwater and non-stormwater runoff and potentially shorten the timing of peak storm discharge due to more efficient conveyance. Discharge of any urban runoff to Delta waterways would be a significant impact because the Delta waterways are 303(d) listed as impaired for pesticides (Chlorpyrifos, DDT, Diazinon, and Group A pesticides, resulting from agricultural and urban runoff/storm sewers), mercury (from abandoned mine drainage), electrical conductivity (agriculture), organic enrichment/low dissolved oxygen (municipal point sources and urban runoff/storm sewers), and unknown toxicity (unknown cause) and cannot handle additional contaminant loading.~~

~~Implementation of the mitigation measures in Section 3.8, which include the development of a Master Drainage Plan which specifies discharge of urban runoff to on-site water features, BMPs to protect water quality during and after construction, conformance with federal and state construction standards, and the development of a maintenance dredging plan, will reduce impacts to the surrounding 303(d) listed waterways but not to a less-than-significant level and for this reason will contribute to a significant and unavoidable cumulative impact.~~

The following changes are made to the text of the DEIR in the second full paragraph on page 4-37. This change in the summary section is required for consistency with the text of the DEIR.

~~Impact CE-14: Cumulative Effects Related to Population Growth (Cumulatively Considerable and Unavoidable)~~

~~As discussed above, under Growth-Inducing Impacts (Impact GI-1), the proposed project would contribute to the significant and unavoidable growth-inducing impact identified in the Draft EIR for the 2035 Draft Stockton General Plan Update as associated with the General Plan Update. The project, therefore, would contribute to cumulative impacts related to population growth. No~~

~~mitigation is available to reduce this impact to a less-than-significant level. For this reason, the impact is considered to be significant and unavoidable.~~

Chapter 5 – Alternatives Analysis

The following change is made to the text of the DEIR in the fifth-to-last bullet on page 5-3. This change in the summary section is required for consistency with the text of the DEIR.

- ~~hydrologic and water quality impacts related to discharges to surface water where water bodies are 303(d) listed, cumulative water quality impacts on an impaired waterway,~~ potential water quality impacts related to dredging and operation of the marina, impacts related to drainage and runoff, short-term impacts related to water supply, and impacts related to potential levee failure and flooding;

The following change is made to the text of the DEIR in the next to the last paragraph on page 5-6.

> Alternative ~~1~~ 2 was developed as an alternative that would reduce the traffic impacts of the proposed project by reducing trips generated.

The following change is made to the text of the DEIR in the last sentence on page 5-9.

> This reduction would not be enough to reduce all of the traffic impacts associated with development of the project site to a less-than-significant level.

The following change is made to the text of the DEIR in the third full paragraph on page 5-12.

> Testing of alternatives was performed to determine whether a feasible alternative existed that would address the most important impacts of the project identified in the EIR. Table 5-6 illustrates the impacts of the project and four alternatives. These impacts were primarily related to traffic and the associated cumulative noise and air quality impacts. An alternative was identified that would reduce traffic impacts, and therefore most noise and air quality impacts, to a less-than-significant level. As discussed above, the Significantly Reduced Project Alternative would reduce project impacts on traffic to a less-than-significant level and would constitute 25% of the level of development of the proposed project. As also discussed above, the Significantly Reduced Project would be inconsistent with the goals of the proposed 2035 Draft Stockton General Plan Update and would not meet the objectives of the project for development of a diverse community, and for these reasons, the Significantly Reduced Project Alternative was rejected.

The changes shown in Table 5-6 following this page are made for consistency with the text of the DEIR.

Appendices

Two level of service (LOS) calculation pages to correct pages in Appendix N of the DEIR are found following this chapter.

The City of Stockton Wastewater Collection System 10 Master Plan Revision #7 is added as Appendix P and is found following this chapter.

Table 5-6. Comparison of Impacts under Alternatives

Impact	Proposed Project		Alternative 1	Alternative 2	Alternative 3	No Project
	Significance before Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance
Aesthetics and Visual Resources						
Impact AES-1: Adverse Effects on Scenic Vista	No Impact	–	Less than significant	Less than significant	Less than significant	Less than significant
Impact AES-2: Substantial Damage to Scenic Resources along a Scenic Highway	No Impact	–	Less than significant	Less than significant	Less than significant	Less than significant
Impact AES-3: Substantial Degradation of Existing Visual Character or Quality during Construction	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact AES-4: Substantial Degradation of Existing Visual Character or Quality Following Implementation of Project	Significant	Significant and unavoidable	Less than significant	Less than significant	Less than significant	Less than significant
Impact AES-5: Changes in Light and Glare during Construction	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact AES-6: Changes in Light and Glare following Implementation of Project	Significant	Less than significant	Similar to project and less than significant	Similar to project and less than significant	Similar to project and less than significant	Less than significant
Agricultural Resources						
Impact AG-1: Conversion of Important Farmland	Significant	Significant and unavoidable	Similar to project	Similar to project	Similar to project	Less than significant
Impact AG-2: Conflict with Existing Zoning for Agricultural Use or Williamson Act Contract from Proposed Land Uses	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact AG-3: Conflict with Existing Zoning for Agricultural Use or Williamson Act Contract from Levee Improvements	Significant	Significant and unavoidable	Similar to project	Similar to project	Similar to project	Less than significant
Impact AG-4: Other Changes in Existing Environment That, Due to Their Location or Nature, Could Result in Conversion of Farmland to Nonagricultural Use	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant

Impact	Proposed Project: Significance before Mitigation	Proposed Project: Significance after Mitigation	Alternative 1 Significance after Mitigation	Alternative 2 Significance after Mitigation	Alternative 3 Significance after Mitigation	No Project Significance
Air Quality						
Impact AQ-1: Temporary Increase in Construction-Related Emissions	Significant	Less than significant with mitigation	Similar to project	Similar to project	Similar to project	Less than significant
Impact AQ-2: Exposure of Sensitive Receptors to Elevated Levels of Diesel Exhaust from Construction Activities and Increased Health Risk	Less than significant	_	Similar to project	Similar to project	Similar to project	Less than significant
Impact AQ-3: Generation of Emissions of Reactive Organic Gases and Oxides of Nitrogen in Excess of San Joaquin Valley Air Pollution Control District Thresholds	Significant	Significant and unavoidable	Similar to project	Similar to project	Similar to project	Less than significant
Impact AQ-4: Exposure of Sensitive Receptors to Substantial Concentrations of Carbon Monoxide	Less than significant	Less than Significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact AQ-5: Conflict with or Obstruct Implementation of the Applicable Air Quality Management Plan	Significant	~~Less than~~ Significant and unavoidable	Similar to project	Similar to project	Similar to project	Less than significant
Impact AQ-6: Global Climate Change	Less than significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Biological Resources						
Impact BIO-1: Loss or Disturbance of Protected Oak Trees	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-2: Loss of Special-Status Plants or Degradation of Habitat	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-3: Loss and Degradation of Waters of the United States	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
~~Impact BIO-4: Spread of Invasive Plants~~	~~Significant~~	~~Less than significant~~	~~Similar to project~~	~~Similar to project~~	~~Similar to project~~	~~Less than significant~~

Table 5-6. Continued

Impact	Proposed Project		Alternative 1	Alternative 2	Alternative 3	No Project
	Significance before Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance
Impact BIO-~~4~~5: Loss of Agricultural Habitat Lands	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-~~5~~6: Loss of Habitat for VELB	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-~~6~~7: Construction-Related Impacts on Giant Garter Snakes	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-~~7~~8: Construction-Related Impacts on Western Pond Turtles	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-~~8~~9: Construction-Related Impacts to Nesting Swainson's Hawks	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-~~9~~10: Construction-Related Impacts on Western Burrowing Owls	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-10~~11~~: Construction-Related Impacts to Nesting Northern Harriers	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-11~~12~~: Construction-Related Impacts on Nesting Loggerhead Shrikes, Cooper's Hawks, and White-Tailed Kites	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-12~~13~~: Construction-Related Impacts on Greater Sandhill Cranes, Long-Billed Curlews, White-Faced Ibis, and Mountain Plovers	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-13~~14~~: Indirect Impacts on Nesting California Black Rails	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-14~~15~~: Construction-Related Impacts on Roosting Yuma Myotis	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-15~~16~~: Construction-Related Impacts on Fish Habitat	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-16~~17~~: Increase in Sedimentation and Turbidity during Construction Activities	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant

Table 5-6. Continued

Impact	Proposed Project		Alternative 1	Alternative 2	Alternative 3	No Project
	Significance before Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance
Impact BIO-17~~18~~: Short-Term Degradation of Water Quality and Fish Habitat from Accidental Spills or Seepage of Hazardous Materials during Construction	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-18~~19~~: Loss of Fish Habitat from Riprap Installation	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-19~~20~~: Potential for Habitat Modification in Fourteenmile Slough from Marina and Bridge Construction	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact BIO-20~~21~~: Potential Disturbance to on Fish from Bridge and Marina Construction	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Cultural Resources						
Impact CR-1: Destruction of Potentially Significant Cultural Resources at Camps 7 and 8	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact CR-2: Potential Disturbance to or Destruction of Buried Cultural Resources	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact CR-3: Direct or Indirect Destruction of a Unique Paleontological Resource or Site or Unique Geologic Feature	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact CR-4: Inadvertent Discovery of Native American Human Remains	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Geology and Soils						
Impact GEO-1: Potential Structural Damage and Injury from Fault Rupture	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact GEO-2: Potential Structural Damage and Injury from Groundshaking	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant

Impact	Proposed Project		Alternative 1	Alternative 2	Alternative 3	No Project
	Significance before Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance
Impact GEO-3: Potential Structural Damage and Injury from Development on Materials Subject to Liquefaction	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact GEO-4: Potential Accelerated Runoff, Erosion, and Sedimentation from Grading Activities	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact GEO-5: Potential Structural Damage and Injury from Development on Expansive or Compressible or Weak Soils	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact GEO-6: Increased Risk Associated with Stability of Flood Control Levee System	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact GEO-7: Consistency of Project with City of Stockton Policy for Development in Geologically Hazardous Areas	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact GEO-8: Postconstruction Settlement from Consolidation of Both Embankment and Foundation Soils	Less Than Significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Hazards and Hazardous Materials						
Impact HAZ-1: Significant Hazard from Routine Transport, Use, or Disposal of Hazardous Materials	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact HAZ-2: Significant Hazard from Reasonably Foreseeable Upset and Accident Conditions Involving Release of Hazardous Materials	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact HAZ-3: Emit Hazardous Emissions or Handle Hazardous or Acutely Hazardous Materials, Substances, or Waste within 0.25 Mile of an Existing or Proposed School	Significant	Less Than Significant	Similar to project	Similar to project	Similar to project	Less than significant

Table 5-6. Continued

Impact	Proposed Project		Alternative 1	Alternative 2	Alternative 3	No Project
	Significance before Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance
Impact HAZ-4: Close Proximity to Airport or Private Airstrip (No Impact)	No Impact	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact HAZ-5: Interference with Emergency Plan or Evacuation Plan	No Impact	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact HAZ-6: Inclusion on List of Hazardous Material Sites	No Impact	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact HAZ-7: Significant Risk of Loss, Injury, or Death from Wildland Fires	No Impact	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact HAZ-8: Significant Risk of Loss, Injury, or Death due to Levee Failure	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Hydrology and Water Quality						
Impact HYD-1: Impair Surface Water Quality as a Result of Construction-Related Earth-Disturbing Activities and Construction Related Hazardous Materials	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact HYD-2: Water Quality Impacts from Construction below the Water Table	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact HYD-3: Impacts to Water Quality From Dredging During Construction and Operation of Marina	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact HYD-4: Impacts Associated with Marina Operation	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact HYD-5: Increased Amounts of Surface Runoff and Associated Impacts to Drainage Facilities due to Increased Amounts of Impervious Surfaces	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact HYD-6: Water Quality Effects of Urban Runoff	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant

Impact	Proposed Project: Significance before Mitigation	Proposed Project: Significance after Mitigation	Alternative 1 Significance after Mitigation	Alternative 2 Significance after Mitigation	Alternative 3 Significance after Mitigation	No Project Significance
Impact HYD-7: Water Quality Impacts from Discharges to Surface Water Where Water Bodies are 303(d) Listed	Less than significant	Less than significant ~~and unavoidable~~	Similar to project	Similar to project	Similar to project	Less than significant
Impact HYD-8: Impacts to Groundwater and Surface Water from Infrastructure Failure	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact HYD-9: Degradation of Surface Water or Groundwater Quality from Use of Recycled Water	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact HYD-10: Risk to Human Health as a Result of Use and/or Exposure to Recycled Water	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact HYD-11: Short-Term Sufficiency of Water Supply	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact HYD-12: Long-Term Sufficiency of Water Supply	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact HYD-13: Risk of Levee Failure and Flooding	Significant	Less than significant	Similar to project	Similar to project	Similar to project	
Impact HYD-14: Impact from Seiche, Tsunami, or Mudflow	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Land Use and Planning						
Impact LU-1: Physical Division of Established Community	No Impact	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact LU-2: Conflict with Applicable Land Use Plans, Policies, or Regulations	Less than significant	–	Less than significant	Less than significant	Inconsistent with Draft GP village policies	Less than significant
Impact LU-3: Conflict with Applicable Habitat Conservation Plan or Natural Community Conservation Plan	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant

Impact	Proposed Project		Alternative 1	Alternative 2	Alternative 3	No Project
	Significance before Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance
Impact LU-4: Short-Term Land Use Conflicts	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Mineral Resources						
Impact MIN-1: Loss of Availability of a Known Mineral Resource	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact MIN-2: Loss of Availability of a Locally Important Mineral Resource Recovery Site	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Noise						
Impact N-1: Exposure of Existing Residences to Construction Noise and Vibration in Excess of Standards	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact N-2: Exposure of Existing Noise-Sensitive Land Uses to Traffic Noise in Excess of Standards	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact N-3: Exposure of New Noise-Sensitive Land Uses to Traffic Noise in Excess of Standards	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact N-4: Exposure of Noise-Sensitive Land Uses to Noise from Operations on Project Site	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact N-5: Exposure of New Noise-Sensitive Land Uses to Noise from Offsite Nontransportation Noise Sources	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Population and Housing						
Impact POP-1: Displacement of Substantial Existing Housing Units or Numbers of People	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant

Impact	Proposed Project: Significance before Mitigation	Proposed Project: Significance after Mitigation	Alternative 1 Significance after Mitigation	Alternative 2 Significance after Mitigation	Alternative 3 Significance after Mitigation	No Project Significance
Public Services and Utilities						
Impact PSU-1: Potential Increased Need for or Adverse Effects on Fire Services (Response Times or Facilities)	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact PSU-2: Potential Increased Need for or Adverse Effects on Police Services (Response Times or Facilities)	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact PSU-3: Adverse Impact on Public Schools	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact PSU-4: Disruption of or Adverse Effects on Parks, Libraries, or Other Public Services	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact PSU-5: Adverse Effects on the Capacity of Solid Waste Landfills	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact PSU-6: Short-Term Sufficiency of Water Supply	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact PSU-7: Long-Term Sufficiency of Water Supply	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact PSU-8: Require or Result in the Construction of New Water Treatment Facilities or Expansion of Existing Facilities	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact PSU-9: Construction-Related Water Service Interruptions	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact PSU-10: Expansion or Construction of New Wastewater Collection, Conveyance, or Treatment Facilities	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact PSU-11: Expansion or Construction of New Water Conveyance, or Treatment Facilities	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant

Impact	Proposed Project: Significance before Mitigation	Proposed Project: Significance after Mitigation	Alternative 1 Significance after Mitigation	Alternative 2 Significance after Mitigation	Alternative 3 Significance after Mitigation	No Project Significance
Impact PSU-12: Increase in Stormwater Drainage	Significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Recreation						
Impact REC-1: Increased Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities	Beneficial	–	Similar to project	Similar to project	Similar to project	Less than significant
Impact REC-2: New Recreational Facilities or Construction or Expansion of Recreational Facilities	Less than significant	–	Similar to project	Similar to project	Similar to project	Less than significant
Transportation						
Impact TRA-1: Worsened Conditions at Eight Mile Road/Trinity Parkway Intersection under Existing plus Approved Projects plus Project Conditions	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-2: Worsened Conditions at Eight Mile Road/Interstate 5 Northbound Ramps Intersection under Existing plus Approved Projects plus Project	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-3: Worsened Conditions at Eight Mile Road/Davis Road Intersection under Existing plus Approved Projects plus Project Conditions	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-4: Worsened Conditions at Eight Mile Road/Lower Sacramento Road Intersection under Existing plus Approved Projects plus Project Conditions	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-5: Unacceptable Operations at Hammer Lane/Loop Road Intersection	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant

Impact	Proposed Project		Alternative 1	Alternative 2	Alternative 3	No Project
	Significance before Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance
Impact TRA-6: Worsened Conditions at Hammer Lane/Mariners Drive Intersection under Existing plus Approved Projects plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-7: Worsened Conditions at Hammer Lane/Interstate 5 Southbound Ramps Intersection under Existing plus Approved Projects plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-8: Worsened Conditions at Hammer Lane/I-5 Northbound Ramps Intersection under Existing plus Approved Projects plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-9: Worsened Conditions at Hammer Lane/Kelley Drive Intersection under Existing plus Approved Projects plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-10: Worsened Conditions at Hammer Lane/Pershing Avenue under Existing plus Approved Projects plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-11: Worsened Conditions at Hammer Lane/Lower Sacramento Road under Existing plus Approved Projects plus Project Conditions	Significant	Less than Significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-12: Worsened Conditions on Hammer Lane from West of Mariners Drive to East of Interstate 5 under Existing plus Approved Projects plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-13: Worsened Conditions at Northbound and Southbound Segments of Interstate 5 South of Hammer Lane under Existing plus Approved Projects plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant

Impact	Proposed Project		Alternative 1	Alternative 2	Alternative 3	No Project
	Significance before Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance
Impact TRA-14: Worsened Conditions at Eight Mile Road/Mokelumne Circle Intersection under Future 2025 plus Project Conditions	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-15: Worsened Conditions at Eight Mile Road/Interstate 5 Northbound Ramps Intersection under Future 2025 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-16: Worsened Conditions at Trinity Parkway/Cosumnes Drive Intersection under Future 2025 plus Project Conditions	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-17: Worsened Conditions at Trinity Parkway/McAuliffe Road Intersection under Future 2025 plus Project Conditions	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-18: Worsened Conditions at Otto Drive/Trinity Parkway Intersection under Future 2025 plus Project Conditions	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-19: Worsened Conditions at Otto Drive/Interstate 5 Southbound Ramps Intersection under Future 2025 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-20: Worsened Conditions at Otto Drive/Interstate 5 Northbound Ramps Intersection under Future 2025 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-21: Worsened Conditions at Hammer Lane/Mariners Drive Intersection under Future 2025 plus Project Conditions	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant

Impact	Proposed Project		Alternative 1	Alternative 2	Alternative 3	No Project
	Significance before Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance
Impact TRA-22: Worsened Conditions at Hammer Lane/Interstate 5 Southbound Ramps Intersection under Future 2025 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-23: Worsened Conditions at Hammer Lane/Interstate 5 Northbound Ramps Intersection under Future 2025 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-24: Worsened Conditions at Hammer Lane/Kelley Drive Intersection under Future 2025 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-25: Worsened Conditions at Hammer Lane/Meadow Avenue/Don Avenue Intersection under Future 2025 plus Project Conditions	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-26: Worsened Conditions at Hammer Lane/Pershing Avenue Intersection under Future 2025 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-27: Worsened Conditions at Hammer Lane/Thornton Road Intersection under Future 2025 plus Project Conditions	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-28: Worsened Conditions at Hammer Lane/Lower Sacramento Road Intersection under Future 2025 plus Project Conditions	Significant	Less than significant	Significant	Significant	Significant	Less than significant
Impact TRA-29: Worsened Conditions on Trinity Parkway Bridge over Bear Creek under Future 2025 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-30: Worsened Conditions on Hammer Lane from West of Mariners Drive to East of Interstate 5 under Future 2025 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant

Impact	Proposed Project		Alternative 1	Alternative 2	Alternative 3	No Project
	Significance before Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance
Impact TRA-31: Worsened Conditions on Northbound and Southbound I-5 South of Hammer Lane and from Hammer Lane to Otto Drive under Future 2025 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-32: Worsened Conditions at Eight Mile Road/Mokelumne Circle Intersection under Future 2035 plus Project Conditions	Significant	Less than significant	Significant	Significant	Significant	Less than significant
Impact TRA-33: Worsened Conditions at Eight Mile Road/Trinity Parkway Intersection under Future 2035 plus Project Conditions	Significant	Less than significant	Significant	Significant	Significant	Less than significant
Impact TRA-34: Worsened Conditions at Eight Mile Road/Interstate 5 Southbound Ramps Intersection under Future 2035 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-35: Worsened Conditions at Eight Mile Road/Thornton Road Intersection under Future 2035 plus Project Conditions	Significant	Significant and unavoidable	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-36: Worsened Conditions at Trinity Parkway/Cosumnes Drive Intersection under Future 2035 plus Project Conditions	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-37: Worsened Conditions at Otto Drive/Trinity Parkway Intersection under Future 2035 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-38: Worsened Conditions at Otto Drive/Interstate 5 Southbound Ramps Intersection under Future 2035 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant

Impact	Proposed Project		Alternative 1	Alternative 2	Alternative 3	No Project
	Significance before Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance
Impact TRA-39: Worsened Conditions at Otto Drive/Interstate 5 Northbound Ramps Intersection under Future 2035 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-40: Worsened Conditions at Hammer Lane/Mariners Drive Intersection under Future 2035 plus Project Conditions	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-41: Worsened Conditions at Hammer Lane/Interstate 5 Southbound Ramps Intersection under Future 2035 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-42: Worsened Conditions at Hammer Lane/Interstate 5 Northbound Ramps Intersection under Future 2035 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-43: Worsened Conditions at Hammer Lane/Kelley Drive Intersection under Future 2035 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-44: Worsened Conditions at Hammer Lane/Meadow Avenue/Don Avenue Intersection under Future 2035 plus Project Conditions	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-45: Worsened Conditions at Hammer Lane/Pershing Avenue Intersection under Future 2035 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-46: Unacceptable Operations on Trinity Parkway Over Bear Creek under Future 2035 plus Project Conditions ~~Impact TRA-46: Worsened Conditions on Hammer Lane East of Interstate 5 under Future 2035 plus Project Conditions~~	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant

Impact	Proposed Project		Alternative 1	Alternative 2	Alternative 3	No Project
	Significance before Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance
Impact TRA-47: Worsened Conditions on Hammer Lane East of Interstate 5 under Future 2035 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-4847: Worsened Conditions on Northbound and Southbound Interstate 5 South of Hammer Lane and from Hammer Lane to Otto Drive under Future 2035 plus Project Conditions	Significant	Significant and unavoidable	Significant	Significant	Significant	Less than significant
Impact TRA-4948: Conflict with Traffic Calming Guidelines	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-5049: Potential Safety Hazards for Bicyclists and Pedestrians	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-5150: Increased Transit Demand	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact TRA-5251: Potentially Inadequate Parking Supply	Significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Growth Inducing Impacts						
Impact GI-1: Fosters Economic or Population Growth, or Additional Housing	Less than significant	Less than significant ~~and unavoidable~~	Less than significant	Less than significant	Less than significant	Less than significant
Impact GI-2: Fosters Indirect Economic or Population Growth, or Additional Housing	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact GI-3: Removal of a Potential Obstacle to Growth	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Impact GI-4: Tax Community Services or Facilities to an Extent that New Services or Facilities Would Be Necessary	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant

Table 5-6. Continued

Impact	Proposed Project: Significance before Mitigation	Proposed Project: Significance after Mitigation	Alternative 1 Significance after Mitigation	Alternative 2 Significance after Mitigation	Alternative 3 Significance after Mitigation	No Project Significance
Cumulative						
Impact CE-1: Cumulative Effect on Aesthetic and Visual Resources	Less than cumulatively significant	Less than cumulatively significant	Less than cumulatively significant	Less than cumulatively significant	Less than cumulatively significant	Less than significant
Impact CE-2: Cumulative Loss of Agricultural Lands	Significant	Significant and unavoidable	Similar to project	Similar to project	Similar to project	Less than significant
Impact CE-3: Cumulative Effect on Air Quality	Significant	Significant and unavoidable	Significant and unavoidable	Significant and unavoidable	Significant and unavoidable	Less than significant
Impact CE-4: Global Climate Change	Significant	Significant and unavoidable	Significant and unavoidable	Significant and unavoidable	Significant and unavoidable	Less than significant
Impact CE-5~~4~~: Cumulative Effects on Biological Resources	Significant	Significant and unavoidable	Similar to project	Similar to project	Similar to project	Less than significant
Impact CE-6~~5~~: Cumulative Impacts to Cultural Resources	Less than significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact CE-7~~6~~: Cumulative Impacts Related to Geology and Soils	Less than significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact CE-8~~7~~: Cumulative Impacts Related to Hazards and Hazardous Materials	Less than significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact CE-9~~8~~: Cumulative Water Quality Impacts to an Impaired Waterway	Less than significant	Less than significant ~~and unavoidable~~	Similar to project	Similar to project	Similar to project	Less than significant
Impact CE-10~~9~~: Cumulative Impacts Related to Flooding	Less than significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact CE-11~~10~~: Cumulative Loss of Open Space Lands	Significant	Significant and unavoidable	Similar to project	Similar to project	Similar to project	Less than significant
Impact CE-12~~11~~: Cumulative Impacts Related to Mineral Resources	Less than significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact CE-13~~12~~: Cumulative Effect on Noise	Significant	Significant and unavoidable	Significant and unavoidable	Significant and unavoidable	Significant and unavoidable	Less than significant

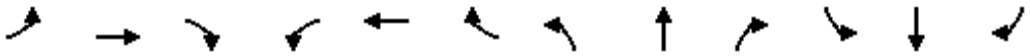
Table 5-6. Continued

Impact	Proposed Project		Alternative 1	Alternative 2	Alternative 3	No Project
	Significance before Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance after Mitigation	Significance
Impact CE-14~~13~~: Cumulative Effects Related to Population Growth	Less than significant	Less than significant ~~and unavoidable~~	Similar to project ~~Significant and unavoidable~~	Similar to project ~~Significant and unavoidable~~	Similar to project ~~Significant and unavoidable~~	Less than significant
Impact CE-15~~14~~: Cumulative Impacts Related to Public Services and Utilities	Less than significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant
Impact CE-16~~15~~: Cumulative Impacts Related to Recreation	Less than significant	Less than significant	Similar to project	Similar to project	Similar to project	Less than significant

Appendix N

Transportation Technical Analyses

The LOS calculation pages provided in this document replace corresponding pages from the DEIR.



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	0.91	0.97	0.95					1.00	1.00	
Frpb, ped/bikes		0.99	0.98	1.00	1.00					1.00	0.98	
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	
Frt		0.93	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)		3108	1410	3433	3539					1770	1555	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (perm)		3108	1410	3433	3539					1770	1555	
Volume (vph)	0	229	460	408	282	0	0	0	0	330	0	120
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	249	500	443	307	0	0	0	0	359	0	130
RTOR Reduction (vph)	0	119	154	0	0	0	0	0	0	0	100	0
Lane Group Flow (vph)	0	369	107	443	307	0	0	0	0	359	30	0
Confl. Peds. (#/hr)			5			5						5
Turn Type			Perm	Prot						Prot		
Protected Phases		2		1	6					7	4	
Permitted Phases			2									
Actuated Green, G (s)		48.1	48.1	31.0	83.1					27.9	26.9	
Effective Green, g (s)		49.1	49.1	31.0	84.1					27.9	27.9	
Actuated g/C Ratio		0.41	0.41	0.26	0.70					0.23	0.23	
Clearance Time (s)		5.0	5.0	4.0	5.0					4.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1272	577	887	2480					412	362	
v/s Ratio Prot		c0.12		c0.13	0.09					c0.20	0.02	
v/s Ratio Perm			0.08									
v/c Ratio		0.29	0.19	0.50	0.12					0.87	0.08	
Uniform Delay, d1		23.8	22.7	37.9	5.9					44.3	36.0	
Progression Factor		1.00	1.00	0.65	0.35					1.00	1.00	
Incremental Delay, d2		0.6	0.7	0.4	0.1					17.9	0.1	
Delay (s)		24.3	23.4	25.2	2.2					62.2	36.1	
Level of Service		C	C	C	A					E	D	
Approach Delay (s)		24.0			15.8			0.0			55.3	
Approach LOS		C			B			A			E	

Intersection Summary				
HCM Average Control Delay	28.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	59.4%	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	4.0			
Lane Util. Factor	1.00	0.95			0.91		0.95	0.95	0.88			
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.97			
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	1.00			
Frt	1.00	1.00			0.95		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (prot)	1770	3539			4763		1681	1681	2702			
Flt Permitted	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (perm)	1770	3539			4763		1681	1681	2702			
Volume (vph)	161	398	0	0	478	255	212	0	418	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	175	433	0	0	520	277	230	0	454	0	0	0
RTOR Reduction (vph)	0	0	0	0	66	0	0	0	303	0	0	0
Lane Group Flow (vph)	175	433	0	0	731	0	115	115	151	0	0	0
Confl. Peds. (#/hr)			5			5			5			
Turn Type	Prot						Prot		Perm			
Protected Phases	5	2			6		3	8				
Permitted Phases									8			
Actuated Green, G (s)	16.7	71.0			50.3		40.0	40.0	39.0			
Effective Green, g (s)	16.7	72.0			51.3		40.0	40.0	40.0			
Actuated g/C Ratio	0.14	0.60			0.43		0.33	0.33	0.33			
Clearance Time (s)	4.0	5.0			5.0		4.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	246	2123			2036		560	560	901			
v/s Ratio Prot	c0.10	0.12			c0.15		c0.07	0.07				
v/s Ratio Perm									0.06			
v/c Ratio	0.71	0.20			0.36		0.21	0.21	0.17			
Uniform Delay, d1	49.3	10.9			23.2		28.6	28.6	28.2			
Progression Factor	0.69	0.34			1.00		1.00	1.00	1.00			
Incremental Delay, d2	7.1	0.2			0.5		0.2	0.2	0.1			
Delay (s)	40.9	3.8			23.7		28.8	28.8	28.3			
Level of Service	D	A			C		C	C	C			
Approach Delay (s)		14.5			23.7			28.5			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM Average Control Delay	22.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.4%	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	4.0	4.0
Lane Util. Factor		0.81	0.81	0.97	0.91					0.95	0.95	1.00
Frpb, ped/bikes		0.99	0.98	1.00	1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		0.94	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)		5601	1256	3433	5085					1681	1681	1556
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5601	1256	3433	5085					1681	1681	1556
Volume (vph)	0	765	1132	343	837	0	0	0	0	918	0	329
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	832	1230	373	910	0	0	0	0	998	0	358
RTOR Reduction (vph)	0	109	382	0	0	0	0	0	0	0	0	74
Lane Group Flow (vph)	0	1338	233	373	910	0	0	0	0	499	499	284
Confl. Peds. (#/hr)			5			5						5
Turn Type			Perm	Prot						Prot		Perm
Protected Phases		2		1	6					7	4	
Permitted Phases			2									4
Actuated Green, G (s)		44.4	44.4	16.6	65.0					46.0	46.0	45.0
Effective Green, g (s)		45.4	45.4	16.6	66.0					46.0	46.0	46.0
Actuated g/C Ratio		0.38	0.38	0.14	0.55					0.38	0.38	0.38
Clearance Time (s)		5.0	5.0	4.0	5.0					4.0	5.0	5.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		2119	475	475	2797					644	644	596
v/s Ratio Prot		c0.24		c0.11	0.18					c0.30	0.30	
v/s Ratio Perm			0.19									0.18
v/c Ratio		0.92dr	0.49	0.79	0.33					0.77	0.77	0.48
Uniform Delay, d1		30.5	28.5	50.0	14.8					32.5	32.5	27.9
Progression Factor		1.00	1.00	1.15	0.34					1.00	1.00	1.00
Incremental Delay, d2		1.4	3.6	7.9	0.3					5.8	5.8	0.6
Delay (s)		31.9	32.0	65.1	5.3					38.3	38.3	28.5
Level of Service		C	C	E	A					D	D	C
Approach Delay (s)		32.0			22.7			0.0			35.7	
Approach LOS		C			C			A			D	

Intersection Summary			
HCM Average Control Delay	30.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

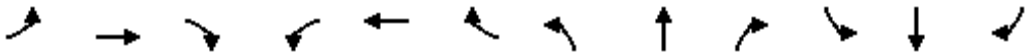
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

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	0.91			0.81	1.00	0.95	0.95	0.88			
Frpb, ped/bikes	1.00	1.00			1.00	0.96	1.00	1.00	0.98			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	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	5085			7544	1524	1681	1681	2738			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	1770	5085			7544	1524	1681	1681	2738			
Volume (vph)	234	1281	0	0	684	352	496	0	520	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	254	1392	0	0	743	383	539	0	565	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	233	0	0	3	0	0	0
Lane Group Flow (vph)	254	1392	0	0	743	150	270	269	562	0	0	0
Confl. Peds. (#/hr)			5			5			5			
Turn Type	Prot					Perm	Prot		custom			
Protected Phases	5	2			6		3	8				
Permitted Phases						6			1 8			
Actuated Green, G (s)	27.0	65.1			46.0	46.0	34.0	34.0	44.9			
Effective Green, g (s)	27.0	66.1			47.0	47.0	34.0	34.0	45.9			
Actuated g/C Ratio	0.22	0.55			0.39	0.39	0.28	0.28	0.38			
Clearance Time (s)	4.0	5.0			5.0	5.0	4.0	5.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	398	2801			2955	597	476	476	1047			
v/s Ratio Prot	c0.14	c0.27			0.10		c0.16	0.16				
v/s Ratio Perm						0.10			c0.21			
v/c Ratio	0.64	0.50			0.25	0.25	0.57	0.57	0.54			
Uniform Delay, d1	42.1	16.7			24.6	24.6	36.7	36.7	28.8			
Progression Factor	0.74	0.60			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	2.3	0.4			0.2	1.0	1.6	1.5	0.5			
Delay (s)	33.3	10.5			24.8	25.6	38.3	38.2	29.3			
Level of Service	C	B			C	C	D	D	C			
Approach Delay (s)		14.0			25.1			33.7			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM Average Control Delay	22.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.8%	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		0.91	0.91	0.97	0.95					1.00	1.00	
Frpb, ped/bikes		0.99	0.98	1.00	1.00					1.00	0.98	
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	
Frt		0.93	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)		3139	1410	3433	3539					1770	1555	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (perm)		3139	1410	3433	3539					1770	1555	
Volume (vph)	0	221	385	453	812	0	0	0	0	321	0	206
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	240	418	492	883	0	0	0	0	349	0	224
RTOR Reduction (vph)	0	91	140	0	0	0	0	0	0	0	102	0
Lane Group Flow (vph)	0	334	93	492	883	0	0	0	0	349	122	0
Confl. Peds. (#/hr)			5			5						5
Turn Type			Perm	Prot						Prot		
Protected Phases		2		1	6					7	4	
Permitted Phases			2									
Actuated Green, G (s)		46.8	46.8	33.0	83.8					27.2	26.2	
Effective Green, g (s)		47.8	47.8	33.0	84.8					27.2	27.2	
Actuated g/C Ratio		0.40	0.40	0.28	0.71					0.23	0.23	
Clearance Time (s)		5.0	5.0	4.0	5.0					4.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1250	562	944	2501					401	352	
v/s Ratio Prot		0.11		c0.14	c0.25					c0.20	0.08	
v/s Ratio Perm			0.07									
v/c Ratio		0.27	0.17	0.52	0.35					0.87	0.35	
Uniform Delay, d1		24.3	23.2	36.8	6.9					44.7	38.9	
Progression Factor		1.00	1.00	0.64	0.31					1.00	1.00	
Incremental Delay, d2		0.5	0.6	0.4	0.3					18.2	0.6	
Delay (s)		24.8	23.9	23.8	2.4					62.9	39.5	
Level of Service		C	C	C	A					E	D	
Approach Delay (s)		24.5			10.1			0.0			53.8	
Approach LOS		C			B			A			D	

Intersection Summary				
HCM Average Control Delay	23.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	72.6%	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			
Lane Util. Factor	1.00	0.95			0.91		0.95	0.95	0.88			
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00	0.97			
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	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)	1770	3539			4672		1681	1681	2702			
Flt Permitted	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (perm)	1770	3539			4672		1681	1681	2702			
Volume (vph)	143	399	0	0	588	477	677	0	468	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	155	434	0	0	639	518	736	0	509	0	0	0
RTOR Reduction (vph)	0	0	0	0	109	0	0	0	321	0	0	0
Lane Group Flow (vph)	155	434	0	0	1048	0	368	368	188	0	0	0
Confl. Peds. (#/hr)			5			5			5			
Turn Type	Prot						Prot		Perm			
Protected Phases	5	2			6		3	8				
Permitted Phases									8			
Actuated Green, G (s)	15.1	66.7			47.6		44.3	44.3	43.3			
Effective Green, g (s)	15.1	67.7			48.6		44.3	44.3	44.3			
Actuated g/C Ratio	0.13	0.56			0.41		0.37	0.37	0.37			
Clearance Time (s)	4.0	5.0			5.0		4.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	223	1997			1892		621	621	997			
v/s Ratio Prot	c0.09	0.12			c0.22		c0.22	0.22				
v/s Ratio Perm									0.07			
v/c Ratio	0.70	0.22			0.55		0.59	0.59	0.19			
Uniform Delay, d1	50.2	13.0			27.4		30.6	30.6	25.7			
Progression Factor	1.33	0.27			1.00		1.00	1.00	1.00			
Incremental Delay, d2	7.0	0.2			1.2		1.5	1.5	0.1			
Delay (s)	73.8	3.7			28.6		32.1	32.1	25.8			
Level of Service	E	A			C		C	C	C			
Approach Delay (s)		22.1			28.6			29.5			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM Average Control Delay	27.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.6%	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		0.81	0.81	0.97	0.91					0.95	0.95	1.00
Frpb, ped/bikes		0.99	0.98	1.00	1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		0.95	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)		5706	1256	3433	5085					1681	1681	1556
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5706	1256	3433	5085					1681	1681	1556
Volume (vph)	0	804	834	627	1741	0	0	0	0	659	0	369
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	874	907	682	1892	0	0	0	0	716	0	401
RTOR Reduction (vph)	0	69	333	0	0	0	0	0	0	0	0	9
Lane Group Flow (vph)	0	1218	161	682	1892	0	0	0	0	358	358	392
Confl. Peds. (#/hr)			5			5						5
Turn Type			Perm	Prot						Prot		Perm
Protected Phases		2		1	6					7	4	
Permitted Phases			2									4
Actuated Green, G (s)		38.0	38.0	28.0	70.0					41.0	41.0	40.0
Effective Green, g (s)		39.0	39.0	28.0	71.0					41.0	41.0	41.0
Actuated g/C Ratio		0.32	0.32	0.23	0.59					0.34	0.34	0.34
Clearance Time (s)		5.0	5.0	4.0	5.0					4.0	5.0	5.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1854	408	801	3009					574	574	532
v/s Ratio Prot		0.21		c0.20	c0.37					0.21	0.21	
v/s Ratio Perm			0.13									c0.25
v/c Ratio		0.66	0.39	0.85	0.63					0.62	0.62	0.74
Uniform Delay, d1		34.8	31.3	44.0	15.9					33.0	33.0	34.8
Progression Factor		1.00	1.00	1.16	0.28					1.00	1.00	1.00
Incremental Delay, d2		1.8	2.8	6.3	0.7					2.1	2.1	5.3
Delay (s)		36.6	34.2	57.2	5.2					35.2	35.2	40.1
Level of Service		D	C	E	A					D	D	D
Approach Delay (s)		35.9			19.0			0.0			36.9	
Approach LOS		D			B			A			D	

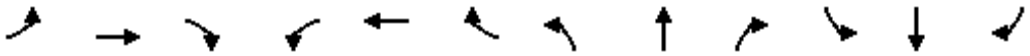
Intersection Summary			
HCM Average Control Delay	28.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	134.3%	ICU Level of Service	H
Analysis Period (min)	15		

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	4.0	4.0			
Lane Util. Factor	1.00	0.91			0.81	1.00	0.95	0.95	0.88			
Frpb, ped/bikes	1.00	1.00			1.00	0.96	1.00	1.00	0.98			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	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	5085			7544	1524	1681	1681	2738			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	1770	5085			7544	1524	1681	1681	2738			
Volume (vph)	257	1206	0	0	1334	788	1035	0	584	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	279	1311	0	0	1450	857	1125	0	635	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	466	0	0	1	0	0	0
Lane Group Flow (vph)	279	1311	0	0	1450	391	563	562	634	0	0	0
Confl. Peds. (#/hr)			5			5			5			
Turn Type	Prot					Perm	Prot		custom			
Protected Phases	5	2			6		3	8				
Permitted Phases						6			1 8			
Actuated Green, G (s)	20.0	56.7			45.0	45.0	42.0	42.0	53.3			
Effective Green, g (s)	20.0	57.7			46.0	46.0	42.0	42.0	54.3			
Actuated g/C Ratio	0.17	0.48			0.38	0.38	0.35	0.35	0.45			
Clearance Time (s)	4.0	5.0			5.0	5.0	4.0	5.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	295	2445			2892	584	588	588	1239			
v/s Ratio Prot	c0.16	0.26			0.19		c0.33	0.33				
v/s Ratio Perm						c0.26			0.23			
v/c Ratio	0.95	0.54			0.50	0.67	0.96	0.96	0.51			
Uniform Delay, d1	49.5	21.8			28.2	30.7	38.1	38.1	23.4			
Progression Factor	0.67	0.44			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	31.7	0.6			0.6	6.0	26.6	26.2	0.4			
Delay (s)	64.8	10.2			28.9	36.7	64.7	64.3	23.8			
Level of Service	E	B			C	D	E	E	C			
Approach Delay (s)		19.8			31.8			49.8			0.0	
Approach LOS		B			C			D			A	

Intersection Summary			
HCM Average Control Delay	34.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	134.3%	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	4.0	
Lane Util. Factor		0.91	0.91	0.97	0.95					1.00	1.00	
Frpb, ped/bikes		0.99	0.98	1.00	1.00					1.00	0.98	
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	
Frt		0.93	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)		3135	1410	3433	3539					1770	1555	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (perm)		3135	1410	3433	3539					1770	1555	
Volume (vph)	0	252	460	408	282	0	0	0	0	377	0	125
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	274	500	443	307	0	0	0	0	410	0	136
RTOR Reduction (vph)	0	99	172	0	0	0	0	0	0	0	101	0
Lane Group Flow (vph)	0	393	110	443	307	0	0	0	0	410	35	0
Confl. Peds. (#/hr)			5			5						5
Turn Type			Perm	Prot						Prot		
Protected Phases		2		1	6					7	4	
Permitted Phases			2									
Actuated Green, G (s)		45.8	45.8	30.0	79.8					31.2	30.2	
Effective Green, g (s)		46.8	46.8	30.0	80.8					31.2	31.2	
Actuated g/C Ratio		0.39	0.39	0.25	0.67					0.26	0.26	
Clearance Time (s)		5.0	5.0	4.0	5.0					4.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1223	550	858	2383					460	404	
v/s Ratio Prot		c0.13		c0.13	0.09					c0.23	0.02	
v/s Ratio Perm			0.08									
v/c Ratio		0.32	0.20	0.52	0.13					0.89	0.09	
Uniform Delay, d1		25.5	24.2	38.8	7.0					42.8	33.6	
Progression Factor		1.00	1.00	0.64	0.34					1.00	1.00	
Incremental Delay, d2		0.7	0.8	0.5	0.1					19.0	0.1	
Delay (s)		26.2	25.0	25.2	2.5					61.8	33.7	
Level of Service		C	C	C	A					E	C	
Approach Delay (s)		25.8			15.9			0.0			54.8	
Approach LOS		C			B			A			D	

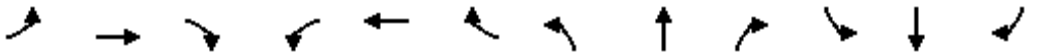
Intersection Summary				
HCM Average Control Delay	29.9	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	62.1%	ICU Level of Service	B	
Analysis Period (min)	15			

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	4.0			
Lane Util. Factor	1.00	0.95			0.91		0.95	0.95	0.88			
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.97			
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	1.00			
Frt	1.00	1.00			0.94		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (prot)	1770	3539			4729		1681	1681	2702			
Flt Permitted	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (perm)	1770	3539			4729		1681	1681	2702			
Volume (vph)	184	445	0	0	478	299	212	0	418	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	200	484	0	0	520	325	230	0	454	0	0	0
RTOR Reduction (vph)	0	0	0	0	78	0	0	0	306	0	0	0
Lane Group Flow (vph)	200	484	0	0	767	0	115	115	148	0	0	0
Confl. Peds. (#/hr)			5			5			5			
Turn Type	Prot						Prot		Perm			
Protected Phases	5	2			6		3	8				
Permitted Phases									8			
Actuated Green, G (s)	19.1	72.0			48.9		39.0	39.0	38.0			
Effective Green, g (s)	19.1	73.0			49.9		39.0	39.0	39.0			
Actuated g/C Ratio	0.16	0.61			0.42		0.32	0.32	0.32			
Clearance Time (s)	4.0	5.0			5.0		4.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	282	2153			1966		546	546	878			
v/s Ratio Prot	c0.11	0.14			c0.16		c0.07	0.07				
v/s Ratio Perm									0.05			
v/c Ratio	0.71	0.22			0.39		0.21	0.21	0.17			
Uniform Delay, d1	47.8	10.7			24.4		29.3	29.3	28.9			
Progression Factor	0.71	0.25			1.00		1.00	1.00	1.00			
Incremental Delay, d2	5.8	0.2			0.6		0.2	0.2	0.1			
Delay (s)	39.8	2.8			25.0		29.5	29.5	29.0			
Level of Service	D	A			C		C	C	C			
Approach Delay (s)		13.7			25.0			29.2			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM Average Control Delay	22.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.1%	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	4.0	4.0
Lane Util. Factor		0.81	0.81	0.97	0.91					0.95	0.95	1.00
Frpb, ped/bikes		0.99	0.98	1.00	1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		0.94	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)		5601	1256	3433	5085					1681	1681	1556
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5601	1256	3433	5085					1681	1681	1556
Volume (vph)	0	765	1132	343	837	0	0	0	0	918	0	329
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	832	1230	373	910	0	0	0	0	998	0	358
RTOR Reduction (vph)	0	109	382	0	0	0	0	0	0	0	0	74
Lane Group Flow (vph)	0	1338	233	373	910	0	0	0	0	499	499	284
Confl. Peds. (#/hr)			5			5						5
Turn Type			Perm	Prot						Prot		Perm
Protected Phases		2		1	6					7	4	
Permitted Phases			2									4
Actuated Green, G (s)		44.4	44.4	16.6	65.0					46.0	46.0	45.0
Effective Green, g (s)		45.4	45.4	16.6	66.0					46.0	46.0	46.0
Actuated g/C Ratio		0.38	0.38	0.14	0.55					0.38	0.38	0.38
Clearance Time (s)		5.0	5.0	4.0	5.0					4.0	5.0	5.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		2119	475	475	2797					644	644	596
v/s Ratio Prot		c0.24		c0.11	0.18					c0.30	0.30	
v/s Ratio Perm			0.19									0.18
v/c Ratio		0.92dr	0.49	0.79	0.33					0.77	0.77	0.48
Uniform Delay, d1		30.5	28.5	50.0	14.8					32.5	32.5	27.9
Progression Factor		1.00	1.00	1.16	0.31					1.00	1.00	1.00
Incremental Delay, d2		1.4	3.6	7.8	0.3					5.8	5.8	0.6
Delay (s)		31.9	32.0	65.6	4.8					38.3	38.3	28.5
Level of Service		C	C	E	A					D	D	C
Approach Delay (s)		32.0			22.5			0.0			35.7	
Approach LOS		C			C			A			D	

Intersection Summary			
HCM Average Control Delay	30.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

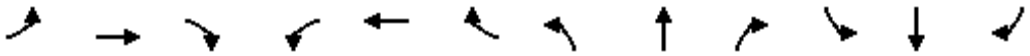
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

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	0.91			0.81	1.00	0.95	0.95	0.88			
Frpb, ped/bikes	1.00	1.00			1.00	0.96	1.00	1.00	0.98			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	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	5085			7544	1524	1681	1681	2738			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	1770	5085			7544	1524	1681	1681	2738			
Volume (vph)	262	1421	0	0	684	395	496	0	520	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	285	1545	0	0	743	429	539	0	565	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	272	0	0	2	0	0	0
Lane Group Flow (vph)	285	1545	0	0	743	157	270	269	563	0	0	0
Confl. Peds. (#/hr)			5			5			5			
Turn Type	Prot					Perm	Prot		custom			
Protected Phases	5	2			6		3	8				
Permitted Phases						6			1 8			
Actuated Green, G (s)	30.0	65.1			43.0	43.0	34.0	34.0	44.9			
Effective Green, g (s)	30.0	66.1			44.0	44.0	34.0	34.0	45.9			
Actuated g/C Ratio	0.25	0.55			0.37	0.37	0.28	0.28	0.38			
Clearance Time (s)	4.0	5.0			5.0	5.0	4.0	5.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	443	2801			2766	559	476	476	1047			
v/s Ratio Prot	c0.16	c0.30			0.10		c0.16	0.16				
v/s Ratio Perm						0.10			c0.21			
v/c Ratio	0.64	0.55			0.27	0.28	0.57	0.57	0.54			
Uniform Delay, d1	40.2	17.4			26.7	26.8	36.7	36.7	28.8			
Progression Factor	0.73	0.60			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	2.2	0.5			0.2	1.3	1.6	1.5	0.5			
Delay (s)	31.4	11.0			26.9	28.1	38.3	38.2	29.3			
Level of Service	C	B			C	C	D	D	C			
Approach Delay (s)		14.2			27.4			33.7			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM Average Control Delay	23.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.8%	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		0.91	0.91	0.97	0.95					1.00	1.00	
Frpb, ped/bikes		0.99	0.98	1.00	1.00					1.00	0.98	
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	
Frt		0.95	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)		3189	1410	3433	3539					1770	1555	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (perm)		3189	1410	3433	3539					1770	1555	
Volume (vph)	0	260	385	453	812	0	0	0	0	395	0	245
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	283	418	492	883	0	0	0	0	429	0	266
RTOR Reduction (vph)	0	45	172	0	0	0	0	0	0	0	96	0
Lane Group Flow (vph)	0	390	94	492	883	0	0	0	0	429	170	0
Confl. Peds. (#/hr)			5			5						5
Turn Type			Perm	Prot						Prot		
Protected Phases		2		1	6					7	4	
Permitted Phases			2									
Actuated Green, G (s)		41.4	41.4	33.0	78.4					32.6	31.6	
Effective Green, g (s)		42.4	42.4	33.0	79.4					32.6	32.6	
Actuated g/C Ratio		0.35	0.35	0.28	0.66					0.27	0.27	
Clearance Time (s)		5.0	5.0	4.0	5.0					4.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1127	498	944	2342					481	422	
v/s Ratio Prot		0.14		c0.14	0.25					c0.24	0.17	
v/s Ratio Perm			0.19									
v/c Ratio		0.35	0.19	0.52	0.38					0.89	0.40	
Uniform Delay, d1		28.6	26.9	36.8	9.2					42.0	35.7	
Progression Factor		1.00	1.00	0.60	0.31					1.00	1.00	
Incremental Delay, d2		0.8	0.8	0.4	0.4					18.4	0.6	
Delay (s)		29.4	27.7	22.5	3.2					60.5	36.4	
Level of Service		C	C	C	A					E	D	
Approach Delay (s)		28.8			10.1			0.0			51.2	
Approach LOS		C			B			A			D	

Intersection Summary			
HCM Average Control Delay	25.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

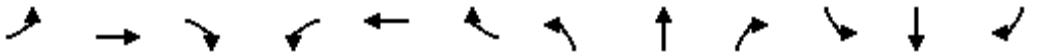
c Critical Lane Group

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	1.00	0.95			0.91		0.95	0.95	0.88			
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00	0.97			
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	1.00			
Frt	1.00	1.00			0.92		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (prot)	1770	3539			4613		1681	1681	2702			
Flt Permitted	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (perm)	1770	3539			4613		1681	1681	2702			
Volume (vph)	182	473	0	0	588	616	677	0	468	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	198	514	0	0	639	670	736	0	509	0	0	0
RTOR Reduction (vph)	0	0	0	0	146	0	0	0	321	0	0	0
Lane Group Flow (vph)	198	514	0	0	1163	0	368	368	188	0	0	0
Confl. Peds. (#/hr)			5			5			5			
Turn Type	Prot						Prot		Perm			
Protected Phases	5	2			6		3	8				
Permitted Phases									8			
Actuated Green, G (s)	17.5	66.7			45.2		44.3	44.3	43.3			
Effective Green, g (s)	17.5	67.7			46.2		44.3	44.3	44.3			
Actuated g/C Ratio	0.15	0.56			0.39		0.37	0.37	0.37			
Clearance Time (s)	4.0	5.0			5.0		4.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	258	1997			1776		621	621	997			
v/s Ratio Prot	c0.11	0.15			c0.28		c0.22	0.22				
v/s Ratio Perm									0.19			
v/c Ratio	0.77	0.26			0.90dr		0.59	0.59	0.19			
Uniform Delay, d1	49.3	13.3			30.3		30.6	30.6	25.7			
Progression Factor	1.32	0.28			1.00		1.00	1.00	1.00			
Incremental Delay, d2	11.1	0.3			1.9		1.5	1.5	0.1			
Delay (s)	76.3	4.1			32.2		32.1	32.1	25.8			
Level of Service	E	A			C		C	C	C			
Approach Delay (s)		24.1			32.2			29.5			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM Average Control Delay	29.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

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		0.81	0.81	0.97	0.91					0.95	0.95	1.00
Frpb, ped/bikes		0.99	0.98	1.00	1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		0.95	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)		5706	1256	3433	5085					1681	1681	1556
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5706	1256	3433	5085					1681	1681	1556
Volume (vph)	0	804	834	627	1741	0	0	0	0	763	0	369
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	874	907	682	1892	0	0	0	0	829	0	401
RTOR Reduction (vph)	0	69	333	0	0	0	0	0	0	0	0	9
Lane Group Flow (vph)	0	1218	161	682	1892	0	0	0	0	415	414	392
Confl. Peds. (#/hr)			5			5						5
Turn Type			Perm	Prot						Prot		Perm
Protected Phases		2		1	6					7	4	
Permitted Phases			2									4
Actuated Green, G (s)		38.0	38.0	28.0	70.0					41.0	41.0	40.0
Effective Green, g (s)		39.0	39.0	28.0	71.0					41.0	41.0	41.0
Actuated g/C Ratio		0.32	0.32	0.23	0.59					0.34	0.34	0.34
Clearance Time (s)		5.0	5.0	4.0	5.0					4.0	5.0	5.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1854	408	801	3009					574	574	532
v/s Ratio Prot		0.23		c0.20	0.37					0.25	0.25	
v/s Ratio Perm			0.39									0.26
v/c Ratio		0.66	0.39	0.85	0.63					0.72	0.72	0.74
Uniform Delay, d1		34.8	31.3	44.0	15.9					34.5	34.5	34.8
Progression Factor		1.00	1.00	1.16	0.28					1.00	1.00	1.00
Incremental Delay, d2		1.8	2.8	6.3	0.7					4.5	4.5	5.3
Delay (s)		36.6	34.2	57.2	5.2					39.0	39.0	40.1
Level of Service		D	C	E	A					D	D	D
Approach Delay (s)		35.9			19.0			0.0			39.3	
Approach LOS		D			B			A			D	

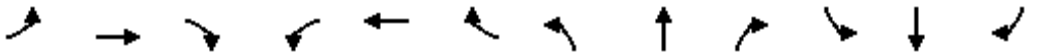
Intersection Summary			
HCM Average Control Delay	28.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	142.9%	ICU Level of Service	H
Analysis Period (min)	15		

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	4.0	4.0			
Lane Util. Factor	1.00	0.91			0.81	1.00	0.95	0.95	0.88			
Frpb, ped/bikes	1.00	1.00			1.00	0.96	1.00	1.00	0.98			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	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	5085			7544	1524	1681	1681	2738			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	1770	5085			7544	1524	1681	1681	2738			
Volume (vph)	257	1310	0	0	1334	927	1035	0	584	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	279	1424	0	0	1450	1008	1125	0	635	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	466	0	0	1	0	0	0
Lane Group Flow (vph)	279	1424	0	0	1450	542	563	562	634	0	0	0
Confl. Peds. (#/hr)			5			5			5			
Turn Type	Prot					Perm	Prot		custom			
Protected Phases	5	2			6		3	8				
Permitted Phases						6			1 8			
Actuated Green, G (s)	20.0	56.7			45.0	45.0	42.0	42.0	53.3			
Effective Green, g (s)	20.0	57.7			46.0	46.0	42.0	42.0	54.3			
Actuated g/C Ratio	0.17	0.48			0.38	0.38	0.35	0.35	0.45			
Clearance Time (s)	4.0	5.0			5.0	5.0	4.0	5.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	295	2445			2892	584	588	588	1239			
v/s Ratio Prot	c0.16	0.28			0.19		c0.33	0.33				
v/s Ratio Perm						0.66			0.23			
v/c Ratio	0.95	0.58			0.50	0.93	0.96	0.96	0.51			
Uniform Delay, d1	49.5	22.5			28.2	35.4	38.1	38.1	23.4			
Progression Factor	0.72	0.55			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	30.3	0.7			0.6	23.1	26.6	26.2	0.4			
Delay (s)	65.9	13.1			28.9	58.5	64.7	64.3	23.8			
Level of Service	E	B			C	E	E	E	C			
Approach Delay (s)		21.8			41.0			49.8			0.0	
Approach LOS		C			D			D			A	

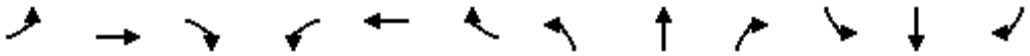
Intersection Summary			
HCM Average Control Delay	38.1	HCM Level of Service	D
HCM Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	142.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



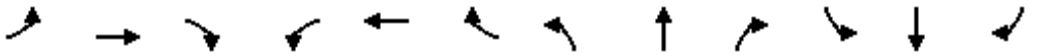
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.86	0.86	0.97	0.95					0.95	0.95	1.00
Frt		0.95	0.85	1.00	1.00					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)		4553	1362	3433	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4553	1362	3433	3539					1681	1681	1583
Volume (vph)	0	1661	1970	1030	1954	0	0	0	0	530	0	199
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1805	2141	1120	2124	0	0	0	0	576	0	216
RTOR Reduction (vph)	0	71	287	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2712	876	1120	2124	0	0	0	0	288	288	216
Turn Type			Perm	Prot						Perm		Free
Protected Phases		2		1	6						4	
Permitted Phases			2							4		Free
Actuated Green, G (s)		58.4	58.4	32.0	94.4					25.6	25.6	130.0
Effective Green, g (s)		59.4	59.4	32.0	95.4					26.6	26.6	130.0
Actuated g/C Ratio		0.46	0.46	0.25	0.73					0.20	0.20	1.00
Clearance Time (s)		5.0	5.0	4.0	5.0					5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		2080	622	845	2597					344	344	1583
v/s Ratio Prot		0.61		c0.33	0.60							
v/s Ratio Perm			0.85							0.17	0.17	0.14
v/c Ratio		1.30	1.41	1.33	0.82					0.84	0.84	0.14
Uniform Delay, d1		35.3	35.3	49.0	11.5					49.6	49.6	0.0
Progression Factor		0.45	0.79	0.83	1.49					1.00	1.00	1.00
Incremental Delay, d2		137.7	185.8	149.8	1.3					16.1	16.1	0.2
Delay (s)		153.7	213.5	190.4	18.5					65.7	65.7	0.2
Level of Service		F	F	F	B					E	E	A
Approach Delay (s)		171.3			77.8			0.0			47.8	
Approach LOS		F			E			A			D	

Intersection Summary			
HCM Average Control Delay	121.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.49		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	158.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



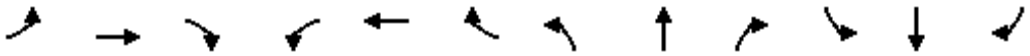
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00	1.00	
Frt		1.00	0.85	1.00	1.00					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	505	1257	990	563	0	0	0	0	160	0	97
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	549	1366	1076	612	0	0	0	0	174	0	105
RTOR Reduction (vph)	0	0	204	0	0	0	0	0	0	0	91	0
Lane Group Flow (vph)	0	549	1162	1076	612	0	0	0	0	174	14	0
Turn Type			Perm	Prot						Split		
Protected Phases		2		1	6					4	4	
Permitted Phases			2									
Actuated Green, G (s)		56.9	56.9	44.0	104.9					17.1	17.1	
Effective Green, g (s)		56.9	56.9	44.0	104.9					17.1	17.1	
Actuated g/C Ratio		0.44	0.44	0.34	0.81					0.13	0.13	
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)		1549	693	599	2856					233	208	
v/s Ratio Prot		0.16		c0.61	0.17					c0.10	0.07	
v/s Ratio Perm			0.86									
v/c Ratio		0.35	1.68	1.80	0.21					0.75	0.07	
Uniform Delay, d1		24.3	36.5	43.0	2.9					54.4	49.5	
Progression Factor		0.59	0.56	0.94	0.37					1.00	1.00	
Incremental Delay, d2		0.5	310.3	364.2	0.2					12.3	0.1	
Delay (s)		14.8	330.9	404.6	1.2					66.6	49.6	
Level of Service		B	F	F	A					E	D	
Approach Delay (s)		240.3			258.4			0.0			60.2	
Approach LOS		F			F			A			E	

Intersection Summary			
HCM Average Control Delay	235.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.73		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	135.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



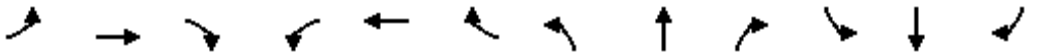
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.86	0.86	0.97	0.95					0.95	0.95	1.00
Frt		0.96	0.85	1.00	1.00					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)		4609	1362	3433	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4609	1362	3433	3539					1681	1681	1583
Volume (vph)	0	1655	1625	990	3935	0	0	0	0	840	0	310
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	1655	1625	990	3935	0	0	0	0	840	0	310
RTOR Reduction (vph)	0	52	340	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2226	662	990	3935	0	0	0	0	420	420	310
Turn Type			Perm	Prot						Perm		Free
Protected Phases		2		1	6						4	
Permitted Phases			2							4		Free
Actuated Green, G (s)		54.2	54.2	29.0	87.2					32.8	32.8	130.0
Effective Green, g (s)		55.2	55.2	29.0	88.2					33.8	33.8	130.0
Actuated g/C Ratio		0.42	0.42	0.22	0.68					0.26	0.26	1.00
Clearance Time (s)		5.0	5.0	4.0	5.0					5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1957	578	766	2401					437	437	1583
v/s Ratio Prot		0.49		0.29	c1.11							
v/s Ratio Perm			0.74							0.25	0.25	0.20
v/c Ratio		1.14	1.15	1.29	1.64					0.96	0.96	0.20
Uniform Delay, d1		37.4	37.4	50.5	20.9					47.5	47.5	0.0
Progression Factor		0.87	0.79	0.49	1.00					1.00	1.00	1.00
Incremental Delay, d2		63.6	70.5	132.5	287.7					33.0	33.0	0.3
Delay (s)		96.2	100.2	157.2	308.5					80.5	80.5	0.3
Level of Service		F	F	F	F					F	F	A
Approach Delay (s)		97.4			278.1			0.0			58.8	
Approach LOS		F			F			A			E	

Intersection Summary			
HCM Average Control Delay	187.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.47		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	196.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



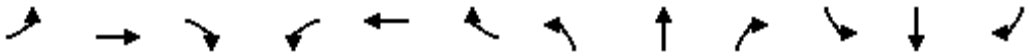
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00	1.00	
Frt		1.00	0.85	1.00	1.00					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	328	723	560	1773	0	0	0	0	60	0	160
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	357	786	609	1927	0	0	0	0	65	0	174
RTOR Reduction (vph)	0	0	244	0	0	0	0	0	0	0	34	0
Lane Group Flow (vph)	0	357	542	609	1927	0	0	0	0	65	140	0
Turn Type			Perm	Prot						Split		
Protected Phases		2		1	6					4	4	
Permitted Phases			2									
Actuated Green, G (s)		54.2	54.2	48.0	106.2					15.8	15.8	
Effective Green, g (s)		54.2	54.2	48.0	106.2					15.8	15.8	
Actuated g/C Ratio		0.42	0.42	0.37	0.82					0.12	0.12	
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)		1475	660	654	2891					215	192	
v/s Ratio Prot		0.10		c0.34	0.54					0.04	c0.11	
v/s Ratio Perm			0.50									
v/c Ratio		0.24	0.82	0.93	0.67					0.30	0.73	
Uniform Delay, d1		24.6	33.6	39.4	4.8					52.1	55.0	
Progression Factor		1.22	1.72	0.99	1.36					1.00	1.00	
Incremental Delay, d2		0.4	10.4	12.2	0.6					0.8	12.9	
Delay (s)		30.4	68.4	51.1	7.1					52.9	67.9	
Level of Service		C	E	D	A					D	E	
Approach Delay (s)		56.5			17.7			0.0			63.8	
Approach LOS		E			B			A			E	

Intersection Summary			
HCM Average Control Delay	31.8	HCM Level of Service	C
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	143.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



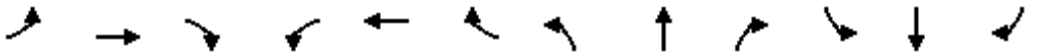
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.86	0.86	0.97	0.95					0.95	0.95	1.00
Frt		0.95	0.85	1.00	1.00					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)		4568	1362	3433	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4568	1362	3433	3539					1681	1681	1583
Volume (vph)	0	1758	1970	1030	2009	0	0	0	0	530	0	206
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1911	2141	1120	2184	0	0	0	0	576	0	224
RTOR Reduction (vph)	0	64	292	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2786	910	1120	2184	0	0	0	0	288	288	224
Turn Type			Perm	Prot						Perm		Free
Protected Phases		2		1	6						4	
Permitted Phases			2							4		Free
Actuated Green, G (s)		58.4	58.4	32.0	94.4					25.6	25.6	130.0
Effective Green, g (s)		59.4	59.4	32.0	95.4					26.6	26.6	130.0
Actuated g/C Ratio		0.46	0.46	0.25	0.73					0.20	0.20	1.00
Clearance Time (s)		5.0	5.0	4.0	5.0					5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		2087	622	845	2597					344	344	1583
v/s Ratio Prot		0.62		c0.33	0.62							
v/s Ratio Perm			0.88							0.17	0.17	0.14
v/c Ratio		1.33	1.46	1.33	0.84					0.84	0.84	0.14
Uniform Delay, d1		35.3	35.3	49.0	12.0					49.6	49.6	0.0
Progression Factor		0.70	1.45	0.66	0.92					1.00	1.00	1.00
Incremental Delay, d2		151.0	209.4	149.2	1.4					16.1	16.1	0.2
Delay (s)		175.6	260.7	181.5	12.5					65.7	65.7	0.2
Level of Service		F	F	F	B					E	E	A
Approach Delay (s)		200.8			69.8			0.0			47.3	
Approach LOS		F			E			A			D	

Intersection Summary			
HCM Average Control Delay	132.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.52		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	158.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



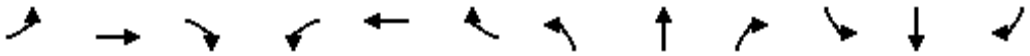
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00	1.00	
Frt		1.00	0.85	1.00	1.00					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	848	1841	990	981	0	0	0	0	160	0	163
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	922	2001	1076	1066	0	0	0	0	174	0	177
RTOR Reduction (vph)	0	0	203	0	0	0	0	0	0	0	154	0
Lane Group Flow (vph)	0	922	1798	1076	1066	0	0	0	0	174	23	0
Turn Type			Perm	Prot						Split		
Protected Phases		2		1	6					4	4	
Permitted Phases			2									
Actuated Green, G (s)		66.9	66.9	34.0	104.9					17.1	17.1	
Effective Green, g (s)		66.9	66.9	34.0	104.9					17.1	17.1	
Actuated g/C Ratio		0.51	0.51	0.26	0.81					0.13	0.13	
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)		1821	815	463	2856					233	208	
v/s Ratio Prot		0.26		c0.61	0.30					0.10	c0.11	
v/s Ratio Perm			1.26									
v/c Ratio		0.51	2.21	2.32	0.37					0.75	0.11	
Uniform Delay, d1		20.7	31.5	48.0	3.5					54.4	49.8	
Progression Factor		0.62	0.58	0.82	0.09					1.00	1.00	
Incremental Delay, d2		0.5	544.5	600.8	0.3					12.3	0.2	
Delay (s)		13.3	562.7	640.0	0.6					66.6	50.0	
Level of Service		B	F	F	A					E	D	
Approach Delay (s)		389.4			321.8			0.0			58.2	
Approach LOS		F			F			A			E	

Intersection Summary			
HCM Average Control Delay	341.2	HCM Level of Service	F
HCM Volume to Capacity ratio	2.19		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	174.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



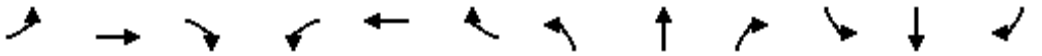
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.86	0.86	0.97	0.95					0.95	0.95	1.00
Frt		0.96	0.85	1.00	1.00					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)		4621	1362	3433	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4621	1362	3433	3539					1681	1681	1583
Volume (vph)	0	1737	1625	990	4026	0	0	0	0	840	0	326
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	1737	1625	990	4026	0	0	0	0	840	0	326
RTOR Reduction (vph)	0	48	335	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2290	689	990	4026	0	0	0	0	420	420	326
Turn Type			Perm	Prot						Perm		Free
Protected Phases		2		1	6						4	
Permitted Phases			2							4		Free
Actuated Green, G (s)		54.2	54.2	29.0	87.2					32.8	32.8	130.0
Effective Green, g (s)		55.2	55.2	29.0	88.2					33.8	33.8	130.0
Actuated g/C Ratio		0.42	0.42	0.22	0.68					0.26	0.26	1.00
Clearance Time (s)		5.0	5.0	4.0	5.0					5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1962	578	766	2401					437	437	1583
v/s Ratio Prot		0.51		0.29	c1.14							
v/s Ratio Perm			0.75							0.25	0.25	0.21
v/c Ratio		1.17	1.19	1.29	1.68					0.96	0.96	0.21
Uniform Delay, d1		37.4	37.4	50.5	20.9					47.5	47.5	0.0
Progression Factor		1.16	1.77	0.18	0.43					1.00	1.00	1.00
Incremental Delay, d2		75.9	88.2	132.5	304.7					33.0	33.0	0.3
Delay (s)		119.3	154.6	141.7	313.7					80.5	80.5	0.3
Level of Service		F	F	F	F					F	F	A
Approach Delay (s)		130.0			279.7			0.0			58.0	
Approach LOS		F			F			A			E	

Intersection Summary				
HCM Average Control Delay	199.9	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.54			
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	198.1%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				



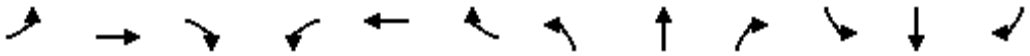
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00	1.00	
Frt		1.00	0.85	1.00	1.00					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	630	1101	560	2635	0	0	0	0	60	0	273
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	685	1197	609	2864	0	0	0	0	65	0	297
RTOR Reduction (vph)	0	0	231	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	685	966	609	2864	0	0	0	0	65	291	0
Turn Type			Perm	Prot						Split		
Protected Phases		2		1	6					4	4	
Permitted Phases			2									
Actuated Green, G (s)		62.0	62.0	35.0	101.0					21.0	21.0	
Effective Green, g (s)		62.0	62.0	35.0	101.0					21.0	21.0	
Actuated g/C Ratio		0.48	0.48	0.27	0.78					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)		1688	755	477	2750					286	256	
v/s Ratio Prot		0.19		c0.34	0.81					0.04	c0.19	
v/s Ratio Perm			0.76									
v/c Ratio		0.41	1.28	1.28	1.04					0.23	1.14	
Uniform Delay, d1		22.1	34.0	47.5	14.5					47.4	54.5	
Progression Factor		0.48	0.87	0.90	0.69					1.00	1.00	
Incremental Delay, d2		0.6	133.5	126.1	20.0					0.4	98.3	
Delay (s)		11.2	163.2	169.0	30.1					47.8	152.8	
Level of Service		B	F	F	C					D	F	
Approach Delay (s)		107.9			54.4			0.0			134.0	
Approach LOS		F			D			A			F	

Intersection Summary			
HCM Average Control Delay	77.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	178.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



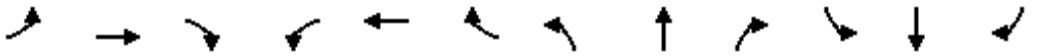
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.91	0.88	0.97	0.86					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					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)		5085	2787	3433	6408					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	2787	3433	6408					1681	1681	1583
Volume (vph)	0	1758	1970	1030	2009	0	0	0	0	530	0	206
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1911	2141	1120	2184	0	0	0	0	576	0	224
RTOR Reduction (vph)	0	0	512	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1911	1629	1120	2184	0	0	0	0	288	288	224
Turn Type			Perm	Prot						Perm		Free
Protected Phases		2		1	6						4	
Permitted Phases			2							4		Free
Actuated Green, G (s)		56.4	56.4	34.0	94.4					25.6	25.6	130.0
Effective Green, g (s)		57.4	57.4	34.0	95.4					26.6	26.6	130.0
Actuated g/C Ratio		0.44	0.44	0.26	0.73					0.20	0.20	1.00
Clearance Time (s)		5.0	5.0	4.0	5.0					5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		2245	1231	898	4702					344	344	1583
v/s Ratio Prot		0.38		c0.33	0.34							
v/s Ratio Perm			0.77							0.17	0.17	0.14
v/c Ratio		0.85	1.32	1.25	0.46					0.84	0.84	0.14
Uniform Delay, d1		32.5	36.3	48.0	7.0					49.6	49.6	0.0
Progression Factor		0.68	0.40	0.90	0.63					1.00	1.00	1.00
Incremental Delay, d2		1.7	147.7	119.7	0.3					16.1	16.1	0.2
Delay (s)		23.8	162.2	162.9	4.7					65.7	65.7	0.2
Level of Service		C	F	F	A					E	E	A
Approach Delay (s)		96.9			58.4			0.0			47.3	
Approach LOS		F			E			A			D	

Intersection Summary			
HCM Average Control Delay	76.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	123.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



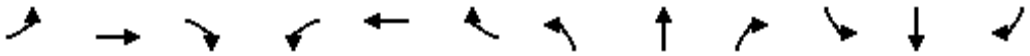
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Lane Util. Factor		0.95	1.00	0.97	0.95					1.00	1.00	
Frt		1.00	1.00	1.00	1.00					1.00	0.85	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3539	1863	3433	3539					1770	1583	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (perm)		3539	1863	3433	3539					1770	1583	
Volume (vph)	0	848	1841	990	981	0	0	0	0	160	0	163
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	922	2001	1076	1066	0	0	0	0	174	0	177
RTOR Reduction (vph)	0	0	208	0	0	0	0	0	0	0	154	0
Lane Group Flow (vph)	0	922	1793	1076	1066	0	0	0	0	174	23	0
Turn Type			Perm	Prot						Split		
Protected Phases		2		1	6					4	4	
Permitted Phases			2									
Actuated Green, G (s)		76.9	76.9	24.0	104.9					17.1	17.1	
Effective Green, g (s)		76.9	76.9	24.0	104.9					17.1	17.1	
Actuated g/C Ratio		0.59	0.59	0.18	0.81					0.13	0.13	
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)		2093	1102	634	2856					233	208	
v/s Ratio Prot		0.26		c0.31	0.30					0.10	c0.11	
v/s Ratio Perm			1.07									
v/c Ratio		0.44	1.63	1.70	0.37					0.75	0.11	
Uniform Delay, d1		14.7	26.5	53.0	3.5					54.4	49.8	
Progression Factor		0.43	0.90	1.14	0.24					1.00	1.00	
Incremental Delay, d2		0.3	284.2	319.4	0.3					12.3	0.2	
Delay (s)		6.6	308.1	380.1	1.1					66.6	50.0	
Level of Service		A	F	F	A					E	D	
Approach Delay (s)		213.0			191.5			0.0			58.2	
Approach LOS		F			F			A			E	

Intersection Summary				
HCM Average Control Delay	194.5	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.65			
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	173.5%	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	4.0	4.0
Lane Util. Factor		0.91	0.88	0.97	0.86					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)		5085	2787	3433	6408					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	2787	3433	6408					1681	1681	1583
Volume (vph)	0	1737	1625	990	4026	0	0	0	0	840	0	326
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	1737	1625	990	4026	0	0	0	0	840	0	326
RTOR Reduction (vph)	0	0	551	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1737	1074	990	4026	0	0	0	0	420	420	326
Turn Type			Perm	Prot						Perm		Free
Protected Phases		2		1	6						4	
Permitted Phases			2							4		Free
Actuated Green, G (s)		48.0	48.0	37.0	89.0					31.0	31.0	130.0
Effective Green, g (s)		49.0	49.0	37.0	90.0					32.0	32.0	130.0
Actuated g/C Ratio		0.38	0.38	0.28	0.69					0.25	0.25	1.00
Clearance Time (s)		5.0	5.0	4.0	5.0					5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1917	1050	977	4436					414	414	1583
v/s Ratio Prot		0.34		c0.29	0.63							
v/s Ratio Perm			0.58							0.25	0.25	0.21
v/c Ratio		0.91	1.02	1.01	0.91					1.01	1.01	0.21
Uniform Delay, d1		38.3	40.5	46.5	16.6					49.0	49.0	0.0
Progression Factor		0.72	0.48	0.99	0.65					1.00	1.00	1.00
Incremental Delay, d2		2.1	20.0	30.8	3.3					47.9	47.9	0.3
Delay (s)		29.6	39.3	76.7	14.1					96.9	96.9	0.3
Level of Service		C	D	E	B					F	F	A
Approach Delay (s)		34.3			26.5			0.0			69.9	
Approach LOS		C			C			A			E	

Intersection Summary			
HCM Average Control Delay	34.5	HCM Level of Service	C
HCM Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	118.4%	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	4.0	
Lane Util. Factor		0.95	1.00	0.97	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	3433	3539					1770	1583	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (perm)		3539	1583	3433	3539					1770	1583	
Volume (vph)	0	630	1101	560	2635	0	0	0	0	60	0	273
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	685	1197	609	2864	0	0	0	0	65	0	297
RTOR Reduction (vph)	0	0	226	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	685	971	609	2864	0	0	0	0	65	291	0
Turn Type			Perm	Prot						Split		
Protected Phases		2		1	6					4	4	
Permitted Phases			2									
Actuated Green, G (s)		73.0	73.0	24.0	101.0					21.0	21.0	
Effective Green, g (s)		73.0	73.0	24.0	101.0					21.0	21.0	
Actuated g/C Ratio		0.56	0.56	0.18	0.78					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)		1987	889	634	2750					286	256	
v/s Ratio Prot		0.19		0.18	c0.81					0.04	c0.19	
v/s Ratio Perm			0.76									
v/c Ratio		0.34	1.09	0.96	1.04					0.23	1.14	
Uniform Delay, d1		15.5	28.5	52.5	14.5					47.4	54.5	
Progression Factor		0.14	1.34	0.97	0.93					1.00	1.00	
Incremental Delay, d2		0.4	55.4	15.4	24.3					0.4	98.3	
Delay (s)		2.5	93.6	66.4	37.7					47.8	152.8	
Level of Service		A	F	E	D					D	F	
Approach Delay (s)		60.4			42.8			0.0			134.0	
Approach LOS		E			D			A			F	

Intersection Summary			
HCM Average Control Delay	54.4	HCM Level of Service	D
HCM Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	174.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Appendix P

City of Stockton
Wastewater Collection System 10
Master Plan Revision #7

City of Stockton
Wastewater Collection System 10
Master Plan Revision #7

Prepared for

The Grupe Company, Inc.

July 2007

WEST YOST
ASSOCIATES
Consulting Engineers

314-00-06-01

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CHAPTER 1. EXECUTIVE SUMMARY

Master Plan Revision #7 presents the hydraulic analysis of the Wastewater Collection System 10 (System 10) service area, expanded to accommodate the Sanctuary project (Project). The Project lies west of the existing System 10 service area. It is bounded to the north by Disappointment Slough and Pixley Slough, to the east by Interstate Highway 5 (I-5), to the south by Five Mile Slough, and to the west by Fourteen Mile Slough. It incorporates approximately 2,000 acres and is proposed to tie into the City's existing north-south trunk sewer running parallel to I-5. Upon adoption of this Master Plan Revision #7, the service area boundary of the System 10 service area will be modified to include the Project area.

The hydraulic impacts due the Project on the existing wastewater collection system facilities were evaluated under the following three conditions:

1. Proposed project with existing development and approved development;
2. Proposed project with existing, approved/under-construction, and other proposed development, and;
3. Proposed project with the most-current projection of the System 10 service area development at buildout conditions.

The City of Stockton (City) has a partially Hydra-based wastewater collection system model that was developed by others during previous master planning efforts. Some of the data from this model along with recent development updates provided by the City were used to perform a hydraulic analysis based upon City Design Standards for the System 10 service area. City-provided development information included areas for project areas named Westlake Village, Crystal Bay, North Stockton Project III, Bear Creek West, Bear Creek East, Bear Creek South, and Cannery Park. The City directed WYA to omit the Morada Area from the analysis of the System 10 service area. Proposed land use data for the Project was provided by Grupe Company, Inc. The analysis projected wastewater flows within the existing trunk sewers to determine the need for improvements and remaining capacities under each development condition.

The Project will discharge wastewater to an existing trunk sewer upstream of the 14-Mile Slough Pump Station (14-MSPS), which is currently under Phase 1 construction. Phase 2 improvements at the 14-MSPS will be needed to accommodate current approved development in the System 10 service area, even without flows from the proposed project. The timing of Phase 2 improvements (installation of additional pumps) is subject to monitoring actual flows through metering at the 14-MSPS. At buildout of the System 10 service area, major improvements to collection system facilities will be required. Anticipated System 10 improvements include parallel pipelines for portions of the Westside Interim Force Main and the Westside Interceptor (gravity sewer). Flow from the project does not change the size of improvements required to accommodate the System 10 service area flows at buildout.

CHAPTER 2. INTRODUCTION

The purpose of Master Plan Revision #7 is to evaluate the potential hydraulic impacts of the proposed Sanctuary project (Project) on the City's Wastewater Collection System 10 (System 10) service area and to formalize the incorporation of the project area into System 10. In this evaluation, WYA considered how the proposed Project will affect the ability of the City's existing collection system to provide conveyance to existing and General Plan buildout service areas. Upon adoption of this Master Plan Revision #7, the service area boundary of System 10 will be modified to include the Project area.

Master Plan Revision #7 documents the improvements to the existing System 10 service area facilities needed to provide adequate conveyance capacity under the following conditions:

1. Existing Development + Approved Developments + Project
2. Existing Development + Approved Developments + Other Proposed Developments + Project
3. Buildout Development + Project

Master Plan Revision #6 (2005) analyzed impacts on System 10 service area facilities downstream of Westlake Village. Master Plan Revision #5 (2001) identified the sewer infrastructure requirements for the remainder of System 10 service area facilities based on buildout of the City's adopted 1990 General Plan. The current revision (Revision #7) builds upon the previous analyses, but focuses on the impacts to pipelines downstream of the proposed Project and treats incoming flows from the remaining areas of the System 10 service area north of the Project as a single aggregated incoming flow injected into the City's existing trunk sewers running north-south parallel to I-5 (the North West Trunk sewer).

A portion of the project currently lies within the existing System 10 service area boundary (294 acres of undeveloped land). The remaining portion of the project lies west of the existing System 10 service area. It is bounded to the north by Disappointment Slough and Pixley Slough, to the east by I-5, to the south by Five Mile Slough, and to the west by Fourteen Mile Slough. The Project incorporates approximately 2000 acres, total. The sanitary sewer system for the Project would tie into the North West Trunk sewer.

Information about the Project and its proposed collection system was provided to WYA by the Grupe Company. Land use data for proposed and anticipated development projects were provided by the City (see Chapter 3).

This Wastewater Master Plan Revision #7 includes the following additional chapters:

Chapter 3 Wastewater Flows – summary of predicted flows, as well as the land use data, flow factors, and methods used for the wastewater flow projections.

Chapter 4 Collection System Analysis – criteria used to quantify capacity in existing facilities and to develop estimates of future collection system capacity and sizing requirements, a description of the hydraulic analysis, and a presentation of the results of the analysis.

Chapter 5 Conclusions – brief summary of conclusions.

CHAPTER 3. WASTEWATER FLOWS

Wastewater flows were estimated using a flow factor method based on land use type. Average Dry Weather Flows (ADWF) were projected using flow factors presented in Table 3-1.

Table 3-1. Average Dry Weather Flow Factors

Land Use Category	Units	Sanctuary	System 10 Growth Areas [a]	System 10 Existing Development [b, c]
Areas Without Current Development Plans	gpd/acre	N/A	2,100	N/A
Very Low Density Residential	gpd/DU	300	300	240
Low Density Residential	gpd/DU	N/A	300	240
Medium Density Residential	gpd/DU	300	N/A	210
High Density Residential	As noted	270 gpd/DU	6,800 gpd/acre	210 gpd/DU
Mixed Use	gpd/acre	3,700	3,700	N/A
Commercial	gpd/acre	Office – 2,400 Retail – 2,000 Restaurant – 8,600	2,000	1,100
Administrative Professional	gpd/acre	N/A	2,400	1,100
Industrial [d]	gpd/acre	N/A	3,000	1,400
Institutional	gpd/acre	Primary – 1,800 Secondary – 1,400 Church – 1,400	1,600	1,100
Club	gpd/acre	1,400	N/A	N/A
Park	gpd/acre	0	200	240

(a) Factors are applied to future growth areas to estimate max day flows.
(b) Derived from previous City model data files (Year 2000; values are rounded).
(c) Factors are only applied to existing development areas to estimate current max day flows and flows from future infill.
(d) This factor only applies to light or dry industries. Flows from wet industries are added to the model separately as point sources. No wet industries are planned in the System 10 service area.
(e) N/A = not applicable.

HDR Engineering (HDR) conducted the previous comprehensive collection system modeling work for the City. This work focused on the existing service area (as of Year 2000), and buildout of the 1990 General Plan. The City directed WYA to use modeling developed by HDR (City's HDR-Link model) as the basis for Master Plan Revision # 6. For that analysis, the influence of Westlake Village was superimposed on the previous modeling results to analyze the downstream systems, as were adjustments for other areas not previously accounted for in the model, e.g., Spanos Park West.

For this master plan revision (Master Plan Revision #7), City Design Standards were used to compute and analyze flows for approved, proposed, and the currently proposed Project developments. For existing development, flow factors from the HDR-link model were used (see "Other Existing Development" column in Table 3-1).

The City's existing conditions HDR-Link model was based on the Year 2000 land use and service areas. There has been significant development in the System 10 service area since 2000. The existing condition flows were updated by adding to the analysis the growth in the System 10 service area that has occurred since Year 2000. Similarly, the projected buildout flow was adjusted to reflect flow increases caused by these changes. In both the existing and buildout cases, Project flows were also added to the analysis to assess the short and long-term impacts of the Project on projected wastewater flows.

The following sections describe the flow projections for the Project and growth in the System 10 service area.

3.1 SERVICE AREAS AND LAND USE

Figure 3-1 illustrates the recommended revised System 10 service area boundary, and summarizes the planned land uses within that boundary. Land uses outside of the Project area are consistent with the 1990 General Plan, as previously amended. The City directed WYA not to include flow from the Morada area in the analysis of the System 10 service area downstream sewers and the recommended System 10 service area boundary has been adjusted accordingly. A portion of the Project currently lies within the existing System 10 service area boundary (294 acres of undeveloped land). The remaining 1,673 acres to the west is proposed for inclusion with the System 10 service area.

Land use data for existing development within the System 10 service area, except Spanos Park West, was obtained from the land use database (dated August 26, 2004) developed by Mintier & Associates as a product of the City's General Plan update process. The data consisted of estimates of then current residential, commercial, industrial, etc. densities by traffic analysis zone (TAZ). Estimates of additional growth to the end of year 2006 were then added to this data to project growth-to-date. Average dry weather flow for each TAZ was estimated by using City Design Standard flow factors for each land use area. Average flows were then peaked using City peaking equations per City Design Standards. Land use data for Westlake Village, the Crystal Bay and Spanos Park West developments was provided in 2005 by the former Thompson-Hysell Engineers (now Stantec Consulting) and A.G. Spanos. Information about the Project and its proposed collection system was provided to WYA by the Grupe Company and Siegfried Engineering, the Project proponent and proponent's engineer, respectively.

For estimating the peak flows at build out conditions, average flow estimates and developed acreage for the System 10 service area were taken from the City's model under build out conditions except for areas where more current developer data, provided by the City, was available. For areas where more current development plans are available, the more up-to-date land uses were assumed for build out design. The updated build out land uses were then converted to average flow and peaked per City Design Standards for use in the analysis.

3.2 HYDRAULIC MODELING

WYA hydraulically modeled facilities downstream of System 10 and the Project using spreadsheets which incorporated City Design Standards. The following sections briefly describe the type of hydraulic analysis conducted for various types of downstream components (gravity sewers, force mains, and pump stations) and indicate the limits of pipeline reaches and pump station facilities modeled. Finally, a description is provided of the method used to project peak wet weather flows in the sewers.

Hydraulic Analysis

Hydraulic capacities were determined for various facilities downstream of System 10 and the Project. These hydraulic capacities were compared to projected peak flows to determine the adequacy of the facility to accommodate the flow. The analysis comprised the following components:

Gravity Sewers – Projected peak flow at buildout was compared to the full-pipe capacity of gravity sewers. Values of full-pipe flow capacity for affected pipeline segments were taken from previous modeling. Upgrades were generally recommended for gravity sewers in exceedance of full-pipe capacity.

Force Mains – Flow velocities in force mains were compared to the City Standard of 9.0 feet per second. Upgrades were recommended for gravity force mains in exceedance of the velocity criterion.

14-Mile Slough Pump Station (14-MSPS) – Pumping capacity at the 14-MSPS was computed for various development scenarios based on the actual pump equipment selected for the 14-MSPS design. System curves were developed for downstream facilities and compared to the design pump curves for pumps at the 14-MSPS.

Conveyance Facilities Modeled

The wastewater conveyance facilities were modeled from a point just upstream of the Project to the Regional Wastewater Control Facilities (RWCF). The conveyance facilities modeled include the following components:

Northwest Trunk – The North West Trunk is the gravity sewer into which all of the northern part of the System 10 service area drains. This conveyance facility was analyzed from a point upstream of the Project down to the 14-MSPS.

14-Mile Slough Pump Station – Both Phase 1 and Phase 2 facilities at the 14-MSPS were modeled. The 14-MSPS receives inflow from both System 10 to the north and pumped flow from System 1.

Westside Interim Force Main – Flow from the 14-MSPS is pumped to the Westside Interim Force Main. The Westside Interim Force Main extends from the 14-MSPS to a junction point into which flow from the Brookside Pump Station is added. The Westside Interim Force Main continues from the junction to its terminus at a junction box structure located at the head of the Westside Interceptor.

Westside Interceptor – The Westside Interceptor is a gravity sewer that extends from the junction box structure to the RWCF.

Peak Flow Projections

Table 3-2 presents the projected average dry weather flows (ADWF) used as input data to the analysis. Table 3-3 indicates the basis from which ADWFs were developed for the Project and was developed using information provided by Grupe, Inc. Infiltration and inflow (I&I) was predicted per City Design Standards by multiplying the area served by an I&I factor.

City Design Standards specify that the design flow be calculated as follows:

Design Flow = (Average Flow + I&I) x Peaking Factor

Peaking Factor, PF

Average Flow < 0.5 mgd	$PF = 2.29 \times (\text{Average Flow})^{-0.338}$
0.5 < Average Flow < 1.8 mgd	$PF = 2.50 \times (\text{Average Flow})^{-0.216}$
Average Flow > 1.8 mgd	$PF = 2.37 \times (\text{Average Flow})^{-0.124}$

(Average Flow in units of mgd)

RES: 1,403 DU
PARK: 11.6 ac

RES: 2,637 DU
COMM: 9.6 ac
INS: 13.1 ac
PARK: 34.1 ac

RES: 1,124 DU
COMM: 187 ac
INS: 12.4 ac

SILVER SPRINGS

RES: 305 DU
COMM: 6.1 ac

RES: 1,067 DU

RES: 6,100 DU

RES: 2,050 DU

RES: 997 DU
COMM: 87.8 ac
IND: 74.1 ac

CRYSTAL BAY

WEST LAKE

SPANOS PARK WEST

EIGHT MILE ROAD

NORTH STKTN PROJ. III

EIGHT MILE ROAD

BEAR CREEK EAST

CANNERY PARK

EIGHT MILE ROAD

PURR

LOWER SACRAMENTO ROAD

MARIETTA RD

BEAR CREEK WEST

WEST LANE

WAKE FIELD ROAD

BEAR CREEK SOUTH

PURR

HWY 99

MORADA AREA EXCLUDED FROM ANALYSIS

RES: 6,351 DU
COMM: 43.54 ac
INS: 61.9 ac
PARK: 341 ac

ATLAS TRACT

RES: 7,070 DU
ADM./PROF. 25.5 ac
COMM: 24.1 ac
EDUCA: 125 ac
PARK & REC.: 241.4 ac

RES: 1,654 DU

THIRTEEN ROAD

SANCTUARY (Project)

RES: 465 DU
PARK: 5.2 ac

RES: 2,941 DU

RES: 3,539 DU
COMM: 27.5 ac
IND: 12.4 ac
INS: 0.2 ac
PARK: 7.8 ac

5

HAMMER LANE

N

0 1750 3500
SCALE IN FEET

RES: 5,282 DU
COMM: 119 ac
INS: 15 ac
PARK & OPEN SPC: 239 ac

SYSTEM 10 (SOUTH)

LEGEND

- DEVELOPMENT PROPOSAL RECEIVED [1]
- DEVELOPMENT PROPOSAL ANTICIPATED [1]
- DEVELOPMENT APPROVED [1]
- 1990 GP [2]
- PROJECT AREA TO BE ADDED TO SYSTEM 10 [3]
- PROJECT AREA CURRENTLY WITHIN SYSTEM 10 [3]
- CURRENT SYSTEM 10 BOUNDARY TO BE CHANGED
- PROPOSED SYSTEM 10 BOUNDARY
- SERVICE AREAS DEVELOPMENT BOUNDARY

1. DATA PROVIDED BY CITY
2. DATA PROVIDED BY CITY'S COLLECTION SYSTEM MODEL
3. DATA PROVIDED BY GRUPE

Figure 3-1
City of Stockton
Wastewater Collection System 10
Master Plan Revision No. 7
BUILDOUT LANDUSE

WEST YOST ASSOCIATES
Consulting Engineers

N:\Clients\314 GRUPE\00-06-01 Sanctuary\CAD\Figures\314-00-06-01-Figs1&2.dwg 7-03-07 10:02:50 AM rberry

Table 3-2. Flow Input Used for Hydraulic Analysis

Development Name	Gross Buildout Acreage	DU[a,b]	Residential, ac	Administrative/ Professional[b], ac	Commercial[b], ac	Institutional [b], ac	Industrial[b], ac	ADWF[b], mgd
Crystal Bay	149	1,403	-	-	-	-	11.6	0.40
West Lake Villages	510	2,637	-	-	13.1	-	34.1	0.83
Spanos Park West	555	1,124	187.3	-	12.4	-	-	0.81
Atlas Tract	360	1,654	-	-	-	-	-	0.50
Silver Springs	106	305	-	6.1	-	-	-	0.10
North Stockton Project III	237	1,067	-	-	-	-	-	0.32
Bear Creek West	1,159	6,811	-	-	-	-	-	2.04
Bear Creek East	317	2,050	-	-	-	-	-	0.62
Bear Creek South	510	2,941	-	-	-	-	-	0.88
Cannery Park	448	997	-	87.8	-	74.1	-	0.70
Project[c]	1,344	7,070	25.5	24.1	124.8	-	241.4	2.45
1990 GP - System 10 North	2,339	10,356	-	71.0	62.1	12.4	348.4	2.83
1990 GP - Diversion from System 2[d]	1,365							1.26
1990 GP - System 10 South	1,336	5,282	-	118.8	14.5	-	238.6	1.47
Total	10,736	43,696	212.8	307.7	226.8	86.5	874.0	15.21

(a) DU = Dwelling Unit

(b) Note that both existing and future land uses are included in these quantities.

(c) Gross developed acres within sewers sub-shed boundaries only. Greenbelts, green spaces, and waterways excluded. Total project acres = 1,967 ac.

(d) The Gross Buildout Acreage and the ADWF values indicated are fractions of the total quantities in System 2, proportioned based upon the flow split at the diversion.

Table 3-3. Basis of Average Dry Weather Flows for Sanctuary[(a)]

Land Use Categories	Units	Quantity	Unit Flow Factor, gpd/unit	ADWF, mgd
Residential				
Single Family	DU	6,143	300	1.843
Multi-Family	DU	927	270	0.25
Commerical				
Office	acres	25.53	2,400	0.06
Retail	acres	7.35	2,000	0.01
Mixed Use	acres	16.72	3,700	0.06
Educational				
School	acres	114.79	1,600	0.18
Church	acres	10.00	1,400	0.01
Recreational				
Clubs	acres	18.74	1,400	0.03
Public				
Parks	acres	222.62	N/A	-
Lakes	acres	68.16	N/A	-
Parkway	acres	48.96	N/A	-
Various roads, green spaces	acres	44.36	N/A	-
Developed Acres				1,344
Total ADWF (mgd)				2.45

(a) Data provided on 10/3/06 from Grupe, dated April 28, 2006. Residential quantity updated on 6/6/07 based upon updated information received from Grupe.

CHAPTER 4. COLLECTION SYSTEM ANALYSIS

This chapter describes the capacity analysis for wastewater conveyance facilities immediately upstream, and downstream of the Project. The downstream wastewater conveyance facilities serving the System 10 service area consists of force mains and gravity sewers, as well as the 14-MSPS. Projected peak flows to the conveyance facilities were compared to facility capacities, using City Design Standards as the basis of estimating capacities. The capacity analysis indicates that improvements to the force mains and gravity sewers will be required to convey the projected buildout flows along the flow path to the RWCF. Improvements to the force mains will increase the pumping capacity of the 14-MSPS by reducing pressures and these effects were considered as part of the analyses. Finally, a suggested sequence of improvement phases is presented with estimates of the additional capacity created by each improvement.

4.1 SYSTEM PERFORMANCE CRITERIA FOR PLANNING AND DESIGN

The following criteria were used to quantify available capacity in the existing wastewater collection system. These criteria also served as the basis for identifying improvements needed to correct existing system deficiencies and for planning future facilities.

Existing Gravity Sewers

For planning purposes, the available capacity is zero in gravity sewers with a predicted peak flow equal to or greater than the full-pipe gravity flow capacity. A replacement or other improvement is included for pipelines with predicted peak flows greater than 100 percent of the gravity flow capacity that are needed to accommodate additional flows from new service areas. Flow capacity values for existing gravity sewers were taken from the output results of previous modeling provided to WYA by the City.

Future Gravity Sewers

The following criteria were used to plan new gravity sewers:

- The slope of the connecting trunk sewers shall be at least equal to the minimum allowable slope for the given diameter per City Design Standards.
- Pipes must be sloped to produce a minimum of 2 feet per second at peak dry weather flow.
- Hydraulic capacity is based on Manning's Equation with an "n" value of 0.013.
- No surcharging within sewers is allowed – sewers must be designed for gravity flow.
- Sanitary trunk sewers should be installed at depths such that they can receive flows from their service area via gravity sewers, minimizing the number of pump stations required.

- The upstream end of connecting trunk sewers shall have at least 8 feet of cover, allowing for the fall in upstream 8- and 10-inch lateral sewers. (This is a planning criterion only; actual layouts should be used during design to verify that proposed depths provide adequate fall for all upstream areas.)

Pumping Facilities

Pump stations must have a firm capacity equal to the predicted peak wet weather flow. For the purposes of this analysis, the rated firm capacity of a wastewater pump station is equal to the capacity of the installed pumps with the largest pumping unit out of service.

Force Mains

The City Design Standard state that force main velocities should be limited to "around 7 feet per second (fps)" for lengths up to 300 ft, and "around 5 fps" for lengths in excess of 1,000 ft. For master planning purposes, new force main diameters may be selected based on a velocity of 7 fps at peak wet weather flow, which will result in lower velocities under most flow conditions.

Existing force mains were considered to have adequate capacity to carry predicted peak wet weather flows at velocities up to 9 fps. This velocity will produce higher pressures, which must be considered during design of any replacement pumping equipment both in terms of higher energy costs as well as pipeline material strength. Nevertheless, it is assumed that most existing force mains can accommodate flows at this velocity and the associated pressures, and that the cost of replacing the force main will generally far exceed the increased energy and pumping equipment costs. This is a planning criterion. During design, materials testing and/or other appropriate measures must be employed to determine whether or not existing facilities can safely accommodate any increase in design operating pressures.

For the purposes of this master plan revision, WYA analyzed pump station and force main hydraulics based on the actual pump equipment selected for the 14-MSPS design. Using this analysis, the capacity of specific force main and pump combinations where identified, and this information was used to estimate the capacity of various improvement phases. Both pump station and pipeline phasing were evaluated.

4.2 RESULTS OF HYDRAULIC ANALYSIS AND REQUIRED COLLECTION SYSTEM IMPROVEMENTS

A series of collection system improvements are required to accommodate various stages of development within the System 10 service area. A list of these improvements is presented in Table 4-1. The improvement locations are shown on Figure 4-1. The Westside Interim Force Main has an existing capacity limitation of about 28.6 mgd, computed by applying the 9 feet per second force main velocity criterion to the smallest (30-inch) diameter reaches of the force main. Of this 28.6 mgd force main capacity, 6.0 mgd is reserved for peak flows pumped into the force main from the Brookside Pump Station (BSPS) based upon discussions with City staff about the operational strategy at the BSPS. The remaining capacity in the Westside Interim Force Main to receive flows is therefore limited to about 22.6 mgd without improvements (upsizing or paralleling).

Tables 4-2, 4-3, 4-4, 4-5 and 4-6 present hydraulic analysis results for various development assumptions within the System 10 service area. Note that in each of the tables flow into the 14-MSPS includes flow from System 1. As part of the 14-MSPS Phase 1 improvements, flow from System 1 will be routed to a point upstream of the 14-MSPS. The System 1 flow is currently pumped directly into the Westside Interim Force Main located downstream of the 14-MSPS. Additionally, it was assumed that zero flow will enter the System 10 service area from north of Eight Mile Road.

Hydraulic computations indicate that the existing Northwest Trunk (see Figure 4-1) can accommodate peak flows for all of the proposed development scenarios, including the System 10 service area buildout peak flows under the 1990 General Plan. The remaining downstream conveyance system, extending from the 14-MSPS to the RWCF is limited by the lesser of the pumping capacity at the 14-MSPS or the capacity of the Westside Interim Force Main. Phase 1 improvements at the 14-MSPS will produce a firm pumping capacity of 14.0 mgd. Phase 2 improvements at the 14-MSPS simply involve installing additional pumps, increasing the station capacity to 22.5 mgd. Beyond these initial pump station improvements, additional capacity can be gained at the 14-MSPS by implementing force main improvements downstream, which will decrease force main friction and increase pumping capacity at the pump station. To quantify the additional capacity gained at the 14-MSPS through downstream force main improvements, hydraulic computations were conducted based upon City model information about the existing pipelines, and pump curve information as supplied by the manufacturer of the pumps to be installed at the 14-MSPS pump station. Tables 4-2 through 4-6 indicate the peak flows to the 14-MSPS computed for various System 10 service area development conditions and the corresponding pump station capacity achieved by implementing the indicated improvements.

Tables 4-2 through 4-4 show the System 10 service area flows for various development scenarios without flow contribution from the Project. These tables were included to identify upgrades that will be needed for currently approved and proposed developments within the System 10 service area. The tables show that the improvements already required for the System 10 service area will also accommodate the additional flow from the Project.

Table 4-1. Phased Force Main and Sewer Improvements Required Downstream of the 14-MSPS for the System 10 Service Area Buildout

Phase	Pipeline Improvement Description	Projected System Capacity Downstream of the 14-MSPS, mgd
1	<u>Westside Interim Force Main</u> - Parallel approximately 15,260 ft of existing 30-inch FM with 30-inch diameter FM <u>Westside Interceptor</u> - No improvements recommended	26.8
2	<u>Westside Interim Force Main</u> - Parallel approximately 3,275 ft of existing	27.5

Phase	Pipeline Improvement Description	Projected System Capacity Downstream of the 14-MSPS, mgd
	36&42-inch FM with 36-inch diameter FM - Connect approximately 1,315 ft of existing parallel 36-inch FM - Connect approximately 350 ft of existing parallel 42-inch FM - Parallel approximately 50 ft of existing 42-inch FM with 42-inch diameter FM <u>Westside Interceptor</u> - No improvements recommended	
3	<u>Westside Interim Force Main</u> - Parallel approximately 5,970 ft of existing 30-inch FM with 36-inch diameter FM - Connect approximately 540 ft of existing parallel 36-inch FM <u>Westside Interceptor</u> - Parallel approximately 960 ft of existing 42-inch sewer with 36-inch diameter sewer*	33.3
4	<u>Westside Interim Force Main</u> - Parallel approximately 8,795 ft of existing 36-inch FM with 36-inch diameter FM <u>Westside Interceptor</u> Parallel approximately 3,690 ft of existing 42-inch sewer with 36-inch diameter sewer	37.1

*Depending on the severity of surcharging, these improvements could be moved to Phase 4.

<u>Existing Development</u>

As listed in Table 4-2, the peak flow predictions for existing flow at the 14-MSPS is 11.6 mgd, including 5.2 mgd from System 1. Actual existing flows may be somewhat lower than this prediction. In fact, City staff have received a small amount of flow metering data from June of 2005 that reportedly show total peak dry weather flows upstream of the pump station (with no flow from System 1) on the order of 1.5 to 2.0 mgd. Depending on the amount of actual wet weather I&I flow from both Systems 1 and 10, peak flows to the 14-MSPS could be somewhat lower than the value of 11.6 mgd indicated in Table 4-2. However, flows are expected to continue increasing as previously approved developments are constructed.

The first phase improvements to the 14-MSPS will provide a pumping capacity of 14.0 mgd. With a projected peak wastewater flow of 11.6 mgd from existing development, there remains available 2.4 mgd of peak flow capacity for future development (equivalent to about 3,650 units— see Table 4-8).

Existing + Approved Development

Table 4-3 indicates that the projected peak wastewater flow is 16.8 mgd at the 14-MSPS with implementation of the currently approved development in the System 10 service area. Therefore, the 14.0 mgd pumping capacity of Phase 1 improvements at the 14-MSPS are exceeded under these conditions. Phase 2 improvements to the 14-MSPS consists of adding pumping equipment and will increase the station capacity to 22.5 mgd[1]. Accounting for peak flows produced by Existing + Approved development, Phase 2 pump station improvements make available 5.7 mgd of peak flow capacity for further development (equivalent to about 9,360 units – see Table 4-9).

Existing + Approved + Proposed Development

Table 4-4 indicates that the computed peak flows are 26.4 mgd with existing, approved, and proposed development (excluding the Project). Therefore, this development condition exceeds the 22.5 mgd capacity of 14-MSPS with Phase 2 improvements. Constructing Phase 1 pipeline improvements (see Table 4-1) downstream of the 14-MSPS however will decrease force main friction and increase pumping capacity at the pump station to 26.8 mgd, thus accommodating this development scenario.

A 5,970 ft segment of 30-inch diameter Westside Interim Force Main exceeded the velocity criterion that would trigger an improvement, but since the hydraulic computations indicate that the pumps at the 14-MSPS can accommodate the pressure losses caused by this exceedance, no improvement is recommended. Additionally, there is a short segment of gravity sewer (323 lineal feet) along the Westside Interceptor with a minor exceedance to the criterion for implementing a pipeline improvement but no improvement is recommended.

Existing + Approved + Project Development

This development condition represents a scenario where Project buildout follows currently approved development but precedes other currently proposed development within the System 10 service area. Table 4-5 indicates that computed flow of 21.8 mgd for the existing, approved, and Project development condition is less than the Phase 2 pumping capacity for the 14-MSPS (22.5 mgd), leaving 0.7 mgd of reserve capacity at the 14-MSPS.

The Project would result in an increase of approximately 1,344 acres of developed area (primarily single family residential) generating wastewater flow in the System 10 service area. In total, the Project will increase the peak design flow from the System 10 service area by 5.0 mgd above the flow projection for existing and approved developments alone. The 5.0 mgd difference is computed as the difference in Total Peak Wet Weather Flow at the 14-MSPS in Tables 4-3 and 4-5. From Table 4-5, the total peak flow to the 14-MSPS under the existing, approved, and Project development condition is 21.8 mgd. The City Municipal Utilities Department will need to closely monitor wet and dry weather flows at the 14-MSPS to determine the appropriate timing for construction of Phase 2 improvements at the 14-MSPS. Since second phase improvements at the 14-MSPS simply involve installing additional pumps, they can be implemented relatively quickly. The need for installation of the additional pumps and/or downstream pipeline improvements prior

[1] Design Development Report – 14 Mile Slough Pump Station Upgrades Project (2005). West Yost & Associates.

to buildout of the Project will depend on the pace of other development in the System 10 service area, and actual I&I flows.

Pipeline improvements downstream of the 14-MSPS are not required for this development scenario.

Existing + Approved + Proposed + Project Development

This development condition represents a scenario where Project buildout follows both currently approved development and other currently proposed development within the System 10 service area, but precedes buildout of the remainder of the System 10 service area. Table 4-6 indicates that the projected peak flow to the 14-MSPS is 31.0 mgd under the existing, approved, proposed, and Project development condition. To accommodate the projected peak flow generated by this development condition, Phase 2 improvements to the 14-MSPS and Phases 1, 2, and 3 improvements to the Westside Interim Force Main are recommended. Depending on the severity of surcharging, Phase 3 improvements to the Westside Interceptor could be moved to Phase 4. The pump station and force main improvements would provide a conveyance capacity of 33.3 mgd at the 14-MSPS. Again, it is suggested that regular flow monitoring be used at the 14-MSPS to determine the necessary timing of pipeline improvements.

Buildout + Project Development

Table 4-7 indicates that the projected flow from the System 10 service area under buildout conditions, including flows from proposed Project, is 32.4 mgd. Phase 2 improvements at the 14-MSPS and Phases 1, 2, and 3 improvements to the Westside Interim Force Main provide a conveyance capacity of 33.3 mgd at the 14-MSPS (see Table 4.8) which could accommodate the projected peak buildout flows from the System 10 service area, depending on the extent of surcharging in the Westside Interceptor gravity sewer. Phase 4 improvements provide a complete parallel conveyance system and eliminate projected surcharging. It is suggested that flows be monitored through downstream sewers as the System 10 service area develops to determine the timing and necessity of improvements.

Table 4-2. System 10 Master Plan Revision # 7 -- Existing (Without Project)

Lateral Name	Length, feet	Diamter, inches	Full Pipe Capacity, mgd	Year 2003 Existing ADWF, mgd	Year 2003 to 2005 Incremental ADWF, mgd	ADWF from Approved Projects, mgd	Sanctuary Project ADWF, mgd	Sanctuary Project Area, ac	System 10 Total ADWF, mgd	System 10 Total I/I, mgd	Peaking Factor	System 10 PWWF, mgd	System 1 PWWF, mgd	Total PWWF, mgd	Ratio of PWWF to Full Pipe Capacity	Velocity, fps	Improvements Required (assumes zero growth outside Proposed System 10 Service Area)
Northwest Trunk	281	66	75.0	0.98	0.78	-	-	-	1.8	1.13	2.21	6.4		6.4	0.1		
Northwest Trunk	3951	54	52.8	0.98	0.78	-	-	-	1.8	1.13	2.21	6.4		6.4	0.1		
Northwest Trunk	3034	66	49.6	0.98	0.78	-	-	-	1.8	1.13	2.21	6.4		6.4	0.1		
Northwest Trunk	67	60	41.4	0.98	0.78	-	-	-	1.8	1.13	2.21	6.4		6.4	0.2		
14 Mile Slough Pump Station			–	0.98	0.78	-	-	-	1.8	1.13	2.21	6.4	5.2	11.6			Implement 14-mile Slough Pump Station Phase 1 (14.0 mgd)
Westside Interim FM	184	30	–	0.98	0.78	-	-	-	1.8	1.13	2.21	6.4	5.2	11.6		3.7	
Westside Interim FM	15076	30	–	0.98	0.78	-	-	-	1.8	1.13	2.21	6.4	5.2	11.6		3.7	
Westside Interim FM	4240	42	–	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6		2.8	
Westside Interim FM	10110	36	–	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6		3.9	
Westside Interim FM	5970	30	–	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6		5.5	
Westside Interim FM	536	36	–	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6		3.9	
Westside Interceptor	107	42	31.2	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6	0.6		
Westside Interceptor	323	42	30.1	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6	0.6		
Westside Interceptor	524	42	31.2	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6	0.6		
Westside Interceptor	438	42	36.2	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6	0.5		
Westside Interceptor	499	42	36.5	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6	0.5		
Westside Interceptor	496	42	36.6	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6	0.5		
Westside Interceptor	500	42	36.3	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6	0.5		
Westside Interceptor	496	42	36.3	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6	0.5		
Westside Interceptor	514	42	35.6	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6	0.5		
Westside Interceptor	333	42	37.2	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6	0.5		
Westside Interceptor	217	42	35.3	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6	0.5		
Westside Interceptor	155	42	33.9	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6	0.5		
Westside Interceptor	40	72	585	3.36	0.78	-	-	-	4.1	2.11	1.99	12.4	5.2	17.6	0.0		

Notes:

- ADWF = Average Dry Weather Flow
- PWWF = Peak Wet Weather Flow
- Existing gravity trunks have been identified for improvements (shaded) when the Ratio of Peak Wet Weather Flow to Full Pipe Capacity exceeds 1.0 which implies surcharge
- Existing forcemains have been identified for improvements (shaded) when the velocity exceeds 9.0 feet per second
- Flows from System 1 are assumed to be directed to a point upstream of the 14-mile Slough Pump Station
- Full pipe capacities taken from HDR-Link model (2000).

Table 4-3. System 10 Master Plan Revision # 7 -- Existing + Approved (Without Project)

Lateral Name	Length, feet	Diamter, inches	Full Pipe Capacity, mgd	Year 2003 Existing ADWF, mgd	Year 2003 to 2005 Incremental ADWF, mgd	ADWF from Approved Projects, mgd	Sanctuary Project ADWF, mgd	Sanctuary Project Area, ac	System 10 Total ADWF, mgd	System 10 Total I/I, mgd	Peaking Factor	System 10 PWWF, mgd	System 1 PWWF, mgd	Total PWWF, mgd	Ratio of PWWF to Full Pipe Capacity	Velocity, fps	Improvements Required (assumes zero growth outside Proposed System 10 Service Area)
Northwest Trunk	281	66	75.0	0.98	0.78	2.40	-	-	4.2	1.69	1.99	11.6		11.6	0.2		
Northwest Trunk	3951	54	52.8	0.98	0.78	2.40	-	-	4.2	1.69	1.99	11.6		11.6	0.2		
Northwest Trunk	3034	66	49.6	0.98	0.78	2.40	-	-	4.2	1.69	1.99	11.6		11.6	0.2		
Northwest Trunk	67	60	41.4	0.98	0.78	2.40	-	-	4.2	1.69	1.99	11.6		11.6	0.3		
14 Mile Slough Pump Station	24	18	–	0.98	0.78	2.40	-	-	4.2	1.69	1.99	11.6	5.2	16.8			Implement 14-mile Slough Pump Station to Phase 2 improvements (22.5 mgd)
Westside Interim FM	184	30	–	0.98	0.78	2.40	-	-	4.2	1.69	1.99	11.6	5.2	16.8		5.3	
Westside Interim FM	15076	30	–	0.98	0.78	2.40	-	-	4.2	1.69	1.99	11.6	5.2	16.8		5.3	
Westside Interim FM	4240	42	–	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8		3.7	
Westside Interim FM	10110	36	–	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8		5.0	
Westside Interim FM	5970	30	–	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8		7.2	
Westside Interim FM	536	36	–	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8		5.0	
							-			0.00							
Westside Interceptor	107	42	31.2	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8	0.7		
Westside Interceptor	323	42	30.1	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8	0.8		
Westside Interceptor	524	42	31.2	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8	0.7		
Westside Interceptor	438	42	36.2	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8	0.6		
Westside Interceptor	499	42	36.5	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8	0.6		
Westside Interceptor	496	42	36.6	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8	0.6		
Westside Interceptor	500	42	36.3	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8	0.6		
Westside Interceptor	496	42	36.3	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8	0.6		
Westside Interceptor	514	42	35.6	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8	0.6		
Westside Interceptor	333	42	37.2	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8	0.6		
Westside Interceptor	217	42	35.3	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8	0.6		
Westside Interceptor	155	42	33.9	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8	0.7		
Westside Interceptor	40	72	585	3.51	0.78	2.40	-	-	6.7	2.73	1.87	17.6	5.2	22.8	0.0		

Notes:

- ADWF = Average Dry Weather Flow
- PWWF = Peak Wet Weather Flow
- Existing gravity trunks have been identified for improvements (shaded) when the Ratio of Peak Wet Weather Flow to Full Pipe Capacity exceeds 1.0 which implies surcharge
- Existing forcemains have been identified for improvements (shaded) when the velocity exceeds 9.0 feet per second
- Flows from System 1 are assumed to be directed to a point upstream of the 14-mile Slough Pump Station
- Full pipe capacities taken from HDR-Link model (2000).

Table 4-4. System 10 Master Plan Revision # 7 -- Existing + Approved + Proposed (Without Project)

Lateral Name	Length, feet	Diamter, inches	Full Pipe Capacity, mgd	Year 2003 Existing ADWF, mgd	Year 2003 to 2005 Incremental ADWF, mgd	ADWF from Approved Projects, mgd	ADWF from Proposed Projects, mgd	Sanctuary Project ADWF, mgd	Sanctuary Project Area, ac	System 10 Total ADWF, mgd	System 10 Total I/I, mgd	Peaking Factor	System 10 PWWF, mgd	System 1 PWWF, mgd	Total PWWF, mgd	Ratio of PWWF to Full Pipe Capacity	Velocity, fps	Improvements Required (assumes zero growth outside Proposed System 10 Service Area)
Northwest Trunk	281	66	75.0	0.98	0.78	2.40	4.76	-	-	8.9	2.78	1.81	21.2		21.2	0.3		
Northwest Trunk	3951	54	52.8	0.98	0.78	2.40	4.76	-	-	8.9	2.78	1.81	21.2		21.2	0.4		
Northwest Trunk	3034	66	49.6	0.98	0.78	2.40	4.76	-	-	8.9	2.78	1.81	21.2		21.2	0.4		
Northwest Trunk	67	60	41.4	0.98	0.78	2.40	4.76	-	-	8.9	2.78	1.81	21.2		21.2	0.5		
14 Mile Slough Pump Station			–	0.98	0.78	2.40	4.76	-	-	8.9	2.78	1.81	21.2	5.2	26.4			Implement 14-mile Slough Pump Station Phase 2 improvements. Improvements downstream provide 26.8 mgd capacity.
Westside Interim FM	184	30	–	0.98	0.78	2.40	4.76	-	-	8.9	2.78	1.81	21.2	5.2	26.4		8.3	Implement Phase 1 Pipeline Improvements.*
Westside Interim FM	15076	30	–	0.98	0.78	2.40	4.76	-	-	8.9	2.78	1.81	21.2	5.2	26.4		8.3	Implement Phase 1 Pipeline Improvements.*
Westside Interim FM	4240	42	–	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4		5.2	
Westside Interim FM	10110	36	–	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4		7.1	
Westside Interim FM	5970	30	–	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4		10.2	No improvements recommended.**
Westside Interim FM	536	36	–	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4		7.1	
											0.00							
Westside Interceptor	107	42	31.2	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4	1.0		
Westside Interceptor	323	42	30.1	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4	1.1		No improvements recommended.**
Westside Interceptor	524	42	31.2	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4	1.0		
Westside Interceptor	438	42	36.2	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4	0.9		
Westside Interceptor	499	42	36.5	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4	0.9		
Westside Interceptor	496	42	36.6	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4	0.9		
Westside Interceptor	500	42	36.3	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4	0.9		
Westside Interceptor	496	42	36.3	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4	0.9		
Westside Interceptor	514	42	35.6	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4	0.9		
Westside Interceptor	333	42	37.2	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4	0.9		
Westside Interceptor	217	42	35.3	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4	0.9		
Westside Interceptor	155	42	33.9	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4	1.0		
Westside Interceptor	40	72	585	3.69	0.78	2.40	4.76	-	-	11.6	3.90	1.75	27.2	5.2	32.4	0.1		

Notes:

- ADWF = Average Dry Weather Flow
- PWWF = Peak Wet Weather Flow
- Existing gravity trunks have been identified for improvements (shaded) when the Ratio of Peak Wet Weather Flow to Full Pipe Capacity exceeds 1.0 which implies surcharge
- Existing forcemains have been identified for improvements (shaded) when the velocity exceeds 9.0 feet per second
- Flows from System 1 are assumed to be directed to a point upstream of the 14-mile Slough Pump Station
- Full pipe capacities taken from HDR-Link model (2000).

* - Improvement is necessary to create adequate capacity at 14-MSPS.

** - Improvement is necessary to meet City Standards.

Table 4-5. System 10 Master Plan Revision # 7 -- Existing + Approved + Project

Lateral Name	Length, feet	Diamter, inches	Full Pipe Capacity, mgd	Year 2003 Existing ADWF, mgd	Year 2003 to 2005 Incremental ADWF, mgd	ADWF from Approved Projects, mgd	Sanctuary Project ADWF, mgd	Sanctuary Project Area, ac	System 10 Total ADWF, mgd	System 10 Total I/I, mgd	Peaking Factor	System 10 PWWF, mgd	System 1 PWWF, mgd	Total PWWF, mgd	Ratio of PWWF to Full Pipe Capacity	Velocity, fps	Improvements Required (assumes zero growth outside Proposed System 10 Service Area)
Northwest Trunk	281	66	75.0	0.98	0.78	2.40	0.00		4.2	1.69	1.99	11.6		11.6	0.2		
Northwest Trunk	3951	54	52.8	0.98	0.78	2.40	0.98	538	5.1	1.91	1.93	13.6		13.6	0.3		
Northwest Trunk	3034	66	49.6	0.98	0.78	2.40	2.45	1,344	6.6	2.23	1.87	16.6		16.6	0.3		
Northwest Trunk	67	60	41.4	0.98	0.78	2.40	2.45	1,344	6.6	2.23	1.87	16.6		16.6	0.4		
14 Mile Slough Pump Station			–	0.98	0.78	2.40	2.45	1,344	6.6	2.23	1.87	16.6	5.2	21.8			Implement 14-mile Slough Pump Station to Phase 2 improvements (22.5 mgd)
Westside Interim FM	184	30	–	0.98	0.78	2.40	2.45	1,344	6.6	2.23	1.87	16.6	5.2	21.8		6.9	
Westside Interim FM	15076	30	–	0.98	0.78	2.40	2.45	1,344	6.6	2.23	1.87	16.6	5.2	21.8		6.9	
Westside Interim FM	4240	42	–	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7		4.5	
Westside Interim FM	10110	36	–	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7		6.1	
Westside Interim FM	5970	30	–	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7		8.7	
Westside Interim FM	536	36	–	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7		6.1	
Westside Interceptor	107	42	31.2	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7	0.9		
Westside Interceptor	323	42	30.1	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7	0.9		
Westside Interceptor	524	42	31.2	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7	0.9		
Westside Interceptor	438	42	36.2	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7	0.8		
Westside Interceptor	499	42	36.5	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7	0.8		
Westside Interceptor	496	42	36.6	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7	0.8		
Westside Interceptor	500	42	36.3	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7	0.8		
Westside Interceptor	496	42	36.3	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7	0.8		
Westside Interceptor	514	42	35.6	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7	0.8		
Westside Interceptor	333	42	37.2	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7	0.7		
Westside Interceptor	217	42	35.3	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7	0.8		
Westside Interceptor	155	42	33.9	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7	0.8		
Westside Interceptor	40	72	585	3.59	0.78	2.40	2.45	1,344	9.2	3.30	1.80	22.5	5.2	27.7	0.0		

Notes:

- ADWF = Average Dry Weather Flow
- PWWF = Peak Wet Weather Flow
- Existing gravity trunks have been identified for improvements (shaded) when the Ratio of Peak Wet Weather Flow to Full Pipe Capacity exceeds 1.0 which implies surcharge
- Existing forcemains have been identified for improvements (shaded) when the velocity exceeds 9.0 feet per second
- Flows from System 1 are assumed to be directed to a point upstream of the 14-mile Slough Pump Station
- Full pipe capacities taken from HDR-Link model (2000).

Table 4-6. System 10 Master Plan Revision # 7 -- Existing + Approved + Proposed + Project

Lateral Name	Length, feet	Diamter, inches	Full Pipe Capacity, mgd	Year 2003 Existing ADWF (mgd)	Year 2003 to 2005 Incremental ADWF (mgd)	ADWF from Approved Projects (mgd)	ADWF from Proposed Projects (mgd)	Sanctuary Project ADWF (mgd)	Sanctuary Project Area (ac)	System 10 Total ADWF (mgd)	System 10 Total I/I (mgd)	Peaking Factor	System 10 PWWF (mgd)	System 1 PWWF (mgd)	Total PWWF (mgd)	Ratio of PWWF to Full Pipe Capacity	Velocity (fps)	Improvements Required (assumes zero growth outside Proposed System 10 Service Area)
Northwest Trunk	281	66	75.0	0.98	0.78	2.40	4.76	0.00		8.9	2.78	1.81	21.2		21.2	0.3		
Northwest Trunk	3951	54	52.8	0.98	0.78	2.40	4.76	0.98	538	9.9	3.00	1.78	23.0		23.0	0.4		
Northwest Trunk	3034	66	49.6	0.98	0.78	2.40	4.76	2.45	1,344	11.4	3.32	1.75	25.8		25.8	0.5		
Northwest Trunk	67	60	41.4	0.98	0.78	2.40	4.76	2.45	1,344	11.4	3.32	1.75	25.8		25.8	0.6		
14 Mile Slough Pump Station			–	0.98	0.78	2.40	4.76	2.45	1,344	11.4	3.32	1.75	25.8	5.2	31.0			Implement 14-mile Slough Pump Station Phase 2 improvements. Improvements downstream provide 33.3 mgd capacity.
Westside Interim FM	184	30	–	0.98	0.78	2.40	4.76	2.45	1,344	11.4	3.32	1.75	25.8	5.2	31.0		9.8	Implement Phase 1 Pipeline Improvements.***
Westside Interim FM	15076	30	–	0.98	0.78	2.40	4.76	2.45	1,344	11.4	3.32	1.75	25.8	5.2	31.0		9.8	Implement Phase 1 Pipeline Improvements.***
Westside Interim FM	4240	42	–	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9		5.9	Implement Phase 2 Pipeline Improvements.*
Westside Interim FM	10110	36	–	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9		8.1	
Westside Interim FM	5970	30	–	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9		11.6	Implement Phase 3 Pipeline Improvements.***
Westside Interim FM	536	36	–	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9		8.1	Implement Phase 3 Pipeline Improvements.*
Westside Interceptor	107	42	31.2	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9	1.2		Implement Phase 3 Pipeline Improvements.**
Westside Interceptor	323	42	30.1	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9	1.2		Implement Phase 3 Pipeline Improvements.**
Westside Interceptor	524	42	31.2	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9	1.2		Implement Phase 3 Pipeline Improvements.**
Westside Interceptor	438	42	36.2	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9	1.0		
Westside Interceptor	499	42	36.5	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9	1.0		
Westside Interceptor	496	42	36.6	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9	1.0		
Westside Interceptor	500	42	36.3	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9	1.0		
Westside Interceptor	496	42	36.3	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9	1.0		
Westside Interceptor	514	42	35.6	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9	1.0		
Westside Interceptor	333	42	37.2	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9	1.0		
Westside Interceptor	217	42	35.3	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9	1.0		
Westside Interceptor	155	42	33.9	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9	1.1		No improvements recommended.**
Westside Interceptor	40	72	585	3.74	0.78	2.40	4.76	2.45	1,344	14.1	4.46	1.71	31.7	5.2	36.9	0.1		

Notes:

- ADWF = Average Dry Weather Flow
- PWWF = Peak Wet Weather Flow
- Existing gravity trunks have been identified for improvements (shaded) when the Ratio of Peak Wet Weather Flow to Full Pipe Capacity exceeds 1.0 which implies surcharge
- Existing forcemains have been identified for improvements (shaded) when the velocity exceeds 9.0 feet per second
- Flows from System 1 are assumed to be directed to a point upstream of the 14-mile Slough Pump Station
- Full pipe capacities taken from HDR-Link model (2000).

* - Improvement is necessary to create adequate capacity at 14-MSPS.

** - Improvement is necessary to meet City Standards.

*** - Improvement is necessary to meet City Standards and to create adequate capacity at 14-MSPS.

Table 4-7. System 10 Master Plan Revision # 7 -- Buildout + Project

Lateral Name	Length, feet	Diameter, inches	Full Pipe Capacity, mgd	1990 General Plan Buildout PWWF (mgd)	Sanctuary Project ADWF (mgd)	Sanctuary Project Area (ac)	System 10 Total ADWF (mgd)	System 10 Total I/I (mgd)	Peaking Factor	System 10 PWWF (mgd)	System 1 PWWF (mgd)	Total PWWF (mgd)	Ratio of PWWF to Full Pipe Capacity	Velocity (fps)	Improvements Required (assumes zero growth outside Proposed System 10 Service Area)
Northwest Trunk	281	66	75.0	10.0			10.0	2.68	1.78	22.6		22.6	0.3		
Northwest Trunk	3,951	54	52.8	10.0			10.0	2.68	1.78	22.6		22.6	0.4		
Northwest Trunk	3,034	66	49.6	10.0	2.45	1,344	12.5	3.21	1.73	27.2		27.2	0.5		
Northwest Trunk	67	60	41.4	10.0	2.45	1,344	12.5	3.21	1.73	27.2		27.2	0.7		
14 Mile Slough Pump Station			–	10.0	2.45	1,344	12.5	3.21	1.73	27.2	5.2	32.4			Implement 14-mile Slough Pump Station Phase 2 improvements. Improvements downstream provide 33.3 mgd capacity.
Westside Interim FM	184	30	–	10.0	2.45	1,344	12.5	3.21	1.73	27.2	5.2	32.4		10.2	Implement Phase 1 Pipeline Improvements.***
Westside Interim FM	15,076	30	–	10.0	2.45	1,344	12.5	3.21	1.73	27.2	5.2	32.4		10.2	Implement Phase 1 Pipeline Improvements.***
Westside Interim FM	4,240	42	–	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4		6.2	Implement Phase 2 Pipeline Improvements.*
Westside Interim FM	10,110	36	–	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4		8.4	
Westside Interim FM	5,970	30	–	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4		12.1	Implement Phase 3 Pipeline Improvements.***
Westside Interim FM	536	36	–	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4		8.4	Implement Phase 3 Pipeline Improvements.*
Westside Interceptor	107	42	31.2	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4	1.2		Implement Phase 3 Pipeline Improvements.**
Westside Interceptor	323	42	30.1	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4	1.3		Implement Phase 3 Pipeline Improvements.**
Westside Interceptor	524	42	31.2	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4	1.2		Implement Phase 3 Pipeline Improvements.**
Westside Interceptor	438	42	36.2	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4	1.1		Implement Phase 4 Pipeline Improvements.**
Westside Interceptor	499	42	36.5	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4	1.1		Implement Phase 4 Pipeline Improvements.**
Westside Interceptor	496	42	36.6	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4	1.0		Implement Phase 4 Pipeline Improvements.**
Westside Interceptor	500	42	36.3	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4	1.1		Implement Phase 4 Pipeline Improvements.**
Westside Interceptor	496	42	36.3	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4	1.1		Implement Phase 4 Pipeline Improvements.**
Westside Interceptor	514	42	35.6	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4	1.1		Implement Phase 4 Pipeline Improvements.**
Westside Interceptor	333	42	37.2	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4	1.0		Implement Phase 4 Pipeline Improvements.
Westside Interceptor	217	42	35.3	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4	1.1		Implement Phase 4 Pipeline Improvements.**
Westside Interceptor	155	42	33.9	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4	1.1		Implement Phase 4 Pipeline Improvements.**
Westside Interceptor	40	72	585	12.8	2.45	1,344	15.3	4.36	1.69	33.2	5.2	38.4	0.1		

Notes:

- ADWF = Average Dry Weather Flow
- PWWF = Peak Wet Weather Flow
- Existing gravity trunks have been identified for improvements (shaded) when the Ratio of Peak Wet Weather Flow to Full Pipe Capacity exceeds 1.0 which implies surcharge
- Existing forcemains have been identified for improvements (shaded) when the velocity exceeds 9.0 feet per second
- Flows from System 1 are assumed to be directed to a point upstream of the 14-mile Slough Pump Station
- Full pipe capacities taken from HDR-Link model (2000).

* - Improvement is necessary to create adequate capacity at 14-MSPS.

** - Improvement is necessary to meet City Standards.

*** - Improvement is necessary to meet City Standards and to create adequate capacity at 14-MSPS.

4.3 COLLECTION SYSTEM PHASING

Table 4-8 presents the phasing of the improvements that would be required as the System 10 service area develops to buildout, given the estimated peak flows for existing development in the System 10 service area. Table 4-9 presents the phasing of improvements required as the System 10 service area develops to buildout, given both the estimated peak flows for existing development and projected flows for currently approved development. Both tables present estimates of Dwelling Unit Equivalents (DUEs) of low density residential development that can be accommodated with the implementation of each phase. As noted, it is possible that additional dwelling units beyond those presented in these tables may be accommodated prior to pump station or pipeline improvements depending on actual flows, which will be monitored by the Municipal Utilities Department. For the purposes of the I&I calculation, DUE estimates assume the additional development would be in the form of low density residential uses.

Table 4-8 indicates that after approximately 3,650 additional DUEs have been added to the existing development within the System 10 service, Phase 2 improvements will be required at the 14-MSPS. The baseline flow for this conclusion is 11.6 mgd of peak wet weather flow, representing the theoretical peak flow from existing development as of December 31, 2005. Approximately 17,480 DUEs beyond existing development can be added to the System 10 service area before Phase 1 pipeline improvements are required. The implementation of Phase 3 pipeline improvements for the Westside Interim Force Main and possibly Phase 4 pipeline improvements for the Westside Interceptor (depending on the amount of surcharging) will be required to accommodate the System 10 service area buildout flows.

Table 4-9 indicates that even if all approved development for the System 10 service area were to occur before the Project, Phase 2 improvements at the 14-MSPS would provide downstream conveyance capacity to accommodate an additional 9,360 DUEs within the System 10 service area. The Project comprises 7,070 dwelling units, plus commercial, educational, and recreational uses producing a total projected ADWF of 2.44 mgd. This equates to approximately 8,136 DUEs given the proposed development area of 1,344 acres, and the City Design Standard flow factor of 300 gpd/DU. Therefore the conveyance system capacity downstream of the System 10 service area would be enough to accommodate the Project plus other approved development as identified on Figure 3-1 without improvements other than the additional pumps at the 14-MSPS.

The timing of other proposed development within the System 10 service area, as well as actual flows to the conveyance system, will determine the need for pipeline improvements downstream of the 14-MSPS.

Table 4-8. Capacity Analysis with Phased Improvements - Existing Development Condition[a]

Sequence of Required Improvements	System Capacity at 14-MSPS, mgd	Existing Flow Upstream of 14-MSPS, mgd	Peak Capacity Available for Growth, mgd	Density[b], DUE/ac	Flow Factor, gpd/DU	Total remaining Dwelling Unit Equivalents that can be accommodated
14-mile Slough P.S. - Phase 1	14.0	11.6	2.4	6.09	300	3,650
14-mile Slough P.S. - Phase 2	22.5	11.6	10.9	6.09	300	17,480
Phase 1 Pipeline Improvements						
Westside Interim Force Main - Parallel approximately 15,260 ft of existing 30 inch FM with 30 inch diameter FM	26.8	11.6	15.2	6.09	300	24,890
Phase 2 Pipeline Improvements						
Westside Interim Force Main - Parallel approximately 3,275 ft of existing 36&42 inch FM with 36-inch diameter FM - Connect approximately 1,315 ft of existing parallel 36 inch FM - Connect approximately 350 ft of existing parallel 42 inch FM - Parallel approximately 50 ft of existing 42 inch FM with 42 inch diameter FM	27.5	11.6	15.9	6.09	300	26,120
Phase 3 Pipeline Improvements						
Westside Interim Force Main - Parallel approximately 5,970 ft of existing 30 inch FM with 36-inch diameter FM - Connect approximately 540 ft of existing parallel 36 inch FM *Westside Interceptor* - Parallel approximately 960 ft of existing 42 inch sewer with 36-inch diameter sewer[c]	33.3	11.6	21.7	6.09	300	36,490
Phase 4 Pipeline Improvements						
Westside Interim Force Main - Parallel approximately 8,795 ft of existing 36 inch FM with 36-inch diameter FM *Westside Interceptor* Parallel approximately 3,690 ft of existing 42 inch sewer with 36-inch diameter sewer	37.1	11.6	25.5	6.09	300	43,400

Notes:
(a) City-provided existing development information was used to compute flows for System 10.
(b) A residential land use density of 6.09 DUE/ac was assumed for estimating the future Dwelling Unit Equivalents that can be accommodated based on current land use assumptions for Sanctuary.
(c) Depending on the severity of surcharging, these improvements could be moved to Phase 4.

Table 4-9. Capacity Analysis with Phased Improvements - Existing + Approved Development Conditions[a]

Sequence of Required Improvements	System Capacity at 14-MSPS, mgd	Existing Flow + Approved Flows Upstream of 14-MSPS, mgd	Peak Capacity Available for Growth, mgd	Density[b], DUE/ac	Flow Factor, gpd/DU	Total remaining Dwelling Unit Equivalents that can be accommodated
14-mile Slough P.S. - Phase 1	14.0	16.8	-	6.09	300	-
14-mile Slough P.S. - Phase 2	22.5	16.8	5.7	6.09	300	9,360
Phase 1 Pipeline Improvements						
Westside Interim Force Main - Parallel approximately 15,260 ft of existing 30 inch FM with 30 inch diameter FM	26.8	16.8	10.0	6.09	300	16,780
Phase 2 Pipeline Improvements						
Westside Interim Force Main - Parallel approximately 3,275 ft of existing 36&42 inch FM with 36-inch diameter FM - Connect approximately 1,315 ft of existing parallel 36 inch FM - Connect approximately 350 ft of existing parallel 42 inch FM - Parallel approximately 50 ft of existing 42 inch FM with 42 inch diameter FM	27.5	16.8	10.7	6.09	300	18,000
Phase 3 Pipeline Improvements						
Westside Interim Force Main - Parallel approximately 5,970 ft of existing 30 inch FM with 36-inch diameter FM - Connect approximately 540 ft of existing parallel 36 inch FM *Westside Interceptor* - Parallel approximately 960 ft of existing 42 inch sewer with 36-inch diameter sewer[c]	33.3	16.8	16.5	6.09	300	28,370
Phase 4 Pipeline Improvements						
Westside Interim Force Main - Parallel approximately 8,795 ft of existing 36 inch FM with 36-inch diameter FM *Westside Interceptor* Parallel approximately 3,690 ft of existing 42 inch sewer with 36-inch diameter sewer	37.1	16.8	20.3	6.09	300	35,300

Notes:
(a) City-provided existing and currently-approved development information was used to compute flows for System 10.
(b) A residential land use density of 6.09 DUE/ac was assumed for estimating the future Dwelling Unit Equivalents that can be accommodated based on current land use assumptions for Sanctuary.
(c) Depending on the severity of surcharging, these improvements could be moved to Phase 4.

W EIGHT MILE RD
E EIGHT MILE RD
DAVIS RD
THORNTON RD
RD
66"
54"
66"
54"
66"
Sanctuary Project
Northwest Trunk
W HAMMER LN
14-Mile Slough Pump Station
Diverted Flow from System 1
5
W BENJAMIN HOLT DR
N PERSHING
PACIFIC AV
N EL DORADO ST
PROPOSED 30" FM (PHASE 1)
Westside Interim Force Main
EXIST 30" FM
Flow from System 10 (South)
QUAIL LAKES DR
AV
LN
W MARCH
CONNECT EXISTING PARALLEL 42" FM (PHASE 2)
Diverted Flow from System 2
Brookside Pump Station
EXIST 42" FM
PROPOSED 36" FM (PHASE 2)
W ALPINE AV
CONNECT EXISTING PARALLEL 42" FM (PHASE 2)
EXIST 36" FM
PROPOSED 36" FM (PHASE 4)
Westside Interim Force Main
EXIST 30" FM
W WEBER AV
PROPOSED 36" FM (PHASE 3)
Westside Interceptor
EXIST 42"
EXISTING PARALLEL 36" FM
PROPOSED 36" (PHASE 3)
PROPOSED 36" (PHASE 4)
RWCF
W EIGHTH ST

LEGEND

- Proposed Gravity Sewers
- Proposed Force Mains
- Existing Gravity Sewers
- Existing Force Main
- Sanctuary Project
- System 10
- Streams and other Water Bodies
- Railroad
- Major Streets and Highways

N

0 0.5 1 Miles

Figure 4-1
City of Stockton
Wastewater Collection System 10
Master Plan Revision No. 7
SERVICE AREA AND IMPROVEMENTS REQUIRED AT BUILDOUT

WEST YOST ASSOCIATES
Consulting Engineers

n\c\314\00-06-01\gis\figures\fig4-1upd6_6-20-07.mxd

CHAPTER 5. CONCLUSIONS

WYA completed a hydraulic capacity analysis of the Wastewater Collection System 10 service area, including an expanded area to accommodate the Project. This analysis resulted in the following conclusions:

- Improvements to existing Collection System 10 service area facilities will be required to serve the proposed Project and General Plan buildout of the service area. Improvements for buildout include implementing Phase 2 improvements at the 14-MSPS, and installing extensive parallel pipelines for portions of the Westside Interim Force Main and Westside Interceptor.
- Phase 2 improvements at 14-MSPS will be needed to accommodate current approved development even without flows from the proposed Project.
- The timing of Phase 2 pump station improvements (installation of additional pumps) and downstream pipeline improvements is subject to verification of flows through flow metering at the 14-MSPS.
- Major pipeline improvements are needed to accommodate development currently identified as "Proposed Projects" by the City within the System 10 service area, with or without the Project.
- Flow from the Project does not change the size of future system improvements required to accommodate the System 10 service area flows at buildout.

Chapter 3

Comments on Draft EIR and Responses to Comments

Introduction

As described in Chapter 1, the draft EIR (DEIR) was circulated for review and comment by the public, other interested parties, agencies that commented on the initial study (IS) and notice of preparation (NOP) of the EIR, and surrounding jurisdictions. A large number of comment letters on the DEIR were received from individuals and agencies. The letters received are listed in Table 3-1. Copies of the letters and transcripts of verbal comments, with all individual comments indicated, are provided in this chapter.

As stated in State CEQA Guidelines Sections 15088(a) and 15088(b), comments that raise environmental issues must be provided with responses. This chapter contains all the comments received on the DEIR and the City's responses to these comments. Reasoned, factual responses have been provided to all comments received, focusing specifically on the environmental issues raised. In general, the responses provide explanation or amplification of information contained in the DEIR.

Comments that are outside the scope of CEQA review will be forwarded to the decision-makers for consideration as part of the project approval process. These comments are answered with a general response.

The comment letters and comments within each letter are numbered consecutively. For example, Letter 1 is the first letter, and Comment 1-1 is the first comment in Letter 1. Revisions made to the DEIR in response to comments are identified as text to be deleted (~~strikethrough~~) and text to be added (underline). All text changes are indicated in Chapter 2.

Table 3-1. Comment Letters Received on Draft EIR

Letter	Date	Commenter
1	July 23, 2007	Heidi R. Miller, Realty Specialist, United States Department of Energy, Western Area Power Administration
2	July 20, 2007	Wayne Hose, Chief of Police, City of Stockton Police Department
3	July 24, 2007	Christopher Huitt, Staff Environmental Scientist, Floodway Protection Section, California Department of Water Resources
4	August 9, 2007	Donna Herran, Director, San Joaquin County Environmental Health Department
5	August 16, 2007	Timothy R. O'Brien, Waste Discharge to Land Unit, California Regional Water Quality Control Board
6	August 23, 2007	David Warner, Director of Permits Services (for Arnaud Marjollet, Permit Services Manager), San Joaquin Valley Air Pollution Control District
7	August 23, 2007	Dennis J. O'Bryant, Program Manager, California Department of Conservation
8	August 24, 2007	Morris L. Allen, P.E., Consulting Civil Engineer for Morada Area Association
9	August 24, 2007	William Van Amber Fields, Morada Area Association and Morada Municipal Advisory Council
10	August 27, 2007	Dan Brewer (for Tom Dumas, Chief), Office of Intermodal Planning, California Department of Transportation
11	August 27, 2007	Erin Sickler, San Joaquin Council of Governments, Inc.
12	August 27, 2007	Eric Parfrey, Executive Committee, Sierra Club, Mother Lode Chapter
13	August 31, 2007	Natalie Rencher, Director of Library Services, Stockton-San Joaquin County Public Library
14	September 11, 2007	Mark Hopkins, Environmental Coordinator, San Joaquin County Public Works Department

Letter 1

Department of Energy
Western Area Power Administration
Sierra Nevada Customer Service Region
114 Parkshore Drive
Folsom, California 95630-4710

JUL 20 2007

Mr. Michael M. Niblock
Director
City of Stockton
Community Development Department
Planning Division
345 North El Dorado Street
Stockton, CA 95202

Dear Mr. Niblock:

Thank you for the opportunity to comment on the Draft Environmental Impact Report for the Sanctuary Master Development Plan Project (DEIR5-05). The United States Department of Energy, Western Area Power Administration (Western) does not have any objections to the proposed Project where it crosses Western's Hurley-Tracy Number 1 and Number 2, 230-kilovolt transmission line easements, but Western will need to review and approve any future infrastructure improvements and local development projects. The developers will need to submit project specific improvement plans to Western for review and approval and for the issuance of a License Agreement prior to construction. 1-1

Enclosed is a copy of Western's General Guidelines for the use of the easement area. If you have any questions, please contact Susan Sinclair at (916) 353-4600.

Sincerely,

Heidi R. Miller
Realty Specialist

Enclosure

WESTERN AREA POWER ADMINISTRATION
GENERAL GUIDELINES CONCERNING THE USE OF
ELECTRIC TRANSMISSION LINE RIGHTS-OF-WAY

RE: Hurley-Tracy No. 1 and No. 2 230-kV Transmission Line

Western Area Power Administration (Western) owns two 125-foot easements along the length of the referenced transmission lines. Western's rights within the easement include the right to construct, reconstruct, operate, maintain, and patrol the transmission line.

Rights usually reserved to the landowner include the right to cultivate, occupy, and use the land for any purpose that does not conflict with Western's use of its easement. To avoid potential conflicts, it is Western's policy to review all proposed uses within the transmission line easement. We consider (1) Safety of the public, (2) Safety of our Employees, (3) Restrictions covered in the easement, (4) Western's maintenance requirements, and (5) Protection of the transmission line structures and (6) Road or street crossings.

The outline below lists the considerations covered in the review. Please note that some items may overlap. This outline has been prepared only as a guide; each right-of-way encroachment is evaluated on an individual basis.

1. Safety Of The Public

   A. Approval depends, to a large extent, on the type and purpose of the development. Western takes our obligation to public safety very seriously. To insure our obligation, any use of the easement that will endanger the public will not be allowed or strongly discouraged (e.g., kite flying is prohibited).

   B. Metal fences must be grounded in accordance with applicable safety codes.

   C. Lighting standards shall not exceed a maximum height of 15 feet and not placed directly under the conductors. All lighting standards must be grounded.

   D. All vegetation on the easement shall not exceed a maximum height of 12 feet at maturity.

   E. Structures are not allowed on the easement. Structures include, but are not limited to, buildings, sheds, swimming pools, basketball courts, tennis courts, gazebos, etc.

   F. No ground elevation changes are allowed which would reduce the ground to conductor clearance below 30 feet.

2. Safety Of Our Employees

   Vegetation and encroachments into our right-of-way requires our crews to take action, which places them at risk. Therefore, any vegetation or encroachments that present a risk to our employees will not be allowed.

3. Restrictions Covered In The Easement

   The easement prohibits the following: (1) any use that will interfere with or damage the equipment of the United States, (2) digging or drilling of a well, (3) erecting buildings or structures, (4) placing or piling up material within the easement boundaries. The easement gives Western the right to remove trees, brush or other objects interfering with the safe operation and maintenance of the line.

4. Maintenance Requirements

   A. Berms shall not be placed next to the base of the transmission line tower.

   B. Any proposed improvements to the easement (including grading, parking lot, lighting, landscaping, fences, etc.), must be reviewed by Western to assure that they will not interfere with the safe operation and maintenance of the transmission line.

   C. A 14-foot gate is required in any fences that cut off access along our easement.

   D. Thirty (30) feet of unobstructed access is to be maintained around towers.

5. Protection Of The Transmission Line Structure (Towers, Guy Wires, etc.)

   A. If the proposed use increases the possibility of a motor vehicle hitting the transmission line structure, an appropriate guard rail shall be installed to protect the structure (e.g., parking lots or roads).

   B. Trench digging, which would weaken or damage the structure, is prohibited.

   C. No ground elevation changes are allowed within 20 feet of the structure, and in no case shall the conductor to ground clearance be reduced below code limitation.

6. Roads Or Street Crossings

   Western's policy is to have roads or streets cross the easement at right angles, or as nearly at right angles as possible, so that a minimum area of the road or street lies within the transmission line easement.

Requests for permission to use the transmission line right-of-way should be submitted to: Western Area Power Administration, Sierra Nevada Regional Office, Attn: Realty Officer, 114 Parkshore Drive, Folsom, CA 95630.

Responses to Comment Letter 1—Heidi R. Miller, Realty Specialist, United States Department of Energy, Western Area Power Administration

Response to Comment 1-1

The commenter notes that the Western Area Power Administration (Western) does not have any objections to the Project where it crosses Western's easements, but that Western will need to review and approve future infrastructure improvements and local development projects. The commenter describes the process for such review and approval and provides guidelines for development within the easements.

Letter 2

MEMORANDUM

July 20, 2007

TO: Michael M. Niblock, Director, Community Development Department

ATTN: David Stagnaro, AICP, Planning Manager

FROM: Wayne Hose, Chief of Police

SUBJECT: **PUBLIC REVIEW OF THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE SANCTUARY MASTER DEVELOPMENT PLAN PROJECT (DEIR5-05)**

The Police Department has reviewed the above-referenced document concerning the proposed development of approximately 1,728 acres of a 1,967-acre site known as Shima Tract. The project proposes a maximum of 7,070 residential dwelling units, up to 208,000 square feet of retail commercial development, a maximum of 484,000 square feet of office development, a new high school, three new K-8 schools, 10 acres for religious facilities, a privately-owned marina, and also includes greenways, lakes, and pocket parks. The Police Department has no additional comments other than those provided to you in the memorandums dated October 12, 2006, and August 1, 2005 (copies attached). 2-1

WAYNE HOSE
CHIEF OF POLICE

WH/BM/pkh

Attachments

COPY

MEMORANDUM

October 12, 2006

TO: Christine Tien, Interim Director of Community Development Department

ATTN: Senior Planner, David Stagnaro

FROM: Wayne Hose, Chief of Police

SUBJECT: **ADMINISTRATIVE DRAFT OF THE ENVIRONMENTAL IMPACT REPORT (VOLUMES I & II), AND SECOND ADMINISTRATIVE DRAFT OF THE MASTER DEVELOPMENT PLAN FOR THE SANCTUARY PROJECT (EIR5-05/MDP1-05)**

The Police Department has reviewed the above-referenced documents concerning the proposed development of approximately 1,900 acres consisting of 555 residential townhomes or condominiums, 51 apartment units, 1,310 single-family units, 483,984 square feet of general office space, 156,000 square feet of shopping center areas, 17,000 square feet of restaurants, 100 hotel rooms, and a K-8 school located west of Interstate 5, south of Spanos Park West, and north of Lincoln Village West. The Police Department has the following comments:

"The Police Department is not opposed to "The Sanctuary" project. However, there are some general concerns regarding the impact to Police services as a result of widespread development throughout Stockton. While developer fees (public facility fees) may help offset the cost to construct new Police stations someday, such fees are not available to fund the more immediate expense of additional personnel; sworn and civilian staff needed to serve a rapidly growing population in Stockton.

Rapid growth throughout the Stockton metropolitan area has stretched thin our already limited resources (personnel). Specifically, the initial phase of this project will open an area of Stockton, not previously developed, and as such, traffic circulation will be congested resulting in limited access to the project area for several years. This limitation may lead to delayed response times to calls for Police services in the project area."

WAYNE HOSE
CHIEF OF POLICE

WH/BM/pkh

COPY

MEMORANDUM

August 1, 2005

TO: James E. Glaser, Director, Community Development Department

ATTN: David Stagnaro, Senior Planner

FROM: Mark W. Herder, Chief of Police

SUBJECT: **INITIAL STUDY (EIR5-05) AND MASTER DEVELOPMENT PLAN (MDP1-05) FOR THE SANCTUARY PROJECT (SHIMA TRACT)**

The Police Department has reviewed the above-referenced document concerning the proposed Sanctuary development located on what is currently known as Shima Tract, a 1,839-acre parcel of land bounded on the north by Bear Creek, Mosher Slough, and Disappointment Slough; on the west by Fourteen Mile Slough; on the east by Interstate 5; and the south by Fourteen Mile Slough and Five Mile Slough. The Police Department has the following comments concerning security:

- A licensed, uniformed security guard must be present during the evening hours on weekdays (Monday through Friday), and 24 hours per day on weekends and holidays, when the developer is not on site.
- The entire area must be fenced and inaccessible to the public after hours, and on weekends and holidays until residents begin occupying the new homes. The fence should be well maintained as needed during the project.
- The entire area must be well lighted throughout the night, every night, so as to clearly illuminate the majority of the lots and the entire street within the project area.
- For residential developments, appliances, such as stoves, microwaves, refrigerators, etc., should not be installed until the day a new owner completes the final walkthrough of the residence. If installed earlier, the residence must remain securely locked after hours and on weekends/holidays. Cabinetry and other valuable items should be kept offsite prior to installation. Once installed, the residence must be securely locked.

MARK W. HERDER
CHIEF OF POLICE

MWH/BM/pkh

Responses to Comment Letter 2—Wayne Hose, Chief of Police, City of Stockton Police Department

Response to Comment 2-1

The chief of police attaches to his letter comments on the administrative DEIR and on the IS (in response to the NOP for the EIR circulated in February and March 2006). The comments on the administrative DEIR are reflected in the fourth paragraph on page 3.13-27 of the DEIR. The comments on the NOP are proposed conditions of approval for permits related to construction and will be considered by the City at the time of issuance of such permits.

The commenter indicates that the City police will require more staff to deliver services to the Project. Because the commenter does not set out any direct or indirect physical environmental impacts arising from the need for additional staffing, this issue does not need to be addressed in the EIR. (See generally *Goleta Union School District v. Regents of University of California* [1995] 37 Cal.App.4th 1025—impacts associated with overcrowding of a school caused by a project do not need to be addressed in an EIR unless there is a physical impact caused by the overcrowding).

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 3

July 24, 2007

3 200

David Stagnaro, AICP
City of Stockton
345 North El Dorado Street
Stockton, California 95202

Sanctuary Island Master Development Plan Project
State Clearinghouse (SCH) Number: 2006022028

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. 3-1

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.

Responses to Comment Letter 3—Christopher Huitt, Staff Environmental Scientist, Floodway Protection Section, California Department of Water Resources

Response to Comment 3-1

The California Department of Water Resources (DWR) presents the permitting requirements for projects located in an area encroaching on the State Adopted Plan of Flood Control. Flooding and areas subject to flooding related to the Project are addressed in Section 3.8 of the DEIR.

The Project does not encroach on any area identified by the state legislature or the Reclamation Board as a "designated floodway," and the Project will not encroach on the State Adopted Plan of Flood Control. Thus, no Reclamation Board permit is required. Nonetheless, the proposed levee system will meet or exceed federal and state design criteria for urban-standard levees.

Letter 4

San Joaquin County
Environmental Health Department
600 East Main Street
Stockton, California 95202-3029

Website: www.sjgov.org/ehd
Phone: (209) 468-3420
Fax: (209) 464-0138

DIRECTOR
Donna Heran, REHS
ASSISTANT DIRECTOR
Laurie Cotulla, REHS
PROGRAM COORDINATORS
Carl Borgman, REHS
Mike Huggins, REHS, RDI
Margaret Lagorio, REHS
Robert McClellon, REHS
Jeff Carruesco, REHS, RDI
Kasey Foley, REHS

August 9, 2007

David Stagnaro, AICP, Planning Manager
City of Stockton Community Development Department
Planning Division
345 North El Dorado Street
Stockton, California 95202

RE: PUBLIC REVIEW OF THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE SANCTUARY MATER DEVELOPMENT PLAN PROJECT (DEIR 5-05)

The San Joaquin County Environmental Health Department (EHD) has the following comments on this project:

1) The existing home is being served by an onsite sewage disposal system and individual wells for domestic and irrigation purposes. The Environmental Health Department recommends that as a part of developing these properties, all existing wells and septic systems shall be destroyed under permit and inspection with the Environmental Health Department. 4-1

Should you have any questions, please call Rod Estrada, Lead Senior R.E.H.S. of my staff at (209) 468-0331.

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

Rod Estrada for

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

MH: tl

Responses to Comment Letter 4—Donna Herran, Director, San Joaquin County Environmental Health Department

Response to Comment 4-1

The director of the San Joaquin County Environmental Health Department recommends that the existing on-site sewage disposal systems and individual wells be destroyed under permit and inspection of the Environmental Health Department. The closure of these systems is a necessary part of the Sanctuary Master Development Plan (SMDP) and will be a condition of approval. Closures will adhere to permit conditions set by the Environmental Health Department and be subject to the department's inspections.

California Regional Water Quality Control Board
Central Valley Region
Karl E. Longley, ScD, P.E., Chair

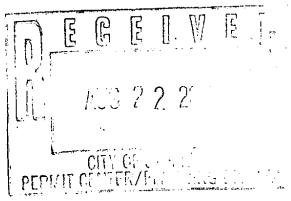
Linda Adams
Secretary for Environmental Protection

Sacramento Main Office
11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
http://www.waterboards.ca.gov/centralvalley

Arnold Schwarzenegger
Governor

Letter 5

16 August 2007



David Stagnaro
City of Stockton, Community Development
Planning Division
345 N. El Dorado Street
Stockton, CA 95202

DRAFT ENVIRONMENTAL IMPACT REPORT, THE SANCTUARY MASTER DEVELOPMENT PLAN, SCH NO. 2006022028, STOCKTON, SAN JOAQUIN COUNTY

I have reviewed the Draft Environmental Impact Report (DEIR) for The Sanctuary Master Plan Development which was distributed by the State Clearinghouse. The document describes plans to develop 1,750 acres with 7,070 dwellings, 483,984 square feet of office space, 208,272 square feet of retail space, up to 200 hotel rooms, 3 lakes, a privately owned marina, 2 religious facilities, recreational open space, 4 schools, orchards, and a small winery. Construction will occur in phases based on market conditions. Regional Water Board staff offers the following comments.

Waste Discharge Requirements
The DEIR states wastewater will be discharged to the Stockton Regional Wastewater Control Facility. Therefore, Waste Discharge Requirements (WDRs) for wastewater treatment and disposal are not required. 5-1

Construction Stormwater Permit
A National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activities, Order No. 99-28-DWQ is required when a project involves clearing, grading, disturbances to the ground, such as stockpiling, or excavation. Currently, construction activity that involves soil disturbances on construction sites one acre or greater or which are part of a larger common plan of development or sale require a construction storm water permit. 5-2

Because construction associated with the project will disturb more than one acre, the property owner needs to obtain permit coverage under the Order No. 99-28-DWQ for Discharges of Storm Water Associated With Construction Activity. Before construction begins, the proponent must submit a Notice of Intent (NOI) to comply with the permit to the State Water Resources Control Board and a Stormwater Pollution Prevention Plan (SWPPP) must be prepared.

Water Quality Certification - Wetlands
If a U.S. Army Corp of Engineers (ACOE) permit is required due to the disturbance of wetlands, then Water Quality Certification must be obtained from the Regional Board prior to 5-3

David Stagnaro - 2 - 16 August 2007

initiation of project activities. Section 401 of the federal Clean Water Act requires that the project proponent for any project that impacts surface waters of the United States (such as streams and wetlands) must request a 401 Water Quality Certification from the Regional Board. Water Quality Certification must be obtained prior to initiation of project activities. The proponent must follow the ACOE 404(b)(1) Guidance to assure approval of their 401 Water Quality Certification application. The guidelines are as follows:

1. Avoidance (Is the project the least environmentally damaging *practicable* alternative?)
2. Minimization (Does the project minimize any adverse effects to the impacted wetlands?)
3. Mitigation (Does the project mitigate to assure a no net loss of functional values?)

5-3 Cont.

Section 404 Permit

If the project will involve the discharge of dredged or fill material into navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the US Army Corps of Engineers. If a Section 404 permit is required by the Corps, the Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If a Section 404 permit is required, the proponent must apply to the Regional Board for a Water Quality Certification under Section 401.

5-4

Dewatering Permit

If the project will involve dewatering, coverage under the Waiver of RWD for Specific Discharges in the Central Valley Region (R5-2003-0008) available at: *http://www.waterboards.ca.gov/centralvalley/adopted_orders/Waivers/R5-2003-0008.pdf* or the General Order for Dewatering and Other Low Threat Discharges to Surface Waters Permit, Order No. 5-00-175 (NPDES CAG995001) available at: *http://www.waterboards.ca.gov/centralvalley/adopted_orders/GeneralOrders/5-00-175.pdf* will be required.

5-5

If you have any questions about the storm water program, please call Dani Berchtold at (916) 464-4683. Additional information is available via the Internet at the Regional Board's Storm Water website *http://www.swrcb.ca.gov/stormwtr/index.html*. For more information on Section 404 Permits contact the Sacramento District of the Corps of Engineers at (916) 557-5250 or Patrick Gillum with the Regional Board at (916) 464-4709. If you have any questions about dewatering, please telephone Mike Negrete (916) 464-4662; if you have questions on land discharge call me at (916) 464-4616.

TIMOTHY R. O'BRIEN
Waste Discharge to Land Unit

cc: State Clearinghouse, Sacramento
Mike Huggins, San Joaquin County Environmental Health Department, Stockton

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Responses to Comment Letter 5—Timothy R. O'Brien, Waste Discharge to Land Unit, California Regional Water Quality Control Board

Response to Comment 5-1

The commenter states that waste discharge requirements (WDRs) will not be required. No response to this comment is required.

Response to Comment 5-2

The commenter describes the process for obtaining a permit under the National Pollutant Discharge Elimination System (NPDES). NPDES permitting is described in Section 3.8 of the DEIR.

Response to Comment 5-3

The commenter describes the process for obtaining a Clean Water Act (CWA) Section 401 Water Quality Certification as a part of the U.S. Army Corps of Engineers (ACOE) permit. The DEIR (pages 3.4-26, 3.4-43, and 3.4-44) describes the need to obtain a Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB), and identifies the Project's effects on wetlands and measures to avoid, minimize, and mitigate those effects. The DEIR also includes Mitigation Measure BIO-3c, which ensures no net loss of wetland habitat functions and values. Section 3.8 addresses the Project's potential effects and other measures associated with water quality. An application for Section 401 Water Quality Certification was submitted by the Project proponent in November 2006.

Response to Comment 5-4

Please see Response to Comment 5-3. A permit pursuant to CWA Section 404 will be required, as will a Section 401 Water Quality Certification from the Central Valley RWQCB. As described in the DEIR (page 3.4-45), the Project proponent will be required to obtain a Streambed Alteration Agreement from the California Department of Fish and Game.

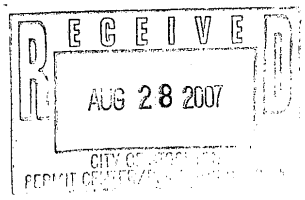
Response to Comment 5-5

The commenter identifies the location for information on permitting for dewatering. Permitting for dewatering is discussed on pages 3.8-7, 3.8-8, and 3.8-27 of the DEIR.

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

Letter 6

August 23, 2007



David Stagnaro
City of Stockton
Community Development Department
345 North El Dorado Street
Stockton, CA 95202

Project: The Sanctuary Master Development Plan

Subject: CEQA comments regarding the Draft Environmental Impact Report for The Sanctuary Master Development Plan

District Reference No: 200701222

Dear Mr. Stagnaro:

The San Joaquin Valley Air Pollution Control District (District) has reviewed the project referenced above and concurs with the findings in the Air Quality section of the Draft Environmental Impact Report. The District expects that this project will have a significant and unavoidable impact on air quality. 6-1

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 Jon Klassen at (559) 230-5843 and provide the reference number at the top of this letter.

Sincerely,

David Warner
Director of Permits Services

for

Arnaud Marjollet
Permit Services Manager

DW: jk

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061
www.valleyair.org

Southern Region
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
Tel: (661) 326-6900 FAX: (661) 326-6985

Responses to Comment Letter 6—David Warner, Director of Permits Services (for Arnaud Marjollet, Permit Services Manager), San Joaquin Valley Air Pollution Control District

Response to Comment 6-1

The commenter expresses the San Joaquin Valley Air Pollution Control District's (SJVAPCD's) concurrence with the findings of the EIR related to air quality.

STATE OF CALIFORNIA, RESOURCES AGENCY ARNOLD SCHWARZENEGGER, GOVERNOR

DEPARTMENT OF CONSERVATION

DIVISION OF LAND RESOURCE PROTECTION **Letter 7**

801 K STREET • MS 18-01 • SACRAMENTO, CALIFORNIA 95814

PHONE 916 / 324-0850 • **FAX** 916 / 327-3430 • **TDD** 916 / 324-2555 • **WEBSITE** conservation.ca.gov

August 23, 2007

VIA FACSIMILE (209) 937-8893
Michael Niblock, Director
City of Stockton
c/o Community Development Department
Planning Division
345 North El Dorado Street
Stockton, CA 95202

Subject: DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE SANCTUARY MASTER DEVELOPMENT PLAN (San Joaquin County)
SCH# 2006022028

Dear Mr. Niblock:

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the Draft EIR (DEIR) for the referenced project. The Division monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. We offer the following comments and recommendations with respect to the project's impacts on agricultural land and resources.

Project Description

The Sanctuary Master Plan (Plan) DEIR addresses a mixed-used community development of approximately 1,728 acres. The project site is located on the 1,967-acre Shima Tract, which is generally located south of Disappointment Slough and Mosher Slough, west of Interstate 5, north of Fourteen Mile Slough and Five Mile Slough, and east of Fourteen Mile Slough. Currently, the entire project site is being used for active agriculture. The majority of the project site is classified as Prime Farmland or Farmland of Statewide Importance. The parcels that make up the project site (APNs 071-130-07, -08, -10, -11 & -12 and APNs 071-180-09 & -10) are all under Williamson Act contracts. All of these contracts are currently under nonrenewal status and will expire on March 1, 2013. The contracts that contain the eastern half of the project site were protested pursuant to Government Code Section 51243.5. It is expected that the City of Stockton (City) will exercise its option not to succeed to these contracts. 7-1

The DEIR notes that the proposed project will have a significant and unavoidable impact on agricultural resources, as the project will convert all 1,728 acres of the site's Prime 7-2

The Department of Conservation's mission is to protect Californians and their environment by: Protecting lives and property from earthquakes and landslides; Ensuring safe mining and oil and gas drilling; Conserving California's farmland; and Saving energy and resources through recycling.

Farmland and Farmland of Statewide Importance to non-agricultural uses. Therefore, the Division recommends that the Final EIR (FEIR) address the following items to provide a comprehensive discussion of potential impacts of the project on agricultural land and activities. 7-2 Cont. 7-3

Agricultural Setting of the Project

- Current and past agricultural use of the project area. Please include data on the types of crops grown, and crop yields and farm gate sales values. 7-4

To help describe the full agricultural resource value of the soils on the site, the Department recommends the use of economic multipliers to assess the total contribution of the site's potential or actual agricultural production to the local, regional and state economies. Two sources of economic multipliers can be found at the University of California Cooperative Extension Service and the United States Department of Agriculture (USDA). 7-5

Mitigation Measures

The loss of agricultural land represents a permanent reduction in the State's agricultural land resources. The DEIR notes that the City has recently adopted an Agricultural Land Mitigation Program for mitigation of the loss of agricultural land through conversion to private uses. The program requires that, for projects of 40 acres or more, the proponent must provide in-kind, direct purchase/acquisition of an agricultural mitigation easement at a 1:1 ratio and dedicate it to a qualifying entity. The Department recommends that this ratio of conservation/agricultural mitigation easements to lost agricultural land be increased if a Williamson Act contract is terminated, or if growth inducing or cumulative agricultural impacts are involved. Conservation easements will protect a portion of those remaining land resources and lessen project impacts in accordance with CEQA Guideline §15370. The Department highlights this measure because of its acceptance and use by lead agencies as an appropriate mitigation measure under CEQA and because it follows an established rationale similar to that of wildlife habitat mitigation. 7-6 7-7 7-8 7-9

Mitigation via agricultural conservation easements can be implemented by at least two alternative approaches: the outright purchase of easements or the donation of mitigation fees to a local, regional or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural conservation easements. The conversion of agricultural land should be deemed an impact of at least regional significance. Hence the search for replacement lands should be conducted regionally or statewide, and not limited strictly to lands within the project's surrounding area. 7-10

Other forms of mitigation may be appropriate for this project, including: 7-11

- Protecting farmland in the project area or elsewhere in the County through the use of less than permanent long-term restrictions on use such as 20-year Farmland Security Zone contracts (Government Code Section 51296 et seq.) or 10-year Williamson Act contracts (Government Code Section 51200 et seq.).
- Directing a mitigation fee to invest in supporting the commercial viability of the remaining agricultural land in the project area, County or region through a mitigation bank that invests in agricultural infrastructure, water supplies, marketing, etc.

7-11 Cont.

The Department also has available a listing of approximately 30 "conservation tools" that have been used to conserve or mitigate project impacts on agricultural land. This compilation report may be requested from the Division at the address or phone number below. General information about agricultural conservation easements, the Williamson Act, and provisions noted above is available on the Department's website, or by contacting the Division at the address and phone number listed below. The Division's website address is:

http://www.conservation.ca.gov/dlrp/index.htm

Of course, the use of conservation easements is only one form of mitigation that should be considered. Any other feasible mitigation measures should also be considered.

7-12

Williamson Act Lands

Under California Code of Regulations Section 15206(b)(3), a project is deemed to be of statewide, regional or area-wide significance if it will result in cancellation of a Williamson Act contract for a parcel of 100 or more acres. Since lands under Williamson Act contracts and/or in agricultural preserves exist in the project area, the Department recommends that the following information be discussed in the FEIR:

- As a general rule, immediate termination via cancellation is reserved for "extraordinary circumstances" (See Sierra Club v. City of Hayward (1981) 28 Cal.3d 840, 852-855). Under Government Code section 51282, the city or county must approve a request for cancellation and base that approval on specific findings that are supported by substantial evidence. When cancellation is proposed, the Department recommends that a discussion of the findings be included in the FEIR. Finally, a notice of the hearing to approve the tentative cancellation and a copy of the landowner's petition must be mailed to the Director of the Department ten working days prior to the hearing. (The notice should be mailed to Bridgett Luther, Director, Department of Conservation, c/o Division of Land Resource Protection, 801 K Street MS 18-01, Sacramento, CA 95814-3528.)
- Under Government Code Section 51243, if a city annexes land under a Williamson Act contract, the city must succeed to all rights, duties, and powers of the county under the contract. However, under Section 51243.5, a city may exercise its option not to succeed to the contract if certain conditions are met. Please note that under

7-13

Section 51243.5 (f), "It shall be conclusively presumed that no protest was filed by the city unless there is a record of the filing of the protest and the protest identifies the affected contract and the subject parcel. It shall be conclusively presumed that required notice was given before the execution of the contract" (emphasis added). Additionally, LAFCO must notify the Department within 10 days of a city's proposal to annex land under a contract (Section 56753.5). LAFCO must not approve a change to a sphere of influence or annexation of contracted land to a city unless certain conditions are met (see Government Code Sections 51296.3, 56426, 56426.5, 56749 and 56856.5). 7-13 Cont.

- An agricultural preserve is a zone authorized by the Williamson Act and established by the local government to designate qualified land to be placed under the Williamson Act's 10-year contracts. Preserves are also intended to create a setting for contract-protected lands that is conducive to continuing agricultural use. Under Government Code Section 51230, "An agricultural preserve may contain land other than agricultural land, but the use of any land within the preserve and not under contract shall within two years of the effective date of any contract on land within the preserve be restricted by zoning, including appropriate minimum parcel sizes that are at a minimum consistent with this chapter, in such a way as not to be incompatible with the agricultural use of the land." Therefore, the FEIR should also discuss any proposed general plan designation or zoning within agricultural preserves affected by the project. 7-14

Thank you for giving us the opportunity to comment on this DEIR. If you have questions regarding our comments, or require technical assistance or information on agricultural land conservation, please contact Elliott Lum, Environmental Planner, at 801 K Street, MS 18-01, Sacramento, CA 95814; or, phone (916) 324-0869.

Sincerely,

Dennis J. O'Bryant
Program Manager

cc: State Clearinghouse

San Joaquin County Resource Conservation District
3422 W. Hammer Lane, Suite A
Stockton, CA 95219

Responses to Comment Letter 7—Dennis J. O'Bryant, Program Manager, California Department of Conservation

Response to Comment 7-1

The commenter summarizes the status of Williamson Act issues related to the Project. To clarify, not all of the land within the Project area is currently under a Williamson Act contract. For example, portions of Assessor's Parcel Numbers (APNs) 071-130-12 and 017-180-10 are not under a Williamson Act contract (see Figure 3.2-2 of the DEIR). Please also see Response to Comment 7-13 concerning the status of Williamson Act contracts within the Project area.

Response to Comment 7-2

The commenter summarizes the findings of the EIR relative to impacts related to farmland conversion.

Response to Comment 7-3

The commenter identifies data the commenter believes should be included in the EIR. Please see Response to Comments 7-4 and 7-5.

Response to Comment 7-4

Information on the existing agricultural use of the Project site is found on pages 3.2-2 and 3.2-3 of the DEIR. Please also see Response to Comment 7-5.

Response to Comment 7-5

The comment recommends the use of economic multipliers to help describe the full agricultural resource value of the soils on the site. Under CEQA, "economic and social effects shall not be treated as significant effects on the environment" (State CEQA Guidelines Section 15131). Economic effects may be relevant if those effects result in physical changes in the environment (Id.). However, the focus of the analysis should be on the physical changes and whether those physical changes will result in a significant impact on the environment, not on the economic effect itself.

Here, any physical changes caused by the conversion of agricultural land to urban uses are already detailed in the existing EIR chapters. Moreover, the lands on-site have already been classified as Prime Farmland and Farmland of Statewide Importance based on the soils meeting certain physical and chemical characteristics. None of the high economic value crops associated with the designation of "Unique Farmland," including oranges, olives, avocado, rice, grapes or cut flowers, is grown on the project site. Conversion of this land to urban uses has already been identified as a significant and unavoidable impact of the Project in Impact AG-1. No further economic information would aid in evaluating the Project's significant impact on agricultural resources.

Response to Comment 7-6

The commenter notes, as does the DEIR, that the loss of agricultural land represents a permanent reduction in the state's agricultural land resources.

Response to Comment 7-7

The commenter summarizes the City's current Agricultural Land Mitigation Program. The Project will participate in the program.

Response to Comment 7-8

The commenter expresses the opinion that the ratio of conservation/agricultural mitigation easements to lost agricultural land be increased in specific situations. The SMDP has already been designed and will be phased to minimize, to the maximum extent practicable, conversion of lands subject to active Williamson Act contracts. Of the marginal acreage subject to Williamson Act contracts that must be devoted to the levee improvements—and for all converted agricultural lands— the Project will provide in-kind, direct purchase or acquisition of agricultural mitigation easements in compliance with the City's Agricultural Land Mitigation Program. The City has deemed a 1:1 mitigation ratio adequate for agricultural land conversions within its sphere of influence, and no higher mitigation ratio would eliminate this significant and unavoidable loss of agricultural lands.

Response to Comment 7-9

The comment supports the use of conservation easements as a tool to reduce a project's significant effects on prime farmland. Under the City's Agricultural Land Mitigation Program, the Project will be required to provide in-kind, direct purchase or acquisition of an agricultural conservation easement at a 1:1 ratio and dedicate the easement to a qualifying entity.

Response to Comment 7-10

The commenter expresses the opinion that the conservation/agricultural mitigation easements used to reduce the impact of the project could be located regionally or statewide, not only within the surrounding area.

Response to Comment 7-11

The commenter identifies other types of mitigation measures for impacts due to conversion of farmland. The comment supports the use of a fee-based program for farmland conservation as a viable alternative to the land-dedication approach in the City's Agricultural Land Mitigation Program. The comment also suggests that farmland conservation can occur statewide. While these alternative approaches may be equally effective, there is no feasible mitigation that can completely avoid, minimize, rectify, reduce, eliminate, or compensate for the loss of prime farmlands. Consequently, this impact remains significant and unavoidable under any of the approaches identified in the comment.

Response to Comment 7-12

The commenter identifies the location of listings of additional mitigation measures for impacts due to conversion of farmland. Please see Responses to Comments 7-8 and 7-11. The additional measures suggested in the comment do not adequately mitigate for the loss of prime farmlands. For example, extending Williamson Act contracts or investing in commercial viability may simply delay conversion of those lands. However, those measures will not avoid, minimize, rectify, reduce, eliminate, or compensate for the loss of prime farmlands. Because the conversion of farmland results in the conversion of a finite land resource, the Project's farmland impacts will remain significant and unavoidable.

Response to Comment 7-13

The commenter presents specific information regarding the rules for cancellation and termination of Williamson Act contracts and requests a discussion of the findings needed under California Government Code (CGC) 51282 to cancel a Williamson Act contract. The commenter further describes the specific processes related to a city exercising its option not to succeed to a Williamson Act contract upon annexation. The comments are noted.

The Project proposes to cancel a Williamson Act contract on 83 acres necessary for constructing the levee improvements (DEIR, Figure 2-4). To cancel a Williamson Act contract under CGC 51282, the cancellation must either be in the "public interest" or otherwise "consistent" with the purposes of the Williamson

Act. The specific findings needed for a cancellation are described in detail on page 3.2-12 of the DEIR.

While not necessary under CEQA, information supporting each of the necessary findings under CGC 51282 is already included in the DEIR. For example, CGC 51282(b)(1) requires the landowner to serve a notice of non-renewal pursuant to CGC 51245; notices of non-renewal have been filed by the landowners (DEIR, pages 3.2-3 and 3.2-5). CGC 51282(b)(2) requires that a cancellation not increase the likelihood that adjacent lands will be removed from agricultural use; because notices of non-renewal have been filed on all of the lands composing the Project site, and because cancellation will not affect the likelihood of adjacent lands being removed from agricultural use due to natural barriers (e.g., the sloughs), this finding has been satisfied (Id.). CGC 51282(b)(3) requires that cancellation be for an alternative use that is consistent with the city or county general plan; the use of the land as a borrow pit is consistent with the City's proposed general plan policy of encouraging levee maintenance (DEIR, page 3.8-17). Under CGC 51282(b)(4), the cancellation cannot result in discontinuous patterns of urban development; this cancellation will not result in discontinuous patterns of urban development because urban development will not begin on the lands proposed for cancellation under the Williamson Contract or any adjacent lands until 2013, after the Williamson Act contracts have formally expired (DEIR, Figure 3.2-3).

The City has made the finding under CEQA that any cancellation of a Williamson Act contract has a significant and unavoidable impact on agricultural resources (DEIR, pages 3.2-11 to 3.2-13). There are no additional impacts, mitigation measures, or alternatives that have not already been identified; therefore, the information requested by the commenter is not necessary to an adequate assessment of the impact under CEQA.

To clarify the procedures under CGC 51243.5, the City will not succeed to the rights, duties, and powers of San Joaquin County (the County) under the Williamson Act contract since the Local Agency Formation Commission (LAFCO) has already made determinations (Resolutions 119 and 258) upholding the City's protest (Resolutions 30, 256 and 32, 861). These issues are also further discussed on pages 3.2-3 to 3.2-5, and 3.2-11 to 3.2-14 of the DEIR.

Response to Comment 7-14

The commenter asks that the EIR discuss any proposed general plan designation or zoning within agricultural preserves affected by the Project. The Project includes rezoning land that is currently within a County agricultural preserve (R 69-C1) to a land use designation of Village and a zoning designation of mixed use. This is discussed in more detail on pages 3.2-5 to 3.2-13 and 3.9-13 to 3.9-14 of the DEIR. No changes in general plan designation or zoning outside the project boundaries are proposed as a part of the Project. There are no additional impacts, mitigation measures, or alternatives that have not already been

identified; therefore, the information requested by the commenter is not necessary to an adequate assessment of project impacts under CEQA.

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MN → DJS

Letter 8

RECEIVED
AUG 23 2007
CITY OF STOCKTON
COMMUNITY DEVELOPMENT DEPT.

August 24, 2007

Mike Niblock
Director of Community Development
City of Stockton
345 N. El Dorado Street
Stockton CA 95202-1997

THE SANCTUARY MASTER DEVELOPMENT PLAN DRAFT EIR

Background
The consulting firm of Jones & Stokes has developed a draft EIR (DEIR) for the Sanctuary Master Development Plan (SMDP) for the City of Stockton. This Plan is intended to provide for expansion of public services to an approximately 1,967 acre, mainly residential subdivision development with an anticipated population of approximately 19,000 residents. This Specific Plan Area is outside the current Urban Services Area of the 1990 General Plan; and therefore, zoning and land use changes proposed in this SMDP would result in an increase in the projections of population and water use in the 1990 General Plan. In preparing this DEIR, the Consultant has relied upon Appendix L – Water Supply Assessment For The Sanctuary/Shima Tract Master Plan Development (WSA). 8-1

As requested by my Client, the Morada Area Association, I have carefully reviewed the above document, including pertinent sections of the SMDP DEIR that pertain to water supply for this project, and have the following comments:

The consultants in the SMDP DEIR largely sidestep the issue of regional groundwater overdraft, and, instead, focus on the narrow issues regarding groundwater availability and use in the urban area. This is a major and very significant discrepancy in the SMDP DEIR for two main reasons.

1. Historically, the City of Stockton metropolitan area (COSMA) met its water supply requirements by total reliance on groundwater. San Joaquin County's groundwater system is the Northeastern San Joaquin subbasin of the larger San Joaquin Valley Groundwater Complex. The largest historical user in terms of volume of groundwater has been agriculture. Because the volume of groundwater withdrawals has grossly exceeded natural recharge, this subbasin has been classified by the Department of Water Resources 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 8-2

THE SANCTUARY MASTER DEVELOPMENT PLAN DRAFT EIR

acre feet/year (US Geological Survey). The SMDP DEIR fails to note that this subbasin is being overdrafted by at least 150,000 acre feet per year. 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 (USA Corps of Engineers) 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."

As a result of this situation, in 1977, the Stockton East Water District (Stockton East) began to supply treated surface water to the urban area to replace groundwater. At that time, the source of this surface water was the Calaveras River via New Hogan Dam. In approximately 1990, this supply was extended to the north Stockton area. In 1983, Stockton East contracted with the US Bureau of Reclamation (Bureau) for an additional supply of water from the Stanislaus River; however, the WSA erroneously calls this a <u>firm</u> supply. This should not be noted as a firm supply. The Bureau characterizes this supply only as "long-term interim". The SMDP DEIR does mention, however, that the Stanislaus River supplies are only anticipated to be available in above-normal and wet years. This is not the type of water supply source that can be committed to new (or existing) customers, because of its intermittent and unreliable nature. In addition, the Central San Joaquin Water Conservation District's (Central) contract with the Bureau for New Melones Water calls for 49,000 acre feet of firm and 31,000 acre feet of "long-term interim" supply per year. However, neither Stockton East nor Central has received either the firm or "long-term inerim" supply on a reliable basis each year, and as a result, Stockton East sued the federal government to perfect this right. However, the SMDP DEIR fails to note that Stockton East recently lost its case before the Court of Claims to force the Bureau to live up to the terms of its contract with the Districts. In addition, Stockton East receives excess water from the Stanislaus River under a temporary contract with Oakdale and South San Joaquin Irrigation Districts. As noted in Appendix G of the SMDP DEIR, this contract expires in 2009. While negotiations are currently underway to renew this agreement, the agreement has not been renewed, and therefore this water cannot be assured to the City or Cal-Water, and should not be shown as available to support the requirements of this Mater Development Plan.

8-2 Cont.

At Page 13 of the WSA, there begins a discussion and "clarification" of the water rights and entitlements of the Stockton East Water District (SEWD). This discussion is totally irrelevant except insofar as the Second Amended Contract of 1987 is concerned. This Contract provides for a firm entitlement of only **20,000 acre feet per year** of treated water to the City of Stockton Metropolitan Area (COSMA), shared in proportion to the total water use of the City of Stockton's Water Utility, California Water Service Company (Cal-Water), and San Joaquin County Maintenance Districts. The COSMA itself is not a political entity or a water purveyor, and therefore **has no source of surface water available to it**. COSMA did not prepare the Water Supply Assessment for this DEIR; it was prepared by the City of Stockton. Therefore, **it is incorrect** for the WSA to state, at Page 13, that "the COSMA currently has 134.17 TAF/year"

8-3

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yield available to it. It is also incorrect to state that "COSMA" has 104.17 TAF/year in "firm" surface water contracts. "COSMA" does not have **any** surface or any other contracts, since it is not a legal entity, and, furthermore, what the ESA calls "firm" surface water is not firm at all, but optimal yields under the most favorable climatological conditions. The State Water Code requires a WSA to consider existing "firm" surface water contracts **of the entity or water purveyor preparing the WSA**, not the wholesaler who supplies water to that entity. SEWD **is not** the water purveyor to the City of Stockton's proposed General Plan 2035, or to this Master Development Plan area.

8-3 Cont.

2. The second reason why this SMDP DEIR is inadequate is that it and the accompanying WSA should discuss groundwater issues relevant and pertinent to the area proposed for development. It is significant that the development plan does not show the location of any new wells in the development, even though the DEIR documents, on page 6-2, the need for 2.75 million gallons per day average domestic water demand at buildout. This level of demand would normally require at least two new water supply wells to be located within the subdivision. Neither the WSA nor the SMDP DEIR point out, however, that the groundwater in the project area is totally unsuitable for potable well development. Furthermore, the WSA is in effect claiming a safe groundwater yield for this acreage of 1,180 acre feet, by including this acreage in the total safe yield of the urban area. Even if the WSA is correct in claiming that the City of Stockton can rely on a safe yield of 0.6 acre feet/acre/year in the urbanized area (and my discussion below will refute this assumption), the Sanctuary is starting out with an initial groundwater deficit of 1,180 acre feet per year which will have to be made up from offsite groundwater sources located east of the development.

8-4

The state's common law groundwater rules are relatively straightforward. Overlying owners generally may pump groundwater from aquifers beneath their land for use on that land. *See City of Barstow v. Mojave Water Agency*, 23 Cal.4th 1224, 1240 (2000). If multiple owners overly the same aquifer, as in the Morada area, their use rights are "correlative," meaning that in times of shortage each has only the right to pump his "reasonable share." *Pasadena v. Alhambra*, 33 Cal.2d 908, 926 (1949); *see San Bernardino v. Riverside*, 186 Cal. 7, 14 (1921) (explaining the hydrologic basis for this rule). Those owners also must use water "reasonably," meaning they cannot use water wastefully or with excessive inefficiency. Cal Const. art X § 2; *Barstow*, 23 Cal.4th at 1240. If a surplus exists, appropriators-that is, users who would pump the water for non-overlying or municipal use-may take a share, but their rights always are subservient to those of overlying users. *Barstow*, 23 Cal.4th at 1240; *Peabody v. Vallejo*, 2 Cal. 2d 351, 370-71 (1935); *San Bernardino*, 186 Cal. at 15. *State of Cal. v. Rank (1961) 293 F. 2d 340*

8-5

However, where a surplus does *not* exist, and the aquifer is in overdraft as it is here, overlying users can assert the primacy of their rights and obtain declaratory or injunctive relief precluding water exports. *Peabody v. Vallejo*, 2 Cal. 2d at 374 (observing that superior water rights are entitled to protection "at law or equity"). The Sanctuary project would be considered an "appropriator" and with the current long term overdraft would have no legal right to the water.

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Stockton, likewise, given the situation in the aquifer, would have no legal right to send water to the Sanctuary. One danger for the developer is at that at some time, should the overdraft increase because of new developments overlying the aquifer, then a person overlying the aquifer, or an association, could obtain injunctive relief to prevent the shipping of water to the proposed development. Given this possibility, it is hard to imagine how the water requirements for the Sanctuary can be met in a fashion that will insure that they are actually available. *Vineyard Area Citizens v Rancho Cordova (2007) 40 Cal. 4th 412* .

8-5 Cont.

Existing Water Sources

Table 4 of the City's Water Supply Assessment purports to provide information regarding SEWD's sources of supply and critical year availability. The numbers shown in this Table are unsubstantiated by any reference to an independent hydrologic analysis, and therefore only represent the conclusion of the WSA preparer. Furthermore, these sources are not controlled by or attributable to the City of Stockton and cannot be claimed to support the requirements of the SMDP. As the Water Supply Assessment correctly notes, these sources are attributable to the Stockton East Water District. Therefore, despite claims to the contrary in the City's Water Supply Assessment and the SMDP DEIR, the only firm water sources available to the City's Water Utility at this time to support the increased water demands described in the SMDP DEIR are as follows:

- Surface Water via Stockton East Water District (Second Amended Agreement) – 20,000 acre feet/yr, allocated to the City of Stockton's Water Utility, San Joaquin County Maintenance Districts, and to Cal-Water on a basis proportionate to overall cosumption

Non-firm supplies being relied upon by the City of Stockton's Water Utility to meet demand from this proposed subdivision and other anticipated developments:

8-6

- Groundwater basin (currently in critical overdraft). In my professional opinion, the existing groundwater basin cannot be considered a firm water supply for the SMDP since it has been found by the Department of Water Resources and the authorities noted above to be in critical overdraft; however, the consultants who have prepared the SMDP DEIR do not concur with this assessment, and indicate that "the basin is recovering and is stabilized". If this statement is correct, why are all of the water agencies, including San Joaquin County, the City of Stockton and the City of Lodi, working diligently to find ways and means to recharge the basin?
- Surface water supplied from Stockton East from the Stanislaus River under contract from the US Bureau of Reclamation – quantity varies from 0-40,000 acre feet/yr.
- Surface water supplied from Stockton East from the Stanislaus River under contract from OID/SSJID – quantity varies from 8-30,000 acre feet/yr.

While this combination of sources has been meeting the immediate demands of the City of Stockton and the other retail water agencies, they can not be considered firm or reliable, nor can

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they legally be committed to new developments; and the net result of the City of Stockton's utilizing increasing amounts of groundwater to meet the needs of an increasing number of customers has been to make a significant contribution to the groundwater overdraft in this subbasin. 8-6 Cont.

Existing Water Demands

Water use for the COSMA has varied over the years, consisting of a mix of groundwater and surface water supplied by Stockton East. Average use of surface water over the last twelve years has been 39,527 acre feet per year, as reported by the City of Stockton. During this same period, an average of 23,422 acre feet per year of groundwater has been used (please refer to Figure 10, from the City's *Water Supply Assessment*). Average total COSMA water demand is therefore 62,949 acre feet per year, and the 2005 water year use is 68,777 acre feet. Although the Stockton East Water District has been able to consistently supply to the COSMA almost 20,000 acre feet per year is in excess of its firm supply, this amount cannot be relied upon in dryer than normal years or extended drought cycles, and can therefore not be allocated to new developments. Also, COSMA urban uses have been contributing to the existing groundwater basin overdraft by an average of over 23,000 acre feet per year. This amount represents at least 10% of the existing Eastern San Joaquin groundwater basin overdraft. Based upon the City's analysis of new potable water demands for this project, an additional 2,667 acre feet of groundwater overdraft will be created by the SMDP, since no new surface supplies will be available to meet this new demand, as further explained below. Also, this new demand has been grossly underestimated in the City's WSA. The most commonly accepted value for water consumption by urban single-family residential customers is 0.5 acre feet/year/connection, and for urban multi-family residential of 0.33 acre feet/year/connection. Applying these estimating factor results in an estimated domestic water demand of 3,377 acre feet/year for residential and 341 acre feet for commercial for a total potable water demand and additional groundwater overdraft of 3,718 acre feet/year. 8-7

Not accounted for in the above water use statistics is water used within the COSMA by agriculture, which amounts to approximately 17,000 acre feet of groundwater per year. Figure 10 of the City's *Water Supply Assessment* should be corrected to reflect this additional 17,000 acre feet per year of groundwater use. Therefore, including agricultural use, the total existing overdraft within the COSMA is closer to 40,000 acre feet per year, and this project would increase the overdraft to approximately 44,000 acre feet per year.

Delta Water Supply Project

In 1996, the City of Stockton submitted an Application to the State Water Resources Control Board (SWRCB) for the right to divert water from the San Joaquin River Delta. The intent of the Application was to correct existing supply deficiencies and provide sufficient supplies to support the population projections of the 1990 General Plan, and anticipated growth in water demands to 2050. The Application was later bifurcated to request water rights sufficient to support only the requirements anticipated in the 1990 General Plan. This right was requested in 8-8

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accordance with Section 1485 of the Water Code, which provides that the City of Stockton has the right to obtain water from the Delta in an amount roughly equal to the amount of reclaimed water discharged to the Delta via the San Joaquin River. Any future needs above this amount must be the subject of a future Application process. In December, 2005, the SWRCB issued a Permit to the City to divert up to a maximum of 33,000 acre feet per year, subject to Standard Term 91 and other conditions. Standard Term 91 is imposed by the SWRCB to prevent diversions whenever the diversion would require the release of State or Federal Project water to maintain water quality requirements in the Delta. This means that, if the State or Federal projects are required to release water to keep the Delta in balance, in consideration of existing exports and inbasin uses, the City (or other Term 91 users) must curtail diversions. Also, the City must curtail diversions to protect Delta Smelt and other protected species.

Based upon the *City of Stockton Delta Water Supply Project Modeling Technical Appendix*, Tables 4-5, 4-13, and 4-20, for the majority of the time that Stockton proposes to divert at either the current Permitted 30 MGD level, or at the projected 160 MGD level, the Delta is in a "balanced" condition. Quoting from this report, at page 4-13: "Balanced water condition diversions must be off-set by a corresponding increase in Delta inflow from CVP-SWP storage release, or a reduction in CVP-SWP exports." Therefore, under Term 91, the **City will be unable to divert water at these times.** The additional yields noted by the Water Supply Assessment for the Delta Water Supply Project to meet immediate, foreseeable and long-term demands will not be available at the levels indicated in the City's *Water Supply Assessment for the Empire Ranch Specific Plan* (Appendix G), and cannot be included in the determination of sufficiency for this SMDP. As the City's *Water Supply Assessment* indicates, without the water supply available from the Delta Water Supply project, there is insufficient water supply available to support this project, along with all of the other pending development projects which have been approved or anticipated.

8-8 Cont.

Water Production Estimates

The City's *Water Supply Assessment for the Sanctuary Master Development Plan* (Appendix L), and the *Water Supply Evaluation for the General Plan* consistently overstate the water production from the existing and proposed water treatment facilities by confusing capacity with production. A water treatment facility cannot produce treated water up to its design capacity on a consistent basis due to operational considerations, even if there is a consistent incoming water source of supply. For example, filters are taken off line routinely for backwashing. Equipment malfunctions or fails and must be repaired. Routine maintenance of all of the facilities is required to keep them operating efficiently. For planning purposes, it should not be assumed that a water production facility can be more than 75% efficient. This means that, for a 45 MGD water treatment plant, the facility owned and operated by Stockton East, only 34 MGD can be produced on a long-term, reliable basis. This compares favorably with actual statistics from Stockton East, and shows that the District is doing a first-class job in maintaining their water treatment plant. Therefore, the total water production estimates given in the referenced documents are overstated by 25% and must be reduced accordingly. Also, the analysis in the

8-9

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City's *Water Supply Assessment* assumes that capacity of the Stockton East Water Treatment Plant will be increased to 60 MGD by 2016, and a production amount of 66,000 acre feet is assumed. This amount, which should be reduced to 49,500 acre feet/year for the reasons noted above, is highly speculative and requires that Stockton East acquire rights to new sources of water from the SWRCB. At the present time, water sources available to Stockton East will only support current Plant capacity. In my professional judgment, this type of speculation has no place in a water supply assessment, and is not allowed by the statute.

8-9 Cont.

Additional Water Supplies Necessary to support the SMDP

The several technical reports cited above which are intended to justify the sufficiency of water supplies necessary to support the additional demand of the Sanctuary Master Development Plan along with other anticipated growth in water demand rely on overstated water production from existing and new water treatment plants, and highly optimistic assumptions of the availability of water sources and allocation of additional water rights. In my professional opinion, the speculations and wishful thinking contained in these documents is highly inappropriate in a Draft EIR or Water Supply Assessment. In order to meet the requirements of CEQA, the DEIR must undertake a rigorous analysis of supply and demand and resource limitations.

8-10

Page 12 of the City's *Water Supply Assessment* notes that the average water demands within COSMA are expected to increase to 156,083 acre feet per year at buildout of the proposed *2035 General Plan Update*. In order to meet this average water demand, the COSMA will have to develop an average of about 90,000 acre feet per year of new water supplies. Considering the fact that the COSMA now has only 20,000 acre feet per year of **firm** water supplies to rely on under contract with Stockton East, by 2035, COSMA will be exceeding its firm supplies by 136,000 acre feet per year.

8-11

While the City of Stockton and Stockton East are engaged in a number of activities to develop additional water rights for additional water supplies to serve COSMA, there is no assurance whatsoever that any additional water rights will be obtained for either expanding the Delta Water Supply Project as planned, or for expanding the Stockton East Water Treatment Plant as assumed in the City's *Water Supply Assessment*. This means that the additional 136,000 acre feet per year required to support growth contemplated in the City's proposed General Plan Update-2035 and the City's *Water Supply Assessment for the SMDP* must come from groundwater, which is already seriously overdrafted. This will increase the groundwater overdraft in the subbasin to at least 300,000 acre feet per year, which, in my professional judgment, would place the overdraft at the crisis level.

8-12

Setting aside the issue of **firm** water supplies for a moment, let's assume for purposes of argument that, on average, the COSMA continues to receive its allotment from Stockton East Water District, and that Stockton East Water District does expand its Water Treatment Plant to 60 MGD by 2016. Let's also assume that the City is able to pump 50% of the time from the Delta (even though the City's own analysis of this project indicates this will not be possible due

8-13

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to "balanced conditions" prohibitions). Under these most favorable conditions, this means that a total of 61,875 acre feet of surface water will be available, on average, to meet a COSMA average demand of 156,083 acre feet, and the remaining demand of 94,208 acre feet must come from the existing overdrafted groundwater basin. This would still create an overdraft of at least 250,000 acre feet per year in this subbasin, also at the crisis level. 8-13 Cont.

Impact on Groundwater Basin

As previously noted, the Eastern San Joaquin Groundwater Basin is in a "critical condition of overdraft." The City and its consultants need to acknowledge in the Water Supply Assessment that the Eastern San Joaquin Groundwater Basin is one basin, and that it does not have a hydrogeologic barrier that divides the agricultural areas from the urban areas. Even though some of the urban area's monitoring wells do show an increase in groundwater elevations, the basin as a whole is still in critical condition of overdraft, and therefore cannot be counted upon as a firm source of water until the basin is in hydrologic balance. Any additional groundwater extracted by the urban area to support new developments worsens the groundwater basin overdraft. 8-14

As I have noted in the above discussion, appropriators of groundwater such as the City cannot legally rely on this source of water unless there is an excess of water in the groundwater basin, since to do so jeopardizes the rights of existing individual groundwater pumpers extracting water legally from beneath their properties. A groundwater basin in a critical condition of overdraft does not have an excess of water available for appropriation. Also, the SMDP DEIR and the Water Supply Assessment does not acknowledge the fact that other San Joaquin County cities, including Ripon, Lathrop, Manteca, and Lodi all rely heavily on groundwater use, and that significant growth is also occurring in these cities. 8-15

The City of Stockton must combine its current and planned uses of groundwater with those of all other San Joaquin County cities to determine what impact all cities, including Stockton, will have on groundwater availability. There are no estimates in any of Stockton's documentation that attempt to quantify the groundwater demands of the other cities overlying the Eastern San Joaquin Groundwater Basin. This is a serious flaw in the analysis, because it underestimates the City's significant adverse direct and cumulative impacts on regional groundwater supplies.

The *Stockton Delta Water Project Draft EIR*, at page 5-18, presents graphic illustrations of the effect this additional pumping will have on groundwater. 8-16

Figure 5-5 of this report, reproduced below, illustrates the simulated responses to the groundwater basin represented by six wells located in and around the COSMA. This figure shows that, despite the City's claim that the portion of the groundwater basin under the COSMA is "stabilized" and at "equilibrium", groundwater levels have continued to decline, and the rate of decline is increasing. Unless substantial amounts of surface water are imported into the COSMA to reduce groundwater pumping and offset this trend, growth contemplated by the General Plan 2035 DPEIR and this SMDP DEIR will cause an even more rapid decline in groundwater levels.

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Declining groundwater levels will result in (1) increased pumping costs for all existing residential, commercial, agricultural and industrial users due to increased hydraulic lift; (2) decreased yields due to decreased aquifer saturated thickness, and (3) greater tendency for eastward migration of saline water from the west due to a steeper hydraulic gradient. Eastward movement of salinity will threaten and eventually eliminate many existing municipal wells on the westward edge of the COSMA as salinity exceeds the maximum contaminant levels set by the State for drinking water.

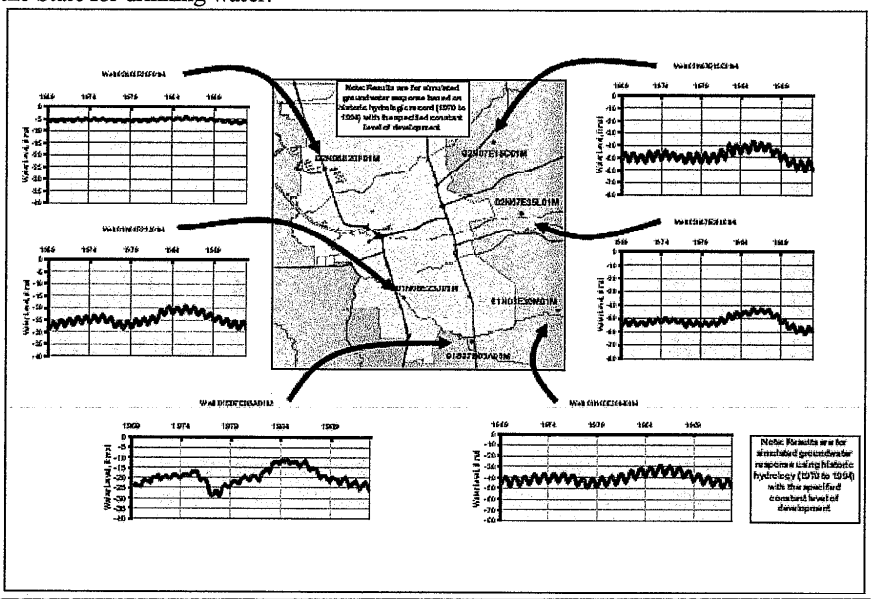

Figure 5-5

8-16
Cont.

Figure 5-7 reproduced below illustrates the effect on groundwater if growth contemplated in the GPU-2035 continues until 2050. Also illustrated is the effect of the importation of surface water developed from the proposed Delta Water Supply Project at the Delta Water Supply's ultimate development. This figure shows that, even in the unlikely event of full development of the water supply contemplated by the Delta Water Supply Project, groundwater levels will continue to decline, although, of course, groundwater levels would be significantly improved by the addition of this surface water. However, as noted above, it is **highly unlikely** that the City will ever be able to achieve the level of importation of Delta water contemplated and desired, due to the restriction on pumping during "balanced conditions" in the Delta. Furthermore, the figure assumes that the City will be able to recharge the groundwater aquifer with any surface water pumped from the Delta and not immediately needed by water users within COSMA. The City does not have the rights for this additional water over and above the Phase I Project, nor does it

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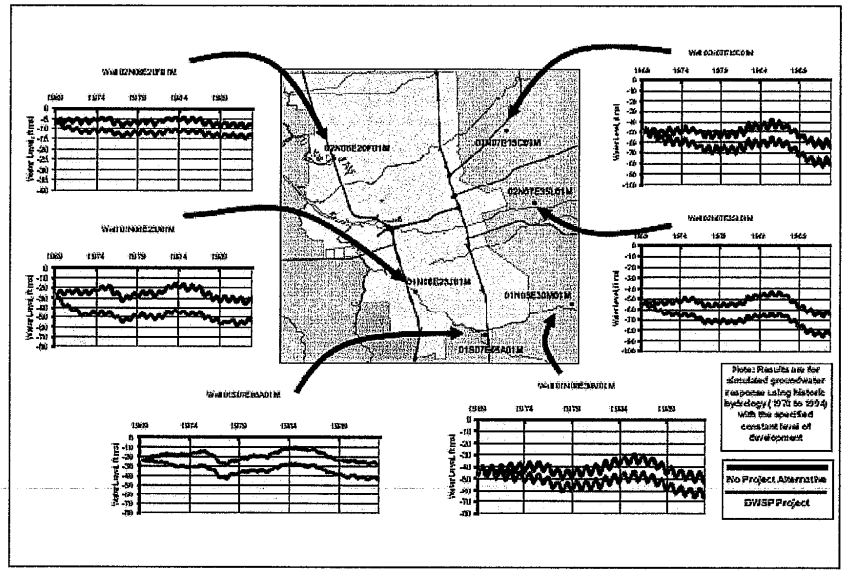
have the right to store this water underground, or have any project or system contemplated to do this. Therefore, what can only be predicted from the impact of population growth projected from the GPU-2035 is an average of a 20 foot decline in groundwater levels by 2050.



SOURCE: CDM, 2005; and Environmental Science Associates, 2005

Delta Water Supply Project / 200592.002 ■

Figure 5-7
Simulated Groundwater Level Response
Comparison of Project and No Project – 2050 Cumulative Conditions

8-16 Cont.

The USGS has evaluated groundwater in wells in the Eastern San Joaquin County subbasin of the Central Valley Groundwater Basin and has published a report of its findings (Open File Report 2006-1309). They have found that water levels have declined, and chloride concentrations have increased in a number of public supply, agricultural and domestic wells in this area. Many of the wells now exceed the USEPA Secondary maximum Contaminant Level for chloride of 250 milligrams per liter. The USGS found that the high chloride levels have been found further to the east since measurements began to be taken in 1984. While the USGS found a number of sources for the high chloride water found in wells, lowering of the ground water table by pumping in excess of natural recharge has and will continue to exacerbate the problem.

8-17

Agricultural Credits

In its *Water Supply Assessment,* at Page 47, the City refers to the concept of "Agricultural Credits" which it introduced in its *Water Supply Evaluation* for the General Plan 2035 Update DPEIR. The City attempts to justify this "credit" by stating that this "acknowledges that the

8-18

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groundwater basin was being used for agriculture prior to urbanization." To account for this prior agricultural pumping, which has not been quantified with any documentation, the City uses a "credit" of not to exceed 1.0 acre foot per acre per year as a firm yield from the groundwater basin in these areas. In my professional opinion, there is absolutely no merit to this argument, and it runs completely contrary to what the City says it is trying to achieve by setting a "target" yield from the groundwater basin of not more than 0.6 acre feet per acre per year. 8-18 Cont.

As noted above, the groundwater basin is in a critical condition of overdraft. This has resulted from all users exceeding the safe yield of the groundwater basin. In the case of a basin in critical overdraft, no "credit" can be assumed by converting from one groundwater use to another. At best, the "critical condition of overdraft" has been slightly reduced by some unquantified level of agricultural pumping. This type of speculation is a very poor substitute for actual documentation of prior water uses on the subject property, and has no place in a Water Supply Assessment. 8-19

The basic flaw in the analysis of "groundwater credits" can be taken from Exhibit "F" to the City's *Water Supply Evaluation* for the General Plan 2035 Update Draft Program EIR at Page 1. This report states that "If any one of these groundwater extractors are [sic] removed or are [sic] taken off of groundwater there is a recognition that, if *groundwater elevations are acceptable today* [my emphasis] and the *groundwater basin is in a state of equilibrium,* [my emphasis] that groundwater pumping can continue at the same rate without further impacting the groundwater basin". As noted in the above discussion, the Department of Water Resources, San Joaquin County, and the US Geological Survey all classify the groundwater basin as being overdrafted with groundwater elevations declining. The City can not therefore claim any "groundwater credits". The City's report goes on to state that the City is interested in reducing reliance on groundwater over time and wishes to target groundwater use to below today's level. The use of a "groundwater credit" in a Water Supply Assessment is therefore invalid on the City's own terms, and must be discarded. 8-20

The stated goal of the water agencies and cities in northern San Joaquin County is to maximize the use of surface water and minimize the use of groundwater to reduce the drain on the overdrafted groundwater basin. Records of groundwater production in the agricultural areas proposed for urbanization are either not available or not accurate. COSMA should therefore not use "agricultural credits" in any calculation of groundwater yield. The intent of this proposed action by the City is clear on Page 5 of Exhibit "F" by the statement: "the COS wishes to take some credit for this benefit by extracting a greater amount of groundwater until recharge technologies or more surface water becomes available to replace this need". In my professional opinion, this statement meets the classic definition of a "mining" of groundwater, and application of this "credit" by the City will result in an adverse impact on the groundwater basin.

Summary

Approval of the development proposed in the SMDP DEIR will result in an additional demand on the COSMA potable water system of at least 2,082 acre feet per year, and potentially 2,667 8-21

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acre feet per year, if the proposed sources of agricultural ("non-potable") surface water cannot be obtained. However, because the domestic water requirements are grossly underestimated in the WSA, this additional domestic demand will be closer to 3,718 acre feet/year, or 4,302 acre feet/year if the proposed sources of agricultural ("non-potable") surface water cannot be obtained. This water is currently being applied to agricultural land in farming operations, and its use in residential lakes may not meet the State Water Resources Control Board's (State Board) definition of "agricultural use." At the very least, the City of StocktonIrrigation District and Stockton East will need to check with the State Board to determine if the type of use now designated for agricultural water is broad enough to allow use for recreational lakes.

8-21 Cont.

COSMA water utilities currently rely on an overdrafted groundwater basin and favorable hydrologic conditions to provide for an estimated 276,000 persons, with an estimated total demand of approximately 70,000 acre feet per year. Firm sources of water supply available to the COSMA water utilities amount to only 20,000 acre feet per year under a contract with the Stockton East Water District. Under historical drought conditions, Stockton East has only been able to supply approximately 12,000 acre feet per year to the COSMA. The groundwater basin is not a firm source of supply to the COSMA appropriators because it is in a "critical condition of overdraft."

8-22

In order to partially alleviate this problem, the City has received a Water Rights Permit from the Water Resources Control Board to extract as much as 33,000 acre feet of water from the Delta. An actual project to finance and construct an intake and treatment facility to appropriate this water is not yet underway, much less completed. Constraints placed upon the City's proposed new facilities are so severe that it is unlikely that the City will be able to obtain more than a small fraction of this amount.

8-23

The only source of water supply legally available to the City of Stockton for this proposed SMDP development is therefore from the already overdrafted groundwater basin. This will increase the overdraft in the basin by at least 3,718 acre feet per year, and potentially 4,302 acre feet per year if non-potable sources cannot be utilized for the lakes and proposed agriculture. This is an unacceptable adverse environmental impact which has not been mitigated.

8-24

MORRIS L. ALLEN, P.E.
CONSULTING CIVIL ENGINEER

cc: Morada Area Association

Responses to Comment Letter 8—Morris L. Allen, P.E., Consulting Civil Engineer for Morada Area Association

Response to Comment 8-1

Although it is acknowledged in the DEIR that the SMDP is outside the 1990 General Plan area, the water supply analysis in the DEIR and Water Supply Assessment (WSA) does not distinguish whether the Project is located within the current General Plan or proposed General Plan Update planning areas; rather, it addresses the question as to whether the purveyor's water supplies and associated infrastructure are sufficient to meet the needs of the Project, as well as current and reasonably foreseeable planned future uses within the service area.

Senate Bill (SB) 610 mandates that the water supplier or lead agency evaluate whether its water supplies are sufficient to meet the needs of the project, as well as existing and "planned" future uses in the service area. When the WSA was prepared, the 1990 General Plan (and all amendments thereto) included all "planned" future uses, and therefore was a reasonable basis for the DEIR's water supply analysis. Although not mandated by SB 610, the WSA and DEIR also identified the growth estimates under the General Plan Update, which estimated water demand to grow to 156,083 acre-feet/year by 2035 (build-out of the General Plan Update) and growth estimates identified in the Delta Water Supply Project (DWSP) Feasibility Report out to 2050 (177,900 acre-feet/year) (DEIR, pages 3.13-8 and 3.13-9). These growth estimates were beyond the immediate planning horizons, the 20-year horizon mandated by SB 610, and the build-out horizon for the project. Nonetheless, the WSA identified the 2035 demand horizon and explained that, "[b]ased on the Water Supply Evaluation completed for the General Plan Update, the Phase 1 water along with the other existing water supplies and their forecasted availability in 2035 will accommodate the build-out water demand of both the 1990 and 2035 General Plans."

Now that the 2035 General Plan Update has been approved, clarifications in the EIR are necessary merely to clarify that the City of Stockton Municipal Utility Department's (COSMUD's) water supplies will remain sufficient to meet the needs of the Project (2,667 acre-feet/year), as well as existing and reasonably foreseeable planned future uses over both the 20-year horizon and build-out of the 2035 General Plan Update. Following are revisions to DEIR, page 3.13-30 (Impact PSU-7), to make this clarification:

> Total demand within COSMA's service area, including the proposed project, is expected to grow from 69,810 acre-feet/year to 85,330 acre-feet/year by 2015 and to 156,082 acre-feet/year by 2035~~or an increase of 16,520 acre-feet/year~~. Phase 1 of the DWSP would provide approximately 33,660 acre-feet/year from the Delta and will be sufficient along with existing water supplies to meet the

needs of the project, as well as existing and reasonably foreseeable planned future uses.

Please see Responses to Comments 8-2 and 12-45 for a discussion of available water supplies and the 2035 growth horizon.

Response to Comment 8-2

The comment does not accurately state the scope of the DEIR and WSA with regard to regional groundwater overdraft, the limits that such overdraft may place on future municipal use within COSMUD's service area, or the level of "firm" surface water supplies available to serve the area.

Based on regional groundwater modeling, as well as projections and assumptions concerning growth throughout the basin, the DEIR and WSA conclude that while the basin has historically been in critical overdraft, the basin is nonetheless stabilizing and recovering within the the City of Stockton Metropolitan Area (COSMA), and COSMUD and all other non-agricultural users can sustainably withdraw groundwater for municipal purposes at the rate of 0.75 acre-foot/acre/year without causing further declines in the groundwater table or water quality (a much higher rate is presumed for existing agricultural uses). Recovery in this context means that the water table is gradually improving to a sustainable level. This is largely because of greater reliance on surface water supplies, conversion from agricultural to municipal uses, and conjunctive use of surface water and groundwater. Agricultural uses, particularly in the eastern San Joaquin Valley, continue to pump groundwater at significant levels, which in turn may create local cones of depression (areas with lower water tables). Existing agricultural pumping may inhibit recovery within those cones of depression (e.g., in the Morada area), but those areas are nonetheless stabilizing. However, agricultural water use in the basin is declining generally, and through its conjunctive use program, COSMUD will continue to monitor groundwater levels and water quality, and maximize surface water supplies and limit groundwater pumping to the greatest extent. Although the sustainable withdrawal rate has been established at 0.75 acre-foot/acre/year, COSMUD, through its Delta Water Supply Program, has established a management goal at even a lower rate within its service area (0.60 acre-foot/acre/year) to help conservatively estimate and protect a long-term supply of available groundwater. Given this conservative assumption and COSMUD's past, present, and future aggressive conjunctive use program, there is a reasonable likelihood that this groundwater will be available to serve the SMDP, as well as existing and planned future uses within the basin, over the long term. Likewise, COSMUD's conjunctive use program (including added surface water supplies) should help alleviate existing overdraft conditions in the eastern San Joaquin Valley. This is explained further below.

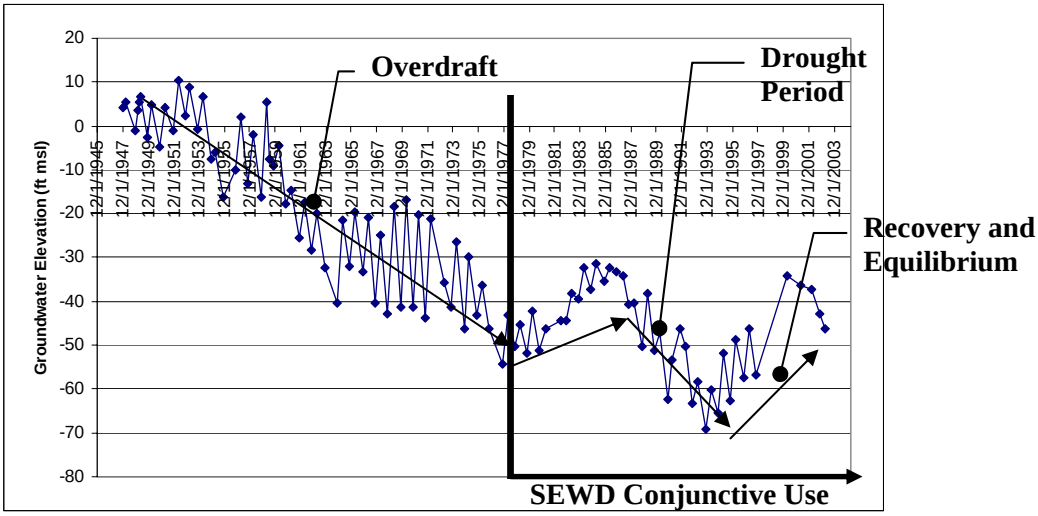
Throughout the period from the early part of the 20th century to the late 1970s, groundwater use was taking place at a high rate of extraction over the entire groundwater basin. Over this time, stored groundwater was extracted from the underlying groundwater basin at a rate greater than nature's ability to replenish

the basin. This state is referred to as "overdraft" and typically results in a "cone of depression" generally located farthest from the basin's sources of recharge. Sources of recharge include major rivers, lakes, the Sacramento River–San Joaquin River Delta, subsurface inflow from adjacent groundwater basins and the Sierra Nevada foothills, and deep percolation from applied water and precipitation on lands overlying the basin.

In 1977, the Stockton East Water District (SEWD) began to divert water from the Calaveras River for irrigation and municipal and industrial (M&I) uses for the sole purpose of managing groundwater supplies to stem the rapid decline in groundwater elevations. The success of this program is evidenced by groundwater elevation hydrographs (see below) from monitoring wells located within the cone of depression of the basin. Hydrographs show groundwater elevations declining in the basin from the late 1940s to 1977, when SEWD began importation of surface water. After 1977, declining elevations in the groundwater basin approached a state of equilibrium, witnessed by the "leveling out" of the hydrograph. In the extended drought of the late 1980s to early 1990s, groundwater elevations decreased because of reduced surface water supplies and reduced recharge from the rivers, lakes, and adjacent subsurface inflow. In the early 2000s, groundwater elevations began to rise, showing that under normal hydrologic conditions the groundwater basin reaches equilibrium and begins to recover to an improved state of the basin.

Based on this evidence, the comment's statement that the Project will exacerbate the rate of groundwater decline is not accurate and does not incorporate recent data.

SMDP WSA Figure 6
Well 2 (State Well ID No. 02N07E15C001M) Hydrograph from 1947 to 2003



The COSMA has consistently described its continued use of the groundwater basin conservatively. COSMUD has committed to maintain groundwater extractions within the sustainable yield of the aquifer underlying the COSMA

and to support regional groundwater conservation programs outside the COSMA. The recovery and stabilization of the aquifer underlying the COSMA over the past 10 years has shown this to be the case. Likewise, this recovery also demonstrates that the combined extraction from municipal and private domestic and agricultural wells is maintaining a sustainable yield by not affecting the overall performance of the regional groundwater basin. Given the current state of equilibrium and recovery during the consecutive above-normal hydrologic years, planned future use of surface water by either urban or agricultural users will only further increase groundwater elevations and benefit overall groundwater conditions.

Without defining which supplies would be considered "interim," the comment notes that certain surface water supply sources are considered to be interim supplies and therefore cannot be relied upon to support new development. As stated in the SMDP WSA, COSMUD considers all water supplies that are available in wet hydrologic years to be "firm" in the context of a conjunctive use program. With reliance on supplies in wet years, it is reasonable to conclude that a significant portion of any so-called "interim" supplies will be available in the wet years over the long term.

Through SEWD, the COSMA has rights in above normal and wet hydrologic years to 40 thousand acre-feet (TAF)/year of "firm" water from New Hogan Reservoir. In below-normal dry and critically dry hydrologic years, it is assumed that dry-year shortages reduce the effective yield to as little as 12 TAF/year in 2035. Another firm supply through SEWD is the New Melones Central Valley Project (CVP) water contract. Despite the fact that this supply is currently only available in above normal or wet years, this supply can contribute significantly to COSMA's conjunctive use program. The contract amount is assumed to be 29 TAF/year in above-normal and wet years. The weighted average of this supply over the 70 years of historical hydrology is approximately 18 TAF/year. By contract, SEWD also has partial rights to unused Calaveras County contract entitlements for New Hogan Reservoir Bureau of Reclamation water. The average yield of this contract in 2035 is approximately 6 TAF/year. Although this contract will diminish over time as Calaveras County develops, a portion of that entitlement will remain available to COSMUD within the 2035 planning horizon. Totaling the SEWD supplies above, the average yield (meaning the yield that can be counted to meet COSMUD's wet and dry-year demands) is 53 TAF/year.

As described in the above summary of SEWD's existing firm water supplies, COSMA currently has more than sufficient surface water and is using less groundwater than the comment suggests. With the COSMA's total effective water demand shown in the Project's WSA at 77.5 TAF/year (i.e., 81.6 TAF/year total water demand – 4 TAF/year of dry year rationing on average), the remaining unmet COSMA demand of 22.5 TAF/year comes from groundwater. This is less than the current day extractions of 25 (2006–2007) TAF/year. Because the calculated average groundwater extractions are considerably less than current extractions, groundwater elevations throughout the basin will likely increase over time, even though there may be greater year-to-year fluctuations in

groundwater elevations underlying the COSMA (although none below the point of current day elevations). In addition, neither the discussion above concerning firm groundwater and surface water supplies nor the WSA's finding that water supplies will be sufficient for the SMDP rely on any interim supplies. Consequently, the interim supplies identified in the comment are not necessary to meet the water demands of the project and all existing and planned future uses.

Response to Comment 8-3

The comment appears to suggest that the COSMA is not a political entity, that it holds no "firm" contracts to water, and that the WSA needed to consider "existing 'firm' surface water contracts of the entity or water purveyor preparing the WSA, not the wholesaler who supplies water to the entity." The comment also states that the water supplies referred to as "firm" in the WSA are "not firm at all, but optimal yields under the most favorable climatic conditions."

As the comment notes, the "COSMA" is not itself a political entity. The term "COSMA" is used herein as a reference for the three public water systems that service the COSMA: COSMUD, the California Water Company, and the County. The comment also confuses the legal requirements of the California Water Code (CWC). SB 610 (which amended the CWC and CEQA) directs the public water system that may supply water to the Project to prepare a WSA, which evaluates, among other things, whether the public water system's total projected water supplies will meet the projected water demand associated with the proposed project, as well as "existing and planned future uses." The WSA must, in turn, identify "any existing water supply entitlements, water rights, *or* water service contracts *relevant to the identified water supply for the proposed project.*" The assessment is not limited, therefore, to identifying only "firm surface water contracts" from the public water system itself. In this instance, COSMUD prepared the WSA because it is the water supply purveyor and will operate the public water system intended to provide water to the SMDP. Further, COSMUD properly identified those contracts and other entitlements relevant to the SMDP, as those contracts will be relied upon by the wholesale supplier (SEWD) to deliver water to COSMUD and ultimately the SMDP.

Finally, without providing any substantial evidence, the comment suggests that the 104.17 TAF/year of surface water "is not firm at all," but rather "optimal yields under the most favorable climatological conditions." The WSA itself acknowledges that the 104.17 TAF/year is "firm" only in "wet and above normal years." Furthermore, the WSA includes 1) SEWD's firm and interim supplies (which certainly may be available over the longer term) and 2) groundwater supplies. Once COSMUD's groundwater supplies are taken into account, and presuming that COSMUD's interim supplies remain available over the longer term and that DWSP Phase I is constructed, there is more than sufficient water to meet the COSMA's municipal demand over the long term.

COSMUD's conjunctive use programs look at surface water as an opportunity in that surface water is always maximized to the extent it is available and is

economically feasible to convey and treat. COSMUD's conjunctive use approach does not necessarily depend on critical-year surface water supplies to establish water supply sufficiency, unlike that of a water retailer that relies solely on surface water. Groundwater elevations improve in years when surface water supplies are plentiful, and in dry years surface water quality and volumes are improved because less water is diverted from the river and Delta.

Finally, the 104.17 TAF/year of "firm" surface water identified in the WSA is not just available in "optimal" or even in the "most favorable" conditions; 104.17 TAF/year is the amount available even in typical conditions. Annual water supply conditions are generally divided into four hydrologic water-year types: wet; above normal; dry; and critically dry. Water-year types are not classified as "normal," as would intuitively be the case. Therefore, typical water years range in the "above normal" (64% of the time) or "dry" (34% of the time) conditions. Consequently, COSMUD can reasonably expect to rely on 104.17 TAF/year (not including other sources of surface water or groundwater) in most years to help support its conjunctive use program.

Response to Comment 8-4

Contrary to what the comment suggests, the SMDP does not include drilling of any new wells within the immediate project area, and new wells will not be required to serve the project. Domestic water supplies for the SMDP will be provided by COSMUD from its water infrastructure that includes the treatment and conveyance of both surface water and groundwater supplies. Surface water and groundwater will be imported and distributed by COSMUD under its conjunctive use program in a way that minimizes the impact on groundwater. This management strategy improves groundwater conditions for existing private and public well owners.

The comment also estimates that, based on the sustainable yield calculation within the WSA (0.6 acre-foot/acre/year), the sustainable groundwater yield for the SMDP area itself will be approximately 1,180 acre-feet. Although the 1,180 acre-feet/year calculation can serve as an estimate or management tool for the groundwater basin as a whole, the WSA did not mean to suggest that the project itself will actually use 1,180 acre-feet of groundwater. In reality, and in all but the driest years, this project will rely almost exclusively on surface water from the DWSP. Groundwater use will be focused to the east of the project. However, it was nonetheless necessary to make that sustainable yield calculation for purposes of determining whether COSMUD's water supplies as a whole will be sufficient to meet the demands of the project, as well as all existing and reasonably foreseeable planned future uses within its service area.

Response to Comment 8-5

The comment posits that the City and the Project have no "legal right" to the groundwater, and that a person or association overlying the groundwater basin "could obtain injunctive relief" and halt the City from pumping groundwater in the event of an overdraft. The comment appears to suggest that, for this reason, groundwater should not be relied upon as a source of water "actually available." The comment fails to acknowledge the substantial legal rights to groundwater already held by the City and by the overlying owners of the SMDP project site. More importantly, there is no evidence that such legal actions will occur, only speculation. Instead, there is more than sufficient evidence demonstrating a reasonable likelihood that groundwater will remain an available source of water to COSMUD and its customers.

A landowner overlying a groundwater basin (an "overlyer") has rights to use the percolating groundwater of the basin beneath his lands for reasonable beneficial uses on his land. Landowners overlying percolating groundwater may use it on an equal and correlative basis (*Katz v. Walkinshaw* [1903] 141 Cal. 116). This means that all property owners above a common aquifer possess a shared right to reasonable use of the groundwater aquifer. An overlyer has priority over non-overlying appropriators or water purveyors (*City of Pasadena v. City of Alhambra* [1949] 33 Cal.2d 908, 926).[1] However, each overlying landowner must reduce his extractions proportionately when groundwater supplies cannot provide enough water for the cumulative, reasonable, overlying uses of each overlying landowner (*Wright v. Goleta Water District* [1985] 174 Cal.App.3d 74, 84).

Surplus groundwater may be appropriated for use on non-overlying lands or by an overlying agency such as a city or water purveyor. A permit is not required to use percolating groundwater of either classification, but the appropriation of surplus groundwater is subordinate to the correlative rights of overlying users.

Groundwater appropriators are generally 1) strangers to the groundwater basin (who do not own or use groundwater on overlying lands) who act to appropriate available groundwater; 2) overlyers who use all or a portion of their groundwater on lands that do not overlie the groundwater basin; or 3) an overlying municipality that extracts available groundwater for municipal purposes. In essence, if there is surplus water, it may be appropriated for use on non-overlying land. An appropriative right to groundwater is a right to use groundwater outside the groundwater basin or for public service in communities overlying the basin, as long as enough water is left to meet all overlying landowner needs (*Tehachapi-Cummings County Water District v. Armstrong* [1975] 49 Cal.App.3d 992, 1000 n.6, 1001). Between overlyers and appropriators, overlyers have priority; among appropriators, priority follows the rule of "first in

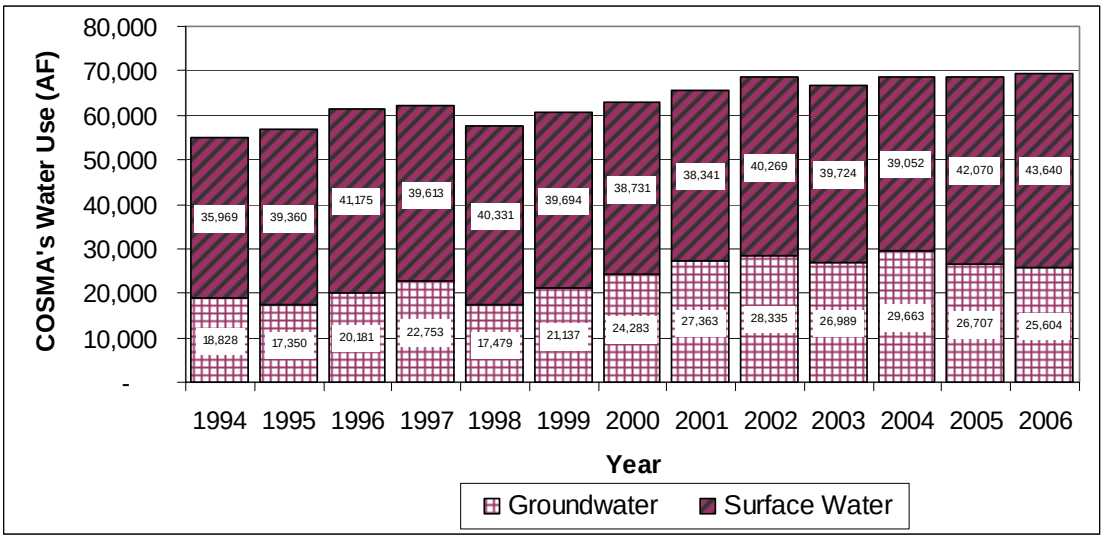
[1] Hutchins, Wells A. 1956. *The California Law of Water Rights*. Production Economics Research Branch, Agricultural Research Service, U.S. Department of Agriculture. Page 441 et seq.

time, first in right" (*City of Pasadena v. City of Alhambra*, supra, 33 Cal.2d at p. 926.). Earlier appropriative users have priority over later appropriative users.

Where the basin is in a condition of overdraft, appropriative rights can still be acquired by prescription (*City of Pasadena v. City of Alhambra*, supra, 33 Cal.2d at pp. 926-27; *City of Los Angeles v. City of San Fernando*, supra, 14 Cal.3d at p. 278). Ordinarily, an overlying owner could bring suit to enjoin an appropriative use, which would interfere with the overlyer's superior right. Once a public use has attached, however, private owners may no longer be able to obtain injunctive relief. Where public use has attached, a prohibitive injunction should be granted only if no other relief would be adequate (*Peabody v. City of Vallejo* [1935] 2 Cal. 2d 351, 377; *Wright v. Goleta Water Dist*., supra, 174 Cal.App.3d at p. 90). Once an appropriator has pumped from an overdrafted groundwater basin for 5 or more consecutive years, however, injured overlyers lose their right to sue, and the appropriator may obtain a prescriptive right to continue pumping. While *City of Los Angeles v. City of San Fernando* (supra, 14 Cal.3d at p. 274) holds that Civil Code 1007 precludes prescription against a public entity, it is still possible to obtain a prescriptive right against private overlyers. Therefore, pumping by a city or other appropriator during 5 straight years of overdraft could establish the right to continue such pumping.

In the case of the COSMA (as shown in the figure below), groundwater has been the primary source of water supply for the region since the 1900s, when well construction and pumping technology made it feasible to drill to lower depths and extract water for reasonable and beneficial uses, including irrigation, domestic, and M&I uses. Until the mid-1990s, the groundwater basin was in a state of overdraft from overlying extractions, including the COSMA water retailers. Appropriators include COSMUD, the California Water Company, and the County. Since 1994, annual groundwater use by the appropriators has varied from 19,000 to 29,700 acre-feet. By their use of groundwater for a period longer than 5 years, the COSMA has established a senior water right to as much as 29,700 acre-feet.

SMDP WSA Figure 10 (with 2006 Added)
COSMA Historical Groundwater and Surface Water Supplies (1994 to 2006)



As demonstrated in Response to Comment 8-2, the groundwater basin is no longer in overdraft and, based on more current monitoring data, is in a state of equilibrium. As further discussed in Response to Comment 8-2, programs are in place through the Northeastern San Joaquin County Groundwater Banking Authority (NESJCBA), SEWD, and City to manage the groundwater basin to further improve groundwater conditions. As a further commitment to protect and improve the groundwater basin, COSMUD conservatively limits average pumping to 0.60 acre-foot/acre/year as the sustainable groundwater yield underlying the COSMA. The groundwater yield based on the conjunctive use program identified in the WSA achieves an average groundwater yield of 22,000 acre-feet, a volume 7,000 acre-feet less than the established appropriative right based on historical use during the period of overdraft. Given the conjunctive use program described in the WSA, the groundwater extraction volumes in most years will be even less than 22,000 acre-feet, thereby raising groundwater elevations in most years. In dry years, when groundwater will be used up to 36,000 acre-feet in a single year, pre-extraction conditions in the basin will be greatly enhanced from in-lieu banking in the below normal to wet hydrologic years, thereby making any decline in groundwater elevations small relative to pre-DWSP conditions. Overall, these limits on the average groundwater pumping rate will result in an overall benefit to the basin, despite additional municipal uses within COSMUD's service area.

Response to Comment 8-6

Please see Response to Comment 8-2 for discussion of use of groundwater and regional programs presently being implemented to manage groundwater quality and elevations, and the WSA's recognition of the current state of the groundwater basin. Response to Comment 8-3 describes the use of SEWD firm

and interim supplies and the conclusion that interim supplies are included as foreseeable water supplies, but are not necessary for the determination of water supply sufficiency for the SMDP project.

The comment questions the independence of the WSA and its hydrologic analysis. The WSA and the analysis it relies on (including the DWSP Feasibility Report [DWSP Report], Urban Water Management Plan [UWMP], Water Supply Evaluation [WSE], etc.) were prepared by COSMUD, an independent municipal body of the City, and its qualified engineering consultants. Consequently, this information and the opinions therein are considered substantial evidence (see, for example, State CEQA Guidelines Section 15384[b]).

The comment claims that the WSA must rely on the City's surface water contract with SEWD (20 TAF/year) as its sole source of "firm" water available. However, SB 610 requires the water purveyor to consider all "relevant" contracts, rights, or other entitlements in assessing whether sufficient water is available to serve the project. Given that SEWD has conveyed water to COSMUD for use throughout its service area for a number of years, as well as SEWD's separate duty to provide water to its customers, there is no doubt that COSMUD can appropriately rely on these sources of water, and indeed must evaluate these sources in its WSA. These supplies can be considered firm for the following reasons:

- Groundwater is at a sustained level (please see Response to Comment 8-2).
- Interim supplies are not relied upon for the ultimate conclusion that COSMUD's water supplies are sufficient for the project, as well as existing and planned future uses. Nonetheless, there is a reasonable likelihood that some, if not all, of the interim supplies will be available to supplement COSMUD's other surface water supplies and to aid in its conjunctive use program.
- Firm water supplies are given every consideration of their respective limitations. Supplies that are not available in dry years can and are considered firm in the wetter hydrologic conditions. These are sources with very few practical or regulatory constraints, rely on approved contracts or other vested water rights, and have been available or delivered consistently within the last several years.

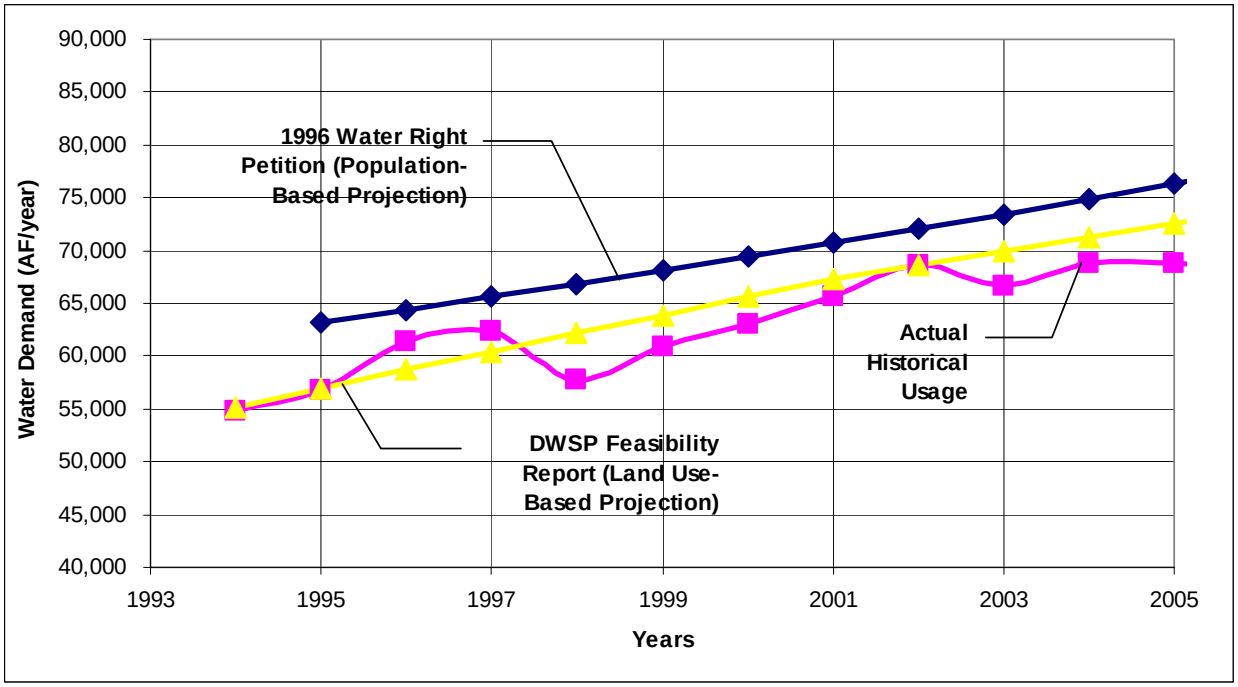
Response to Comment 8-7

Please see Response to Comment 8-2 for a summary of the WSA's use of the SEWD's interim water supplies. Response to Comment 8-3 describes COSMA's conjunctive use program and the underlying tenet that wet year supplies are considered to support an overall conjunctive use program that nets firm water supplies while managing the groundwater basin to an improved state.

Development of the estimated water demand for the SMDP is based on historical unit water demand factors assigned to the various General Plan and Project land

use categories. COSMUD developed gross-demand factors as part of the DWSP Report. The DWSP demand calculations were based on unit-demand factors developed from actual metered water for each land use category and records from production facilities such as the SEWD Water Treatment Plant (WTP) and COSMA's groundwater wells. Compared to other municipal agencies in northern California, COSMUD's unit-demand factors are statistically low. This is primarily because of the City's implementation of water conservation measures, including metered pricing and less-water-intensive (drought-tolerant) landscaping over the past 30+ years. In the City's water right petition submitted in 1996, on the other hand, a forecasted water demand was provided based on population projections (i.e., a constant 1.9% annual increase) consistent with the 1990 General Plan. These population-based water demands were developed prior to the determination of the acreage demand factors. In 2002, when the DWSP Report was completed, a comparison was done to verify the accuracy of its forecasts in the water right petition. A comparison of the approaches found that actual water demands were lower than the population-based forecasts in the water right petition. The acreage-based water demand factors thus provide more accurate estimates of actual water demand. This is shown in the figure below:

Water Demand Methodology Comparison



In addition to calculating the SMDP's water demand based on the land use–based method, the WSA also applied the more conservative (and less accurate) population-based method for gross acreage (1,967 acres). So, while the project water demand was identified as 2,667 acre-feet/year, the water demand used for purposes of the WSA was actually 3,147 acre-feet/year (see Section 2.3 of the SMDP WSA). Under either method, however, the conclusion remains the same—with build-out of DWSP Phase 1, COSMUD's water supplies will be

sufficient to meet the demands of the SMDP, as well as existing and planned future uses within the service area.

The commenter incorrectly states that agricultural demand within the COSMA has not been considered. Agricultural demand for groundwater has been factored into the calculations of sustainable yield by reducing the total acreage of allowable allocation toward the sustainable yield by the agriculture water demands that have existed over time (e.g., total urban acreage * 0.60 acre-foot/acre/year = sustainable yield; whereas, total agricultural acreage * [x] = sustainable yield for existing agricultural production). Furthermore, the WSA recognizes that agricultural water demands have priority water rights to both surface water and groundwater. In the DWSP Report, agricultural water demands were considered in the determination of the sustainable yield of the groundwater basin in the following manner:

> AGRICULTURAL WATER DEMAND PROJECTIONS FOR GROUNDWATER MANAGEMENT PURPOSES - The 17,000 acre-feet/year of groundwater demand for agricultural uses presented in Table 2-3 [not shown] is added to the amount of groundwater for urban uses and included as part of the City's overall management of the groundwater supply. Over time, the 17,000 acre-feet/year is assumed to decrease as agricultural areas shown within the General Plan Boundary (within and outside of the Urban Service Area) are urbanized. At General Plan build-out (anticipated to be 2015), the agricultural water demand served by groundwater within the Urban Service Area is estimated at 12,400 acre-feet/year. Because the COSMA's water rights application extends beyond General Plan build-out, continued decreases in agricultural demands are assumed to occur until agricultural groundwater demands have been replaced with urban demands. (DWSP Report, page 2-14.)
>
> Based on the 0.75 acre-feet/ac/year factor, the COSMA's Urban Services Area of 66,000 acres could potentially use up to 50,000 acre-feet/year of groundwater. Currently, the total estimated groundwater extraction within the Urban Services Area is 44,000 acre-feet/year that includes approximately 17,000 acre-feet/year from agricultural uses, and 27,000 acre-feet/year from municipal uses including the COSMA, Cal Water, and County service areas. (DWSP Report, page 3-10.)

Using this approach, the WSA finds that existing groundwater extractions by agricultural and municipal uses fall well below the sustainable yield of 0.75 acre-foot/acre/year. With the displacement of agriculture due to urbanization, total groundwater use is expected to remain below the sustainable yield of the groundwater basin and sub-basins.

Response to Comment 8-8

To access water for the DWSP, the City filed an application for the appropriation of surplus water in the Delta under CWC 11460–11465, plus water the City is entitled to pursuant to CWC 1485. The water right permit issued in December 2005 is only for CWC 1485 water. CWC 1485 relates to the recapturing of discharged and treated wastewater in the Delta. Diversions of CWC 1485 water

can therefore take place if COSMUD is discharging treated wastewater, except during the months of April, May, and June, when higher flows in the Delta are necessary to protect listed species in accordance with the Endangered Species Act (ESA). This limitation necessitates a curtailment in diversions during this time period, but will not reduce annual deliveries to COSMUD and has already been taken into account in the WSA's evaluation of sufficient water supplies.

Contrary to the comment, Term 91 applies only to diversions of water under CWC 11460 et seq., also referred to as "area of origin" water. Consequently, Term 91 does not apply to the City's DWSP water rights permit, and therefore does not impose the restrictions on balanced conditions set forth in the comment.

Response to Comment 8-9

The comment incorrectly estimates water treatment capacity and production at 49,500 acre-feet/year, as well as the role of production capacity in COSMUD's ability to deliver sufficient water supplies to the SMDP.

On production capacity and operational considerations, the WSA already assumes maintenance shutdown periods for both the SEWD and the DWSP WTPs. The SEWD WTP is operated at 25% of its capacity during one full month in winter, when water demands are at their lowest. The DWSP WTP, on the other hand, would be shut down during periods of decreased diversions for protection of listed species and for annual maintenance. Reduced capacity in the WTPs due to high turbidity is minimized by infrastructure improvements in both WTPs. The SEWD WTP is recognized as having low turbidities due to the raw water supply coming from storage and from low sediment loads within the immediate watershed. These periods of reduced production capacity, however, do not affect COSMUD's ability to serve the SMDP, as well as existing and planned future uses within the COSMA, on an average annual basis.

On the production amounts available from the Stockton East WTP, the WSA's total average water production (at the project level of water demand) from the SEWD and DWSP WTPs is 40,000 acre-feet (75% of capacity) and 15,000 acre-feet (56% of capacity), respectively. Thus, the WSA accurately states the production capacity of the water treatment facilities and does not require SEWD to acquire rights to new sources of water from the State Water Resources Control Board (SWRCB) as the comment suggests. Instead, COSMUD has found that these facilities are sufficient to meet the needs of the SMDP, as well as existing and planned future uses.

Response to Comment 8-10

Please see Response to Comment 8-9 concerning water treatment capacity. Without citing any factual evidence, the commenter claims that the WSA is overly optimistic and suggests that the DEIR undertake a "rigorous analysis of

water supply and demand and resource limitations." As noted in previous responses, the SMDP WSA builds on several previous studies (the DWSP Report, General Plan Update WSE, and COSMUD's 2005 UWMP), as well as site-specific analysis of the SMDP and its long-term water supply needs. These studies have been rigorous and have applied conservative assumptions about water demand, available supplies, and other relevant constraints. The DEIR and SMDP WSA, however, acknowledge the uncertainty arising from its various water supplies (particularly the interim supplies historically provided by SEWD), and thus consider alternative future water supplies (namely, the DWSP). Ultimately, the WSA concludes that implementation of DWSP Phase 1 is necessary to ensure that its water supplies will be sufficient to meet the needs of the SMDP, as well as existing and planned future uses within its service area.

As a stop-gap measure, if DWSP Phase 1 is not constructed in time, the EIR identifies Mitigation Measure HYD-11a, which would prohibit future phases of the SMDP to proceed without an alternative source of water. The California Supreme Court recently stated that such mitigation:

> …could serve to *supplement* an EIR's discussion of the impacts of exploiting the intended water sources; in that case, however, the EIR, in order to adequately inform decision makers and the public, would then need to discuss the probability that the intended water sources for later phases of development will not eventuate, the environmental impacts of curtailing the project before completion, and mitigation measures planned to minimize any such significant impacts (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* [2007] 40 Cal.4th 412.).

Here, the WSA and EIR conclude that the DWSP Phase 1 sources are reasonably certain to occur. Indeed, COSMUD has obtained all regulatory approvals, the SWRCB has issued an appropriative water rights permit, the capital outlay program is in place, and there are few constraints due to the source of that right—wastewater return flows. Consequently, it is highly unlikely that Mitigation Measure HYD-11a will become necessary. Further, even if Mitigation Measure HYD-11a does become necessary, it will only serve to delay future phases of the SMDP. Because the SMDP is already contemplated to be constructed in phases, this delay in and of itself will not result in any separate environmental effects. Please see also Response to Comment 12-11.

In sum, the WSA and EIR have concluded, based on substantial evidence, that COSMUD's water supplies will be sufficient to meet the demands of the SMDP and existing and planned future uses in the service area. This conclusion emanates from COSMUD's historical deliveries, a review of several technical background reports, conservative assumptions about future supplies, the reasonable certainty associated with its DWSP entitlements, and the early success of its conjunctive use program.

Response to Comment 8-11

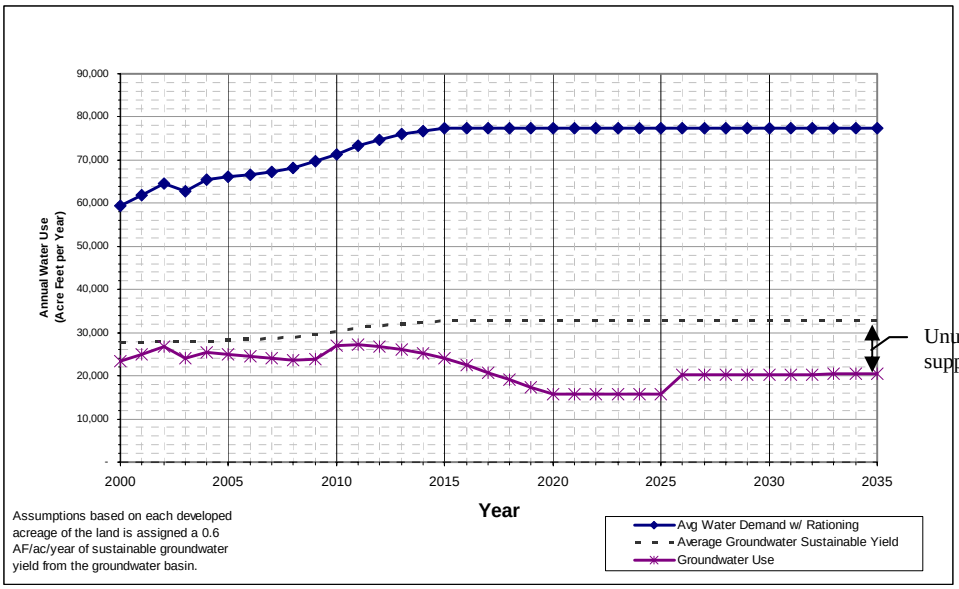
The comment does not take into account the "firm" water supplies identified in the WSA (including "dry" and "above normal" sources), as well as the substantial water supplies available through COSMUD's conjunctive use program and short and long-term water transfers. As a whole, the COSMA will rely on a number of these sources through 2035 and beyond. Indeed, COSMUD's WSE concludes that its water supplies will be sufficient to meet the demands projected under the 2035 General Plan Update. It is important to note that those water supplies are not necessary to meet the demands of this Project, nor are they necessary to address all planned future uses within the 20-year horizon mandated under SB 610. Consequently, the commenter mischaracterizes the balance of demand and supply over the long term.

Considerable investment and resources have gone into COSMA's conjunctive use program as described in the project's WSA. Future implementation of this program is certain. 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. 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) by simply not pumping as much in wet years. In dry years and dry months, COSMUD's groundwater extractions will increase to compensate for the reduced availability of surface water, but will remain below sustainable thresholds so as to avoid local and regional impacts on the groundwater basin and sub-basins.

The WSA and EIR are based on conservative assumptions surrounding available surface water supplies. Groundwater studies included as part of the WSE for the General Plan Update show that through a conjunctive use program, groundwater basin extractions can go as high as 0.87 acre-feet/acre/year over multiple wet and dry years. This is particularly true during above-normal years when surface supplies can alleviate demands on groundwater, and can aid in active recharge. COSMUD could thus rely on its surface water entitlements in the wet years when availability of surface water is at its highest.

Rather than looking at one supply or the other, it is necessary to combine water supplies in a manner that draws on the strengths and weaknesses of both supplies. Meaning, in wet years, COSMUD will rely on surface water and reduce groundwater pumping; in dry years, COSMUD will rely more on groundwater and will reduce its surface water diversions. In this way, the conjunctive use program will generate an additional increment of water supply that would not otherwise be available. This is best illustrated in the figure below:

SMDP WSA Figure 19
Average Groundwater Use vs. Demand From 2000 to 2035
Using 0.60 Acre-Feet/Acre/Year Average Groundwater Sustainable Yield



The figure illustrates how the amount of needed groundwater (bottom line) changes as demands increase and changes in surface water volume and availability occur over time. This figure indicates that, under 2035 water supply conditions, there is approximately 12 TAF/year on average of unused groundwater supplies. In other words, in dry or critically dry years, there will be an extra 12 TAF/year of groundwater available as a direct result of COSMUD's conjunctive use program. This is an amount that would not otherwise be available without the program, and can be credited towards COSMUD's firm water supplies in dry years.

Consequently, the WSA and its referenced studies conclude that water supplies within the COSMA will be sufficient to meet the demands of present and future uses through 2035. For these reasons, the COSMA will not suffer the short-fall the commenter claims will occur.

Response to Comment 8-12

In accordance with CWC 10910–10915 (inclusive), the project WSA includes an evaluation of the adequacy of existing water supply and infrastructure. The findings under this section state that existing water supplies and infrastructure are inadequate to sustain the project and all existing and planned future uses. In other words, the WSA acknowledges and evaluates the risk that certain interim water supplies will not be renewed or that other supplies may not come to fruition. The WSA then carefully proceeds to evaluate planned water supplies and infrastructure that have verifiable agreements/contracts and funding in place.

Based on that evaluation and substantial evidence, it is reasonable to conclude that, in an abundance of caution and recognizing that planned elements (as opposed to constructed supplies) have an inherent risk, the EIR requires the project proponent to ensure adequate water for each phase of development. The City will not, as the comment suggests, increase groundwater overdraft above sustainable levels. Indeed, the WSA concludes that COSMUD can live within the sustainable yield of the basin and still serve the COSMA.

Response to Comment 8-13

The comments suggest that, at full build-out of the General Plan in 2035, even under the most favorable conditions, the COSMA will still be required to withdraw 94,208 acre-feet/year of groundwater, on average, which will overdraft the subbasin by at least 250,000 acre-feet/year.

Please see Response to Comment 8-8 for a discussion on "balanced conditions" as they relate to Term 91 and the DWSP, and Response to Comment 8-11 for discussion of conjunctive use program and the ability to efficiently use both surface water and groundwater to create firm water supplies. With the given conjunctive use program, the COSMA water balance detailed in the SMDP WSA is as follows:

Table 3-2. COSMA Water Balance Detailed in the SMDP WSA

	TAF/Year		
Water Supply	Wet Years	Dry Years	Average
Total Supply Summary			
Average Groundwater Use	6.5	38.2	20.1
Average Surface Water Use	75.1	31.1	57.8
Rationing	–	12.2	3.7
Total Supplies	**81.6**	**81.6**	**81.6**
Total Demand	**81.6**	**81.6**	**81.6**
Use of Surface Water Supplies			
OID/SSJID	–	–	–
New Melones	29.0	-	16.0
New Hogan	31.0	12.1	17.8
Appropriative Water Rights on the Calaveras (see note)	–	–	6.0
Calaveras County Unused Water Entitlements	–	4.0	2.8
1485 Water	15.1	15.1	15.1
Total	**75.1**	**31.1**	**57.8**

Note: Appropriative water rights on the Calaveras are assumed to be available in 2035, but are not necessary for this project. In fact, the above table indicates that this water right is used only in below-normal years when New Hogan supplies are curtailed.

The table provides the water supply portfolio for wet and dry hydrologic conditions and the average over 70 years of historical hydrology. The surface

water volume in a wet year is 75.1 TAF, with the amount apportioned over the surface water supply contracts shown. In the dry year, the surface water supply is decreased to 31.1 TAF. In the SMDP WSA, groundwater use is estimated to be 6.5 TAF/year in a wet year and 38.2 TAF in a dry year. The average groundwater over 70 years of historical hydrology is 20 TAF/year. This is approximately 9 TAF/year less than current-day groundwater extractions. The hydrologic figures presented in the WSA do not represent the "most favorable conditions," but rather are the amounts that have been available in the past and are reasonably anticipated to be made available on a going-forward basis. Moreover, there are more surface supplies available in wet and dry years than the comment suggests to meet the 2035 demands. Consequently, the COSMA will not be required to withdraw 94,208 acre-feet/year of groundwater.

Please see Responses to Comments 8-2 and 8-14 concerning the overdraft status of the subbasin.

Response to Comment 8-14

The commenter requests an acknowledgement that the Eastern San Joaquin Groundwater Basin is one basin, with no hydrogeologic barrier, and despite the results of monitoring wells in urban areas, the entire basin is still in critical overdraft and cannot be relied upon as a firm water supply. The commenter states his opinion that any additional withdrawal worsens the overdraft.

To clarify, the COSMA is within the Eastern San Joaquin sub-basin, which is part of the larger Central Valley groundwater basin. The sub-basin extends from the Mokelumne River to the north, the Stanislaus River to the south, the San Joaquin River and Delta to the west, and the Sierra Nevada foothills to the east.

The COSMA has consistently described its continued use of the aquifer in a conservative manner (the DWSP Report, General Plan Update WSE, SMDP WSA, and COSMUD's 2005 UWMP). Further discussion is presented in Response to Comment 8-2. The Central Valley groundwater basin (and the COSMA's sub-basin) is a firm and reliable water supply for the COSMA so long as average groundwater withdrawals remain below sustainable levels. These withdrawals can occur without worsening the overdrafted condition. Indeed, reduced pumping within urban areas, including the COSMA, can improve conditions throughout the basin. COSMA's location adjacent to the significant groundwater recharge sources of the San Joaquin River and Delta make it an ideal location for maintaining a strong hydraulic connection with the recharge source and management of withdrawals to help avoid or minimize the rate of movement of saline water from the west.

The analysis in the WSA concludes that projected water use within the entire basin will stay within the pumping amounts contemplated in the Eastern San Joaquin Groundwater Basin Groundwater Management Plan (GMP), prepared by NESJCBA in 2004. The GMP contains significant and relevant information as it relates to the evaluation of basinwide sustainability and the need to monitor

groundwater elevations and water quality, and provide the most efficient means of bringing surface water into the basin. While the GMP concludes that substantive measures need to take place within the groundwater basin to protect groundwater supplies, the findings indicate that through integrated regional cooperation, groundwater use can be sustainable. In Tables 2-4 and 2-5 of the GMP, total water demand for the entire basin (including the Central Valley sub-basin) in 1996 is estimated to be 82 TAF/year for M&I and 1,522 TAF/year for agriculture. In 2030, the estimates for M&I and agriculture are 241 TAF/year and 1,390 TAF/year, respectively. When combined, the total difference results in a net increase in water demands of 27 TAF/year over the next 22 years. Demands used in the regional groundwater modeling assumed that M&I and agricultural demands outside the COSMA remain at 1990 levels. However, we know that this is not the case, particularly as agricultural demands are decreasing with the conversion from agricultural uses (more than 4 acre-feet/acre/year) to much-less-demanding municipal uses (less than 2 to 2.5 acre-feet/acre/year, as the gross weighted average at SMDP was calculated at 1.36 acre-feet/acre/year). By assuming full build-out of the COSMA General Plan Update, the WSE predicts even greater conversion from agricultural to urban uses.

Furthermore, the GMP and DWSP go hand-in-hand in helping to achieve regional groundwater sustainability. The GMP provides several Basin Management Objectives (BMOs), as well as Best Management Practices (BMPs) for meeting those objectives. This regional objective is consistent with the third objective of the DWSP to improve the quality and quantity of groundwater supplies. Consequently, the DWSP is one of several conjunctive use programs that can help achieve the BMOs of the GMP, by helping to maintain and enhance regional groundwater elevations to meet the long-term needs of the basin's groundwater users.

The COSMUD has endeavored and will continue to endeavor to maintain groundwater extractions within the conservative sustainable yield of the regional aquifer consistent with its own policies in coordination with such agencies as the NESJCBA. The COSMUD also supports regional programs outside the COSMA. The monitoring of groundwater elevations, completed a minimum of twice a year, show the recovery and stabilization of the aquifer underlying the COSMA and adjacent areas over the past 10 years (groundwater elevation graphs are included in the WSA at three control points in the sub-basin). SEWD, COSMA, and agricultural users continue to seek opportunities and partnerships in groundwater management strategies (e.g., the Integrated Regional Water Management Plan), and the COSMA water purveyors continue to manage their portions of the groundwater basin within the existing partnership with SEWD. This combination of efforts results in an optimization of San Joaquin County's total water resources without impacting overall groundwater quality or quantity in the COSMA and surrounding areas.

A contemplated future element of COSMUD's conjunctive use program is the recognition that the conversion of agricultural (groundwater only) pumping to urban conjunctive use pumping results in a net decrease in the basin's groundwater extractions. This decrease in extractions is acknowledged as a

benefit to the groundwater basin that can be exercised in a manner that will not impact the aquifer or users of the aquifer. This net benefit results in COSMUD's ability to pump slightly more than its self-imposed 0.75 acre-foot/acre/year limit in a single dry year, and still achieve less overall groundwater extraction when compared to the previous long-term agricultural pumping that is displaced by urban development. In other words, COSMUD can reasonably calculate and rely on the benefits associated with decreases in agricultural uses.

As written in studies of agricultural credits (see Appendix F of the WSE of the General Plan Update), the use of groundwater for municipal purposes in areas that have historically extracted groundwater for irrigation uses results in a significant decrease in groundwater pumping, contrary to comments made that equate urban pumping with agricultural pumping. Agricultural uses require anywhere from 2 to 4 acre-feet/acre/year from groundwater. Under self-imposed groundwater management programs, the sustainable yield for lands converted to urban uses within the COSMA is 0.75 acre-foot/acre/year. That is, as each new acre of planned development occurs, a maximum of 0.75 acre-foot/year of groundwater can be extracted in any one given year, and the average over multiple years cannot exceed 0.60 acre-foot/year.

The assumptions used in the Agricultural Credit study that was completed in support of the WSE of the General Plan Update considered the entire groundwater basin. The benefits of converting agricultural uses to urban uses were quantified through a regional groundwater model that covered all of San Joaquin County and included pumping from *all users of the basin*(s) with water demands as described above. Three constraints to the groundwater were formulated for the protection of the groundwater as follows:

1. Do not increase the rate of movement of the known salinity front along the western boundary of the COSMA. The gradient (or slope) of the groundwater piezometric surface (groundwater table) should not increase (or steepen) in the area of the existing salinity front.
2. Groundwater elevations within the COSMA should not go below pre-development conditions (assuming agricultural pumping) anywhere throughout the basin. This translates into a model constraint on groundwater elevations such that elevations shall not drop more than 1 foot within the COSMA. As a result, areas of historical agricultural pumping improve considerably because of the shift in pumping from private wells located on those lands to the M&I wells of the three water retailers.
3. For regional basin protection, the lowest elevation of the regional cone of depression for San Joaquin County is not to be lowered.

The resulting groundwater yield based on meeting these criteria was determined to be 0.87 acre-foot/acre/year (a 0.12-acre-foot/acre/year increase from the 0.75-acre-foot/acre/year factor) and resulted in an increase of approximately 4.5 feet in groundwater elevations in the agricultural areas previously irrigated with groundwater. The agricultural credit is applied when the irrigated lands are converted to urban uses and not before.

In sum, increases in groundwater uses for municipal purposes throughout the basin are not anticipated to worsen present overdraft conditions. Instead, conversion from agricultural to urban uses should result in a net decline in overall groundwater use and increased flexibility in implementing conjunctive use programs.

Response to Comment 8-15

Please see Response to Comment 8-5 for an understanding of COSMUD's legal rights to pump groundwater. Please refer to Response to Comment 8-14 for an explanation of the cooperation that is taking place throughout the basin to sustain groundwater as a supply for all users in the basin. The COSMA has taken and is taking significant steps to improve groundwater conditions. Recent data and recovery in the basin bears this out.

Thus, while COSMUD cannot establish with absolute certainty that these groundwater resources will always be available, CEQA and SB 610 do not require such absolute certainty. If such was the case, no WSA could ever find a sufficient amount of water. That said, with recent data and increasingly aggressive groundwater management and conjunctive use, groundwater supplies at the identified sustainable level are reasonably expected to be available for the SMDP, as well as for existing and planned future uses over the long term.

Response to Comment 8-16

Please refer to Response to Comment 8-14 for an explanation of the cooperation that is taking place throughout the basin to sustain groundwater as a supply for all users in the basin.

Even though the WSA prepared for this project does not quantify regional demand estimates for each municipality within the groundwater basin, COSMUD has applied a conservative methodology for estimating regional demand and the sustainable yield of the basin and sub-basins, as well as for setting management parameters for future groundwater pumping. This methodology relies on the regional San Joaquin County Integrated Groundwater Surface Water Model (SJC IGSM) that, in turn, was conditioned on the results from DWR's regional Central Valley groundwater model (CVGSM). Using the calibrated SJC IGSM model, the agricultural pumping within the urbanizing areas of the General Plan Update Urban Services Area were removed and replaced with municipal uses. With municipal uses substituted for agricultural uses within the Service Area (which occurs when the areas are developed), the model was re-run. Based on the results, groundwater elevations within the southern portion of the COSMA not only stabilized, but showed a significant replenishment of the basin and sub-basins. Groundwater elevations in the regional groundwater basin were not impacted. This is due to the highly consumptive nature of agricultural production as compared to municipal uses.

identified all significant traffic impacts at these intersections, and no additional impacts would be identified if another type of analysis were used.

More detailed operational analyses, such as those using micro-simulation of the traffic movements, are appropriate for studies conducted in support of roadway design projects and may be applied during later stages of the City's development review process.

The City's traffic consultant incorrectly coded the eastbound right-turn movement as a free right turn in the LOS calculations for the Eight Mile Road/I-5 southbound ramps intersection. The traffic consultant assumed an eastbound free right turn for the future I-5/Otto Drive southbound ramps intersection because the ultimate lane configuration for this intersection has not yet been determined. After receiving public comment on the DEIR, the traffic consultant recoded these two movements, recalculated the LOS and delay numbers, and prepared modified EIR tables, the results of which are summarized below. These changes did not result in the identification of any new or more significant environmental impacts, but simply clarify the impacts already identified.

Table 3-3. Intersection LOS Results with Modified Eastbound Right-Turn Lanes

	Eight Mile Road/ I-5 Southbound Ramps				Otto Drive/ I-5 Southbound Ramps			
	AM		PM		AM		PM	
Scenario	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Existing	8	A	6	A	N/A	N/A	N/A	N/A
Existing plus Approved Projects (EPAP)	15	B	25	C	N/A	N/A	N/A	N/A
EPAP plus Project	17	B	35	D	N/A	N/A	N/A	N/A
2025	18	B	48	D	>80	F	31	C
2025 plus Project	20	B	54	D	>80	F	79	E
2035	>80	F	>80	F	>80	F	32	C
2035 plus Project	>80	F	>80	F	>80	F	77	E

Modifying the right-turn lanes in the calculations did not result in any changes to the conclusions about the intersection of Eight Mile Road and the I-5 southbound ramps. The intersection of Otto Drive and the I-5 southbound ramps will operate at LOS F during the AM peak hour under 2025 and 2035 conditions with and without the project. The previous analysis found it operated at acceptable levels without the project, but LOS F with the project, so this does not create a new impact. Without a free right-turn lane, this intersection will also operate at unacceptable levels in the PM peak hour with project traffic under 2025 and 2035 conditions. DEIR text changes reflecting the revised analysis are presented below.

The following changes are made to the text of the DEIR on page 3.15-18.

Response to Comment 8-17

The COSMA water retailers have monitored and will continue to monitor the movement of groundwater with higher concentrations of total dissolved solids (TDS), including chloride (salt). A press release dated March 8, 2007, by the NESJCBA, provides the following update on this effort:

> To monitor this salt water invasion and to access groundwater samples, specially designed monitoring wells were installed as part of the study in several locations including Sperry Road, Morada Lane, Swenson, Atherton, Sandman, and Victory Parks as well as Oak Grove Regional Park north of Stockton. Historic water quality data from approximately 4,000 existing wells monitored by the San Joaquin County Flood Control and Water Conservation District since the 1970's was also used in the study.
>
> More findings from the study are to come as the study will take another two years to complete. With the Basin's current conditions of increasing overdraft and salinity intrusion, the Basin cannot be sustained unless actions to reverse these conditions are taken. Once completed, the U.S. Geological Survey along with its project partners, the Northeastern San Joaquin County Groundwater Banking Authority and the California Dept. of Water Resources will use the results of the study to develop solutions to prevent further intrusion and improve the health of the Basin.

Steps taken by the COSMA over the past 20 years have essentially stopped the movement of the high TDS water eastward. Active monitoring and direct management actions in the groundwater basin are anticipated to prevent further movement. If future monitoring results indicate a movement of the TDS, corrective measures in accordance with the conjunctive use programs and GMP BMOs will be implemented in cooperation with other basin stakeholders (e.g., delivery of raw surface water to agriculture within SEWD and the COSMA, increased use of raw water supplies from Woodbridge Irrigation District, directed management of municipal pumping and surface water use throughout the retail service areas, and surface water recharge basins in front of the saline front to create an artificial barrier). According to the monitoring of water supply constituents performed annually in accordance with Title 22 drinking water standards, chloride and other contaminant levels have ceased to move eastward, and can be contained by maintaining groundwater withdrawals at sustainable levels. The SMDP, however, will rely almost exclusively on surface waters from the DWSP, and therefore is not itself expected to exacerbate this problem.

Response to Comment 8-18

Please see Response to Comment 8-14 for a discussion of Agricultural Credits as they relate to the General Plan Update. The WSA prepared for this project does not rely on Agricultural Credits.

Response to Comment 8-19

Please see Response to Comment 8-14 for a discussion of Agricultural Credits as they relate to the General Plan Update. While it is true that the underlying basin has historically been in a state of critical overdraft, more recent data and groundwater management demonstrate that the basin is recovering and stable. If a property has demonstrated a continuous historical use of groundwater (including during times of groundwater depletion) and the aquifer continues to recover, it is reasonable to conclude that future uses that withdraw less water will have a net benefit on the aquifer. That is the situation here. Additionally, in any event, the DEIR and WSA do not rely on any "credit" or other historical use at Shima Tract for its finding of sufficient water supply. Thus, actual documentation of water supply at Shima Tract is not necessary.

Response to Comment 8-20

A detailed description of Agricultural Credits is found in the SMDP WSA. Please also see Response to Comment 8-14. While the concept of "agricultural credits" was evaluated in COSMUD's WSE, that concept has not been factored into or relied upon in the WSA for the SMDP. Nonetheless, the evaluation of Agricultural Credits relies on a conservative methodology for estimating regional demand and the sustainable yield of the basin and sub-basins, as well as for setting management parameters for future groundwater pumping.

Response to Comment 8-21

The commenter suggests that the WSA has underestimated the project's domestic water requirements, and that such requirements will be in the range of 3,718 to 4,302 acre-feet/year (instead of 2,667 acre-feet/year identified in the WSA). The commenter also questions whether non-potable surface water can be obtained for non-potable uses within the SMDP, particularly for the stormwater lake treatment system.

The project water demand has been identified as 2,667 acre-feet/year, which is based on the land-use model for evaluating projected water demands. This method of developing project-specific demand calculations is more accurate than the alternative gross-population method, and therefore has been used to address the SMDP-specific land uses. Please see also Response to Comment 8-7.

As the WSA reports, the total water demand of the SMDP (2,667 acre-feet/year) includes both potable and non-potable uses (e.g., public landscaping). Nonetheless, the SMDP ultimately anticipates meeting its non-potable water demands with untreated surface water supplies. If that occurs, the total water demand calculations evaluated in the DEIR and WSA will actually be less than

2,667 acre-feet/year, thus relieving pressures on the DWSP and other COSMUD sources.

The stormwater lake treatment system, in particular, may require some supplemental surface water supplies as "make up" water to maintain certain lake levels during "dry" or "critically dry" years. Typically, however, the stormwater lake treatment system will collect stormwater runoff and treat and recirculate that water within the lake system. In "above normal" or "wet" years, the lake system is expected to provide supplemental water supplies for landscape irrigation and other non-potable uses within the SMDP. Consequently, the water demands of the lake system are anticipated to be marginal (no more than 4 feet/year of water due to evaporation) during multiple "dry" or "critically dry" years.

To meet its non-potable water demands (and thus decrease further the anticipated demands for treated water from COSMUD), the SMDP anticipates using its existing riparian water rights directly from the surrounding sloughs. Historically, those rights have been exercised to provide upwards of approximately 4,320 to 5,760 acre-feet/year of non-potable surface water for agricultural production. The doctrine of riparian water rights confers on the owner of land, contiguous to a watercourse, the right to withdraw water from the water body for reasonable and beneficial use on the land. The riparian water right is a right of property, and when the land is conveyed the riparian right passes with it. The riparian right can be lost if the land is severed from, or loses contiguity with, the watercourse; the rule in California is that the riparian right extends only to the smallest tract held under one title in the chain of title leading to the present owner (*Rancho Santa Margarita v. Vale* [1938] 11 Cal.2d 501).

Riparian water rights are associated with lands immediately adjacent to a natural body of water. These rights allow the owner of the land to withdraw water from the water body for use on that land. If land with riparian water rights is subdivided, the rights may be retained for the entire acreage, even if some parcels are no longer adjacent to the water body, provided that the documents of conveyance state that riparian water rights are retained.

Although riparian water rights are not limited to specific volumes of water, the amount of water that may be withdrawn using these rights is a good indicator of what can be diverted without infringement of the rights of other water diverters. The average annual water use for production of the crops currently grown on Shima Tract is generally estimated to be 3 to 4 acre-feet/acre, so the 1.6 acre-feet annually estimated by the City to be needed on these properties when developed could be easily supplied by the riparian right without infringement upon the rights of other water users in the Delta.

Although the riparian rights held by the property have historically been used for irrigation purposes only, unlike appropriative rights, no regulatory approval is needed to initiate or change the purpose of use for a riparian right (*Turner v. The James Canal Company* [1909] 155 Cal. 82, 92—"So long as the riparian owner takes no more than his reasonable share and uses it upon his riparian land, without unreasonable waste, other riparian owners below have no right to

inquire, how, or by what means, or at what place, he manages to divert his share from the stream."). Riparian water may be used for municipal and industrial uses and various forms of irrigation, such as for landscaping and parks. Riparian water can also be used for maintaining stormwater lake levels.

The SMDP WSA does not rely on any existing riparian or appropriative water rights that may exist within the SMDP area. This is consistent with the City's approach to WSA analysis and provides the most conservative assessment of available water supplies

Response to Comment 8-22

COSMUD's existing "firm" water supplies are substantially higher than 20 TAF/year, and its conjunctive use program will yield much greater flexibility to address the COSMA's growing demands in "dry" and "critically dry years." As a threshold matter, the COSMA has historically received up to 40 TAF/year in surface water supplies from SEWD. COSMA has been historically and sustainably withdrawing up to 29 TAF/year of groundwater, without negatively affecting average groundwater levels. COSMUD has received a water right to divert up to 33 TAF/year through the DWSP, and is negotiating to extend each of its interim water contracts (some of which COSMUD expects to renew successfully, although none are relied on in the WSA's findings concerning sufficiency of supplies for the Project and planned future uses). Finally, with further development of COSMUD's conjunctive use program, COSMUD expects to yield an additional 9 TAF/year of groundwater in "dry" or "critically dry" years without negatively affecting other water users in the basin.

Please see also Response to Comment 8-13 for definition of the COSMA's conjunctive use program and how surface water supplies can be optimized with groundwater to achieve safe sustainable groundwater conditions. Planning models used for development of the SMDP WSA considered extreme drought conditions in its determination of sufficiency.

Response to Comment 8-23

Please see Response to Comment 8-12 for a discussion of the requirements to satisfy the CWC. Under CWC 10911, a WSA must identify existing entitlements, capital outlay programs, and the regulatory approvals necessary for facilities construction. However, the CWC does not require, as the commenter suggests, that the water purveyor must have already completed construction of the facilities before relying on the proposed source of water. This is particularly true when the assessment is provided at an early stage of the facility's planning process, as is the case with the DWSP. Here, COSMUD is finishing the design of the DWSP diversion structure and pipeline, and working on the design of the WTP. Construction is to begin in 2008 with operation of the WTP by 2010–2011. COSMUD has developed and approved the initial phases of the capital

outlay program, and it is underway. The program will be funded by existing and future rate-payers through service charges and hook-up fees. The comment states that, due to constraints placed on the City's new facilities, that it is "unlikely" that the City will be able to divert the entire water right amount. The comment is presumably referring to Term 91 conditions and full utilization of the DWSP WTP capacity in light of water quality issues, maintenance, and periods of reduced diversions due to ESA requirements. Please see Response to Comment 8-8 for a discussion on how capacity in the SEWD and DWSP WTPs was handled in the modeling of the COSMA's water supply sustainability.

As the commenter notes, however, COSMUD has already received its water rights permit—the most difficult stage of the approval process—from the SWRCB for Phase 1 (33,000 acre-feet). COSMUD certified the DWSP EIR and has obtained the regulatory approvals necessary to begin construction. Consequently, the uncertainty with this water supply has been all but eliminated and, based on this substantial evidence, it is reasonable for COSMUD to expect that this supply will actually be available.

Please note that the DWSP will be constructed with or without new development for purposes of managing the groundwater basin and providing a higher degree of conjunctive use with surface water supplies from SEWD.

Response to Comment 8-24

The commenter, without citing any substantial evidence, claims that the only source of water legally available to the SMDP is groundwater, and that the SMDP will increase the overdraft of the basin from between 3,718 to 4,302 acre-feet/year. As stated in Responses to Comments 8-4 and 8-13, there are a number of sources of water available to COSMUD and the SMDP, in particular. It is likely that the SMDP will not specifically rely on groundwater at all, but almost exclusively on surface water from the DWSP and other sources. It should be noted as well that the demand calculations for the SMDP include both potable and non-potable sources. The SMDP, however, may rely on existing riparian and other rights to serve its on-site non-potable uses (e.g., lake make-up water, landscape irrigation, and vineyards). However, the WSA has conservatively included these non-potable demands in its calculation of overall project demands. The WSA also does not calculate the historical use of riparian water for agricultural irrigation that is estimated to be two to three times that amount of water used by the project. As stated in Response to Comment 8-21, this riparian water can (and will likely) be used to serve potable and non-potable demands for the project. Once developed for urban uses, and with the stormwater management system in place, the project is anticipated to need approximately 2,667 acre-feet/year. This is an immediate reduction in overall water use by about 50%. Granted, because the site is currently supplied by existing riparian rights directly from the surrounding sloughs, there is certainly a benefit to the overall ecosystem and downstream water users from the reduction in total water use. The WSA does not count this as a "credit" in its overall calculation of

available water supplies, even though there may be a net reduction in overall water use on Shima Tract.

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August 24, 2007

RECEIVED
CITY OF STOCKTON
AUG 27 2007
PERMIT CENTER
PLANNING DIVISION

Letter 9

To: City of Stockton (COS)
Dept. of Planning Div.
345 No. El Dorado St.
Stockton, CA 95202

Attn: Michael Niblock (Dir), David Stagnaro, Mark Madison, Mayor Ed. Chavez.

Re: Public Review of the Draft Environmental Impact Report (EIR) for the Sanctuary Master Development Plan Project (DEIR 5-05)

From: The following comments, questions, remarks and statements are from the Morada Community as represented by the Morada Area Assoc. (M.A.A.) and the Morada Municipal Advisory Council (M.M.A.C.).

9-1 Morada is a small farming community (150 years old) in the unincorporated area of San Joaquin County as defined by county map and as bounded by SR # 99 on west; Alpine Rd. on east; Calaveras River on south; and Bear Creek on north.

Morada has all the expected concerns about the issues covered in this DEIR ... roads and streets, schools and air quality, the problems

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August 24, 2007

inherent with crowding, police and fire safety, sewer and water infrastructure and supply, the loss of prime farmland and open space and local animal habitat, etc., but our focus concern in this DEIR is WATER and the lack of it. 9-1 Cont.

Reading the voluminous and very expensive environmental documents for the COS General Plan Update and for the many projects planned for under the auspices of the General Plan, like Empire Ranch, Mariposa Lakes, Grupe's Sanctuary and Spanos Gateway North, et al, reveals in our minds the impetus behind the "Public Policy Institute of CA" (P.P.I.) study of our priceless Delta. It has become the definitive study of the Delta, laying out the alternatives of which one will become the plan for the future of our beautiful Delta. This study is clearly politico and developer driven; it paints a fake picture of a terminally ill Delta that is in its final death throws. The plan offers up 3 or 4 Delta islands for flooding or "return to natural estuary" and, of course, the capitalization upon said estuary would be considered an "project enhancement". The study also allows the Delta going saline and the abandonment of farming from the Delta and the 9-2

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August 24, 2007

turning over of what is left to the big developers ... Thrpé Sanctuary and Spanos Gateway North, et al. But the main death blow delivered to our precious Delta Waterway by this B.B.d study is an "isolated conveyance", better known as the Peripheral Canal which would take Sacramento River water that naturally flushes our Delta and convey it down to So Cal where our governor, who supports this plan, made all his money and friends. This is not a good plan for the people of San Joaquin County but we are convinced this plan is what drives the General Plan and the planned development west of I5. The question arises: 1) How would the Peripheral Canal affect the COS Delta Water Supply Project as pertains to this DEIR?

9-2 Cont.

The water supply segment of this DEIR is deeply flawed and contains more inaccuracies, manipulated numbers, overestimates and underestimates false statements and errors than we care to deal with in our comments, so we left the many refutations of them to our water consultant Mr. Morris L. Allen P.E.. We do however want to state our opposition to this SMDPP and all others that will mostly rely on groundwater pumping from our critically overdrafted groundwater basin.

9-3

9-4

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August 24, 2007

The state of CA's common law groundwater rules are relatively straightforward. Overlying owners generally may pump groundwater from aquifers beneath their land for use on that land. If multiple owners overly the same aquifer, as in the Morada, Waterloo, Linden areas, their use rights are "correlative", meaning that in times of shortage each has only the right to pump his "reasonable share." Those owners also must use water "reasonably", meaning they cannot use water wastefully or with excessive inefficiency. If a surplus of water exists, appropriators, ie, users who would pump the water for non-overlying and/or municipal use may take a share, but their rights always are subservient to those of overlying users. 9-5

However, where a surplus does not exist, and the aquifer is in critical overdraft as it is here, overlying users can assert the primacy of their rights and obtain declaratory or injunctive relief precluding water exports. Peabody v. Vallejo 2 Cal 2d at 374 (observing that superior water rights are entitled to protection "at law or equity"). The Sanctuary project would be considered an "appropriator" and with the current long term critical overdraft 9-6

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August 24, 2007

would have no legal right to the water. Stockton, likewise, given the situation in the aquifer, would have no legal right to send water to the Sanctuary. The danger for the developer here is that at some time, should the overdraft increase because of new developments overlying the aquifer, an overlying owner or an association, could obtain injunctive relief to prevent the shipping of water to the proposed development. Given this very real possibility, it is hard to imagine how the water requirements for the Sanctuary can be met in a fashion that will insure that they are actually available. The questions arise: 2) should projects that are not self supportive and sufficient in themselves have the right to convert the property of others, ie, steal the water out from underneath old established overlying users? We on the east side of Hwy 99 are dependent on domestic and community wells and have an overlying property owners "right of use" to the groundwater beneath us ... 3) What is the COS doing to protect our water right?

9-6 Cont.

9-7

We are thankful for this opportunity to be heard and hope and pray we are. Simply, there really is no mitigation for the severe cumulative negative impacts on the aquifer, ie, our common

9-8

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August 24, 2007

groundwater basin if this project is allowed to be built. Aside from the hard and responsible decisions to preserve, protect and restore our one groundwater basin for all citizens of our county (Public Trust) and not to develope over our ag land for the mere sake of sprawl and the "bottom line", is foolhearty and fraudulent and threatens the future of our agricultural centered economy as well as the livability of a place with little or no water supply. 9-8 Cont.

This DEIR, while very flashy, voluminous and expensive lacks credibility because it doesn't honestly present and address the real crucial problems adequately nor does it consider its neighbors. This EIR is just another developer project driven document simply written to fulfill a step in the law. 9-9

Our final question: 4) are the policies in this DEIR document in line with the God-given obligation and accountability and very best moral stewardship of our resources we are commanded to demonstrate? 9-10

Again, thank you for this opportunity to input.

Sincerely,
William Van Amber Fields

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August 24, 2007

6406 Mulberry Ln.
Morada, CA 95212-9417

Morada resident 35 years
M.A.A. Board member
M.M.A.C. Board Member

C.C. M.A.A.
M.M.A.C.
William Yeates

1 of 2

August 24, 2007

RECEIVED
CITY OF STOCKTON
AUG 27 2007
PERMIT CENTER
PLANNING DIVISION

To: City of Stockton CDS
Dept of Planning Div.
345 No El Dorado St.
Stockton, CA 95202

Attn: Michael Niblock (Dir.) David Stagnaro,
Mark Madison, Mayor Ed Chavez

Re: Public Review of the Draft Environmental
Impact Report (DEIR) for the Sanctuary
Master Development Plan Project (DEIR 5-05)

From: The following comments, questions, remarks
and statements are from the Morada
Community as represented by the Morada
Area Assoc. (M.A.A.) and the Morada
Municipal Advisory Council (M.M.A.C.)

9-11 Please consider this comment letter as an addendum to Morada's prior comments and include with prior comment letter.

9-12 Attached please find a copy of page 13 from the San Joaquin Partnership/Business Council Inc. 2006-2007 Annual Reports. Under the heading, Successful Projects, we see Niagra Bottling LLC has located in a 162,000 sq ft facility in the Airport Gateway Center where they will receive water for

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August 24, 2007

their bottling operation from the City of Stockton water grid. The COS MUD said the city provides the water from the water grid and that the bottling facility is sized for 1 mgd (million gallons per day) output. This equates to 365 mg. or 1 TAF yr. (1,000 acre-feet per year) which is equivalent to the drinking water usage of a 5,000 unit subdivision.

The COS touts a conjunctive use program that uses 60% (+) groundwater and 40% (-) surface water which means more than half of Niagra's water comes from our critically overdrafted groundwater basin. Since the COS is appropriating the water to Niagra, the question arises: aren't you then expropriating, ie, transfering or converting overlying users' property (water) to others outside our groundwater basin?

9-12
Cont.

The parallel between the Niagra Bottling LLC and Grupe's Sanctuary seems clear as does the state's common law groundwater rules.

Thank you for the opportunity to input.

William Van Arker Fields
6406 Mulberry Ln.
Moraga, CA 94556-9417
M.M.A.C Board member
M.A.A. Board member

attachment #1:
(pg 13) S.J.P. / BC Inc

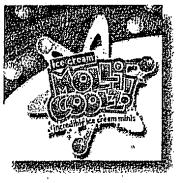
successful projects

Comment #1

MANUFACTURING continue

Dopaco started as a single plant manufacturing folding cartons. It now manufactures a variety of paper and plastic foodservice packaging throughout North America. The San Joaquin County facility in the Stockton Airport Business Center manufactures paperboard cartons and cups for the fast food industry. It expanded in 2006 adding 176,000 square feet for a total of 452,000 square feet adding 40 employees to an existing workforce of 270.

JenChem, Inc, a manufacturer of water treatment chemicals, has moved into a 13,000 square foot building in Stockton's Air Metro Business Park, a development by A.G. Spanos Companies and Buzz Oates Enterprises. They will employ 10 people.



Mollicoolz is a young company that makes a novelty ice cream product utilizing a cryogenically freezing process. The new 53,670 square foot facility in Stockton's El Pinal Business Park will begin with one line, expanding to eight lines by 2008. They will initially employ 42 people expanding to 100 at build out.

* Niagara Bottling, LLC is the largest family-owned bottled water company in the US. It is expanding its operations to Stockton, moving into a 162,000 square foot facility in the Airport Gateway Center, a Panattoni development project. The company intends to hire an initial 56 people with anticipated employment at 200 over the next two to three years. Niagara will use the Stockton facility for bottle production and water bottling.

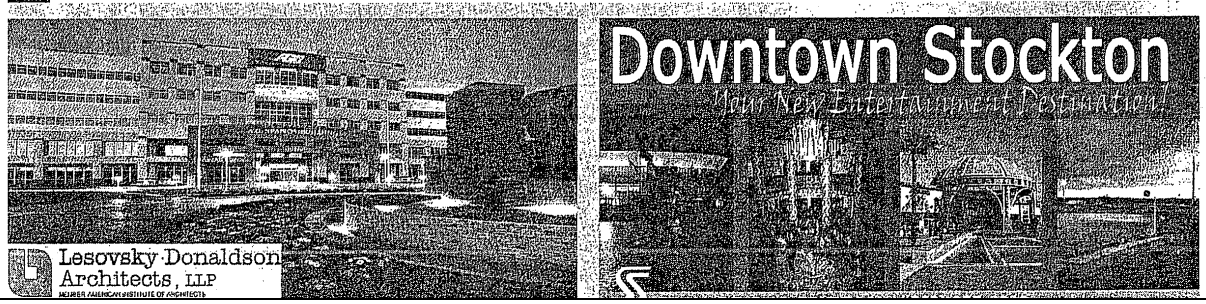
Water source = COS water grid
Size Capacity = 1mgd x 365d = 365mgd or 1000 acft/yr = 5000 unit subdivisions drinking water.

Packaging Plus has located to a 100,000 square foot facility in East Stockton. The company provides innovative packaging solutions including die cutting and printing of corrugated boxes for high-graphic packaging and displays. This was a retention/expansion project that retained 18 jobs and created two new jobs in San Joaquin County.

ProActive Northern CA is a complementary company to Packaging Plus, and is located in the same Stockton facility and employs 28 people. It produces corrugated board and does graphic printing.

Production Framing Systems, Inc. has located to a 26,000 square foot facility east of Highway 99 in Stockton. It manufactures wooden house frames and will employ 25 people.

13



Responses to Comment Letter 9—William Van Amber Fields, Morada Area Association and Morada Municipal Advisory Council

Response to Comment 9-1

The commenter states that his comments focus on water supply.

Response to Comment 9-2

The Morada Area Association (MAA) asks how the concept of a peripheral canal would affect the City's DWSP as it pertains to the SMDP DEIR. The concept of a canal to bypass the Delta has been discussed for many years, and was last rejected by the voters in 1982. While the general concept of an isolated conveyance has been discussed recently in the context of the Public Policy Institute of California study for protecting the Delta and as part of Delta Visioning and the Bay-Delta Conservation Plan, such a facility is only one of many alternatives currently under evaluation. Until there is a concrete proposal, the prospects of a peripheral canal are entirely speculative. Any project brought forward would have to be protective of senior water right holders and provide appropriate mitigation for any volumetric or water quality impacts.

Response to Comment 9-3

The commenter states that he has deferred many of the technical comments to the water consultant retained by the MAA, Morris Allen. Specific responses to the comments in Morris Allen's letter are found in the Responses to Comment Letter 8.

Response to Comment 9-4

The commenter states that he and his association are opposed to the proposed project. No response to this comment is required in the EIR. The commenter's opposition is presented here for the information of the decision makers.

The commenter states his opinion that the SMDP will mostly rely on groundwater pumping from a critically overdrafted groundwater basin. As set forth in the Responses to Comment Letter 8, the SMDP will not rely primarily on groundwater. In fact, the project is anticipated to receive primarily surface waters from Phase 1 of the DWSP (see Response to Comment 8-4 specifically, in addition to the other Responses to Comment Letter 8). The commenter also fails

to recognize the current state of the groundwater basin—as described in Response to Comment 8-2, it is stabilizing and recovering, and can be relied upon so long as pumping within the COSMA remains at or below sustainable levels (0.75 acre-foot/acre/year).

Response to Comment 9-5

Please see Response to Comment 8-5 for a response to this comment.

Response to Comment 9-6

Please see Response to Comment 8-5. The commenter suggests that the SMDP and COSMUD may not have the legal rights to pump groundwater. COSMUD holds the legal rights to pump groundwater for municipal and other uses. In addition, as an overlyer, the SMDP also retains the legal right to pump groundwater. To clarify, however, SMDP water supplies will primarily come from surface supplies from the SEWD and DWSP; groundwater will remain a supplemental source when necessary in dry or critically dry years. While groundwater is extracted to meet the City's overall system water demands, sufficient surface water supplies will be delivered to SMDP to meet the demands of the project year-round. The groundwater yield (0.60 acre-foot/acre/year) is available for the regional conjunctive use program that is intended to manage groundwater elevations to help stabilize and recover the groundwater basin. The conjunctive use program should actually provide a net benefit to the groundwater elevations in the Morada area over the long run.

Response to Comment 9-7

Please see Response to Comment 8-5. The City has taken a number of significant steps to improve groundwater quality and quantity within the basin, which will help protect Morada area water supplies. These steps include, for example, development of a conjunctive use program for active groundwater management; sustainable limits on groundwater pumping; and development of alternative surface water supplies (e.g., the DWSP). Additional efforts in acquiring raw water supplies for non-potable uses (e.g., riparian water, Woodbridge Irrigation District, and excess SEWD supplies) are also taking place to further reduce the reliance on groundwater supplies. Finally, the SMDP, in particular, is expected to receive the majority of its supplies from surface water, rather than groundwater. For all of these reasons, the SMDP is anticipated to have no impact on Morada area groundwater supplies.

Response to Comment 9-8

As discussed in Response to Comment 8-14, the SMDP is not expected to have any individually significant or cumulatively significant impacts on the groundwater basin underlying the Morada area, particularly due to COSMUD's conjunctive use of groundwater and surface water and SMDP's reliance primarily on surface waters. Indeed, agricultural uses constitute a higher demand for groundwater, and have a greater potential to affect groundwater quality.

Response to Comment 9-9

The commenter expresses his opinion that the EIR does not consider impacts on the neighbors of the project. The EIR does consider off-site impacts throughout the EIR, especially related to traffic, noise, water, and visual impacts, but also throughout the analysis.

Response to Comment 9-10

The commenter asks questions concerning the "policies" in the DEIR. The EIR is not a policy document, but a public informational document used in the planning and decision-making process. Although the EIR does not control the ultimate decision on the project, the lead agency (the City) must consider the information in the EIR and respond to each significant impact identified in the EIR. As described in Chapter 1 of the DEIR, the purpose of an EIR is to:

- identify the potentially significant impacts of the proposed project on the environment and to indicate the manner in which those significant effects can be avoided or mitigated;
- identify any unavoidable adverse impacts that cannot be mitigated; and
- identify reasonable and feasible alternatives to the project that would eliminate any significant adverse environmental impacts or reduce the impacts to a less-than-significant level.

An EIR also discloses growth-inducing impacts; effects found not to be significant; and significant cumulative impacts of all past, present, and reasonably anticipated future projects. An EIR represents an objective, good-faith disclosure of the foreseeable environmental impacts that might occur should the project be approved and developed. It does not approve or deny the project.

CEQA requires the lead agency (the City) to prepare an EIR that reflects the independent judgment of the agency regarding the impacts of the project, the level of significance of the impacts both before and after mitigation, and mitigation measures proposed to reduce the impacts. A DEIR is circulated to responsible agencies, trustee agencies with resources affected by the project, and

interested agencies and individuals. The purposes of public and agency review of a DEIR include sharing expertise, disclosing agency analyses, checking accuracy, detecting omissions, discovering public concerns, and soliciting counterproposals.

Response to Comment 9-11

The commenter asks that his second letter be considered a part of his first letter. Responses to comments in the second letter are found below.

Response to Comment 9-12

The Niagara bottling facility is a separate project, which was previously approved by the City. The water demands of that project have already been accounted for in the demand calculations in the Sanctuary WSA. Consequently, the bottling plan is considered an existing use, and has already been addressed in the water demand projections and cumulative effects analysis of the SMDP.

Aug. 27. 2007 3:33PM No. 0183 P. 1/5

Letter 10

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

ATTENTION:	FROM:	
David Stagnero	Dan Brewer Department of Transportation 1976 East Charter Way Stockton, CA 95205	
UNIT/COMPANY:	DATE:	TOTAL PAGES (Including Cover Page)
City of Stockton Community Development Department Planning Division 425 North El Dorado Street Stockton, CA 95202-1997	August 27, 2007	6
	FAX # (Include Area Code) (209) 948-7194	ATSS FAX 8-423-7194
DISTRICT/CITY	PHONE # (& Area Code) (209) 948-7142	ATSS 8-423-7142
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COMMENTS:

10-SJ-4-PM20,4
SCH 2006022028 (DEIR)
Sanctuary Island

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Aug. 27. 2007 3:33PM No. 0183 P. 2/5

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
P.O. BOX 2048 STOCKTON, CA 95201
(1976 E. CHARTER WAY/1976 E. DR. MARTIN
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August 27, 2007

10-SJ-4-PM20.4
SCH 2006022028 (DEIR)
Sanctuary Island

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

Dear Mr. Stagnaro:

The California Department of Transportation (Department) appreciates the opportunity to have reviewed the Draft Environmental Impact Report (EIR) for the proposed 7, 070 dwelling units and 700, 000 floor square feet of combined commercial and industrial development.

Based on the inadequate and flawed traffic analysis that was performed to identify traffic impacts and the lack of commitment to implement mitigation projects to reduce the traffic impacts that are identified in the analysis provided, the Department recommends that the City of Stockton (City) not Certify this EIR or approve any additional entitlements for this project. The Department recommends that the City set up a coordination meeting to be attended by staff from the City, Department, and developer team to address these issues and lead to the submission of a revised traffic study and circulation of a revised Draft EIR. 10-1

The Department's detailed comments at this time are as follows:

TRAFFIC STUDY STUDY AREA
The traffic study is too limited in the boundary area that it analyzes. Significant impacts are identified right up to the edges of that boundary with no effort made to determine if those impacts dissipate beyond the boundary. The boundary should be re-evaluated to check that it includes all the intersections and road segments that will potentially be affected by Sanctuary development traffic. A project of this large size with a traffic generation of 5988 AM peak hour trips and 6868 PM peak hour trips would significantly impact a larger area than that analyzed in this traffic study. 10-2

"Caltrans improves mobility across California"

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Mr. Stagnaro
August 27, 2007
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Upon review of the traffic analysis, the Interstate 5 (I-5) interchanges and freeway segments at the perimeters of the current study area indicate that there are significant impacts. This would support the contention that the traffic study boundary area was too limited in scope. For example, the traffic study did not evaluate any freeway segments or interchanges south of Hammer Lane even though Figure 3.15-11 indicates that the project's traffic generation has a distribution of 50 percent residential and 40 percent commercial/office south of Hammer Lane. Considering the large size of the trip generation, a trip distribution of 50 percent south to this direction would reasonably expect additional impacts to occur in that direction at interchanges such as Ben Holt or March Lane. However, the Draft EIR does not include any subsequent interchanges or freeway segments south of Hammer Lane. Another example is that the project trip distribution shows that 10 percent of the trip generation heading south on the loop road, however the traffic study does not analyze the traffic impacts beyond the Sanctuary project site, in that direction. 10-3

In addition, the traffic study area does not follow Department traffic study guidelines since it does not analyze freeway facilities in which the Sanctuary trip generation significantly exceeds the generation threshold values shown in the Department "Guide for the Preparation of Traffic Impact Studies" December 2002 edition. 10-4

TRAFFIC STUDY ANALYSIS METHOD

The reports from the Synchro 6 analysis for the various I-5 interchange ramps show that the Synchro files assigned a "free" turn-type to the right-turn movements. This is not realistic since in various scenarios the right-turn is not a free movement. Intentionally assigning a free right-turn movement at the freeway ramps will ignore those right-turning vehicle volumes when using an analysis methodology based on the Highway Capacity Manual (HCM). The resultant analysis will show a better LOS than which will occur otherwise. The traffic study needs to reanalyze the intersections using a more probably turn type. 10-5

The queuing analysis summarized in the various scenario discussions state that, "Vehicle queues could potentially exceed the available turn pocket storage or extend through adjacent intersections at the following intersections…" As an example, the 2025 scenario states that at there will be queuing problems at various ramps at the following interchanges: I-5/Eight Mile Road; I-5/Otto Drive; and I-5/Hammer Lane interchange.

Since the resultant 95th percentile queues exceed the available turn pocket storage lengths there will be queue blocking and potential interaction between intersections at off-ramps, on-ramps, and adjacent city street intersections. Due to these conditions using an analysis based on HCM methodology is not applicable due to the interactions, queue blocking, and congestion at these ramp intersections. However the traffic study and provided analyses files seem to indicate that the operational analysis LOS values and queues provided in the Draft EIR was based solely on HCM methodology which is not applicable due to the aforementioned traffic conditions. Basing the traffic impacts on HCM methods will result in a better LOS since it assumes an isolated intersection condition. 10-6

"Caltrans improves mobility across California"

MITIGATION MEASURES

The Draft EIR, in the various scenarios analyzed, consistently indicates significant impacts to the I-5 interchanges and freeway segments, however each resultant impact is subsequently categorized as "Significant and unavoidable".

- The Draft EIR for the Existing+Approved Projects+Project impacts TRA-7, TRA-8, TRA-13 proposes mitigation measure TRA-2b for the applicant to work with the City to complete a phasing analysis to ensure that the project construction occurs commensurate with the major roadway infrastructure improvements per proposed General Plan Policy. The Draft EIR in the discussions of the various specific impact mitigations for TRA-7, TRA-8, and TRA-13 refers back to TRA-2b to address the timing of the implementation measures. However, since it does not reduce the impact to a less-than-significant level, the Draft EIR states that the impact will remain significant and unavoidable. The Draft EIR goes on to state implementation of improvements is not fully funded and will require Department approval, and additionally, "Therefore, neither the City nor the project applicant would control the timing or the implementation. Due to these reasons the Draft EIR concludes that the impact is significant and unavoidable"

- The Draft EIR for the Existing+Approved Projects+Project impacts TRA-15, TRA-19, TRA-20, TRA-22, TRA-23, and TRA-31, states that it can reduce the impacts to a less-than-significant level, however the Draft EIR goes on to state that improvements are not fully funded and will require Department approval which the City, and additionally that due to requiring Department approval it states, "Therefore, neither the City nor the project applicant would control the timing or the implementation. Due to these reasons the DIER concludes that the impact is significant and unavoidable". 10-7

- The Draft EIR for the 2025 Future impacts TRA-15, TRA-19, TRA-20, TRA-22, TRA-23, and TRA-31, states that it can reduce the impacts to a less-than-significant level, however the Draft EIR goes on to state that improvements are not fully funded and will require Department approval which the City, and additionally that due to requiring Department approval, "Therefore, neither the City nor the project applicant would control the timing or the implementation. Due to these reasons the DIER concludes that the impact is significant and unavoidable".

- The Draft EIR for the 2035 Future impacts TRA-34, TRA-38, TRA-39, TRA-41, TRA-42, and TRA-48, states that it can reduce the impacts to a less-than-significant level for all the aforementioned except for TRA-41, and TRA-48 which will remain significant. However the Draft EIR goes on to state that improvements are not fully funded and will require Department approval which the City, and additionally that due to requiring Department approval, "Therefore, neither the City nor the project applicant would control the timing or the implementation. Due to these reasons the DIER concludes that the impact is significant and unavoidable".

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Mr. Stagnaro
August 27, 2007
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In summary, the Sanctuary Master Plan Draft EIR depends on the I-5 Interchange & Widening project to mitigate their development's subsequent traffic impacts. The I-5 project is currently in the Project Approval/Environmental Document phase (PA/ED). Due to the Draft EIR's statements that "neither the City nor the project applicant would control the timing or the implementation of this mitigation measure", and that the improvements are not fully funded, the Draft EIR consistently concludes that "Therefore the impact is considered significant and unavoidable." Because the I-5 widening project is still in the PA/ED phase, the ultimate interchange configuration has yet to be identified from the alternatives. As such it may be too early to perform the final traffic operations analysis and predict the specific impacts to facilities that may or may not be designed and constructed as assumed in this Draft EIR. Since the full-funding and phasing of the mitigation projects are not yet determined, the current timeline of this Draft EIR ignores the majority of the traffic impacts to the highway system that are "significant and unavoidable". 10-7 Cont.

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.

Sincerely,

TOM DUMAS, Chief
Office of Intermodal Planning

c: SMorgan CA Office of Planning & Research

"Caltrans improves mobility across California"

Responses to Comment Letter 10—Dan Brewer (for Tom Dumas, Chief), Office of Intermodal Planning, California Department of Transportation

Response to Comment 10-1

Caltrans recommends that the City not certify the Sanctuary EIR until the City commits to the following: meeting with Caltrans and the developer team to discuss Caltrans' valid concerns; submitting a revised traffic study (Caltrans believes the current traffic analysis is inadequate and flawed); and circulating a revised DEIR. Caltrans also perceives a lack of commitment to implementing mitigation measures to reduce traffic impacts.

Caltrans representatives, City staff, and the developer team met on October 17, 2007 to discuss and resolve the issues identified in the Caltrans comment letter. Individual comments, responses, and resolutions of specific issues follow.

During the meeting, the City and the project applicant discussed their joint intent to construct new interchanges and to improve existing interchanges and sections of the mainline along the Interstate (I-) 5 corridor. The City and the project applicant are partnering with Caltrans on the I-5 North Stockton Project Study Report (PSR) and Project Approval/Environmental Document (PA/ED). These improvements and other I-5 improvements are included in the City's draft traffic impact fee program, which is being developed with the input of Caltrans. The project applicant will be required to pay the city-wide fee as its fair share contribution to these measures. These measures are as follows: TRA-3a, TRA-5b, TRA-6a, TRA-7a, TRA-8a, TRA-12a, TRA-13a, TRA-14a, TRA-16a, TRA-17a, TRA-18a, TRA-19a, TRA-20a, TRA-21a, TRA22a, TRA-23a, TRA-25a, TRA-27a, TRA-28a, TRA-30a, and TRA-31a.

In response to Caltrans' concern about a lack of commitment to implement the proposed mitigation, a California appeals court recently held that programs in which developers pay their "fair share" for improvements to public facilities made necessary by new development are considered reasonable mitigation. In *Friends of Lagoon Valley v. City of Vacaville* (2007) 154 Cal.App.4th 807, 818–819, the group Friends of Lagoon Valley complained that there was no guarantee that improvements to freeway ramps, freeway widening, and off-site road improvements would be implemented because of the "current funding situation of the state in general, and Caltrans in particular" (Id.). The Court rejected this argument, noting that "[a]ll that is required by CEQA is that there be a reasonable plan for mitigation. Nothing required the City to set forth a time-specific schedule for the completion of specific roadway improvements" (Id. at 819). Similarly, here, the project applicant will be required to pay its fair share contribution to these mitigation programs once they are in place.

Caltrans also expressed concern about the study area boundary and the traffic study's analysis of two specific intersections. These technical comments are addressed in the following responses. However, Caltrans' comments and the responses below do not present "significant new information," and thus revisions to the traffic study and recirculation of the DEIR are not warranted (see State CEQA Guidelines Section 15088.5[a]).

Response to Comment 10-2

This comment states that the study area selected to evaluate traffic impacts is too limited and no efforts were made to determine whether those impacts dissipated beyond the study area boundary.

Contrary to the comment's statement, the traffic study did involve a comprehensive and complete geographic study area. The project's impacts were evaluated on a total of 26 intersections (including six freeway ramp intersections), eight roadway segments and bridges, and six freeway segments. Some of the study intersections are 5 miles from the project site. These study locations were selected in conjunction with City staff based on project traffic assignments using the City's model. City staff, specifically the Public Works Department, approved the scope and geographic parameters of the analysis. The traffic study included an evaluation of the intersections and freeway segments that were anticipated to be affected significantly by the project. For example, the study included an evaluation of the intersections and segments that were likely to experience an increase in traffic volumes of 5% or more, and thus exceed one of the significance thresholds identified in the DEIR. Intersections and freeway segments beyond the study area boundary were not included because those intersections and segments were not anticipated to exceed the thresholds of significance specified on DEIR pages 3.15-28 and 3.15-29; those intersections and segments are not anticipated to see an increase in total traffic volumes by 5% or more as a result of the project, and they are not anticipated to experience a deterioration in LOS (e.g., LOS D to LOS E, or LOS E to LOS F).

Furthermore, the traffic study used a conservative approach to estimate the amount of traffic generated by the project and to assign it to the roadway system. Trip generation estimates were based on the Institute of Transportation Engineers' (ITE's) *Trip Generation Manual*, the standard industry source widely used by practitioners. The project contains a mix of residential, school, commercial, office, and hotel uses, so many of the trips will stay within the site, such as resident shopping outings and school trips. Internalization reductions of 10% to 20% were applied to the daily and peak-hour trip estimates, respectively. Reductions of up to 46% were surveyed based on a comparison of actual counts to estimates based on ITE rates according to a study of three projects of

comparable scope in northern California.[2] Conservative estimates were intentionally used to not underestimate project impacts.

With the conservative estimates, it is likely that the amount of project traffic added to the roadway facilities near the study area boundaries will be even lower than the levels presented in the DEIR, and the project will have no significant impacts on the segments and intersections beyond the study area boundary.

Response to Comment 10-3

This comment is that additional interchanges and segments to the south on I-5 should be evaluated. The analysis evaluated impacts on freeway segments, including I-5 south of Hammer Lane. The DEIR identified significant Project impacts on I-5 south of Hammer Lane under all analysis scenarios.[3] While the southern limits of this segment were not specified in the DEIR, the impacts identified in the DEIR extend south on I-5 to the Monte Diablo undercrossing. The mitigation identified in the DEIR similarly extends to Monte Diablo on I-5. The identified mitigation measures and fees levied on the project by the City as part of its impact fee program will similarly contribute to improvements on the I-5 freeway segments extending even farther south, including the interchanges at Ben Holt and March Lane. DEIR text modifications have been added to clarify the extent of the freeway segments, as presented below.

The following changes are made to the text of the DEIR on page 3.15-37.

Freeway Segment Analysis

Traffic from the proposed Project was added to the EPAP forecasts for the "with-project" analysis. Each mainline segment was analyzed based on the peak hour traffic volumes shown in Table 3.15-12. The results indicate that with the addition of Project traffic, I-5 south of Hammer Lane would degrade from LOS E to LOS F in the northbound direction in the PM peak hour. In addition, I-5 south of Hammer Lane in the southbound direction would degrade from LOS E to LOS F in the AM peak hour and from LOS D to LOS F in the PM peak hour. Congestion on these I-5 segments resulting from Sanctuary, as well as existing and approved but not yet constructed development projects in Stockton, will extend through several interchanges to the south of Hammer Lane.

[2] Walters, Jerry, Brad Lane, and Mark Feldman. *Comparing Methodologies for Estimating Trip Internalization of Mixed-Use Development*.

[3] The analysis was conducted for near-term conditions, including Existing plus Approved Projects (EPAP) and two cumulative scenarios: one based on the currently adopted General Plan (1990 General Plan representing 2025 conditions) and the other based on the currently proposed General Plan (representing 2035 conditions).

The following changes are made to the text of the DEIR on page 3.15-52.

Freeway Segment Analysis

Traffic from the proposed Project was added to the Future 2025 without Project forecasts for the with Project analysis. Each mainline segment was analyzed for the DEIR based on the peak hour traffic volumes shown in Table 3.15-16. The results indicate that with the addition of Project traffic, I-5 between Hammer Lane and Otto Drive in the northbound direction in the PM peak hour and in the southbound direction in the AM and PM peak hours would degrade from LOS D conditions to LOS E. I-5 south of Hammer Lane would degrade from LOS E conditions to LOS F in the southbound direction in the PM peak hour. In addition, LOS F conditions would worsen on I-5 south of Hammer Lane in the southbound direction in the AM peak hour and in the northbound direction in the PM peak hour. Congestion on these I-5 segments resulting from Sanctuary and buildout of Stockton's 1990 General Plan will extend through several interchanges to the south of Hammer Lane.

The text of Mitigation Measure TRA-13a on page 3.15-48 has also been modified for clarification.

Mitigation Measure TRA-13a: Widen Interstate 5 to Provide Four Mixed-Flow Travel Lanes in Each Direction

The mitigation measure is to widen I-5 to provide four mixed-flow travel lanes in each direction south of Hammer Lane to the Monte Diablo undercrossing. Freeway operations would be better under Project conditions with mitigation versus under without-project conditions (i.e., no mitigation). ~~Therefore, the Project impact could be considered less than significant with the implementation of the mitigation measure.~~ However, portions of I-5 would still operate at an unacceptable LOS E.

The widening of I-5 from the Monte Diablo undercrossing to Eight Mile Road is included in the SJCOG 2025 Regional Transportation Plan (RTP) as a Tier 1 project sponsored by Caltrans. Additionally, the I-5 North Stockton PSR specifies planned improvements to widen I-5 from Eight Mile Road to Country Club Drive to eight lanes. However, the RTP notes that full project funding has not yet been identified and full funding has not been identified for the PSR improvements. Therefore, the impact is considered significant and unavoidable. Once identified and approved, the ~~The~~ Project applicant will ~~should~~ pay its fair-share contribution toward these improvements.

Required project mitigation for I-5 south of Hammer Lane is also presented in the introduction to the impacts and mitigation section on page 3.15-38, where it is states that the project applicant would be required to do the following:

Contribute Fair Share Toward Widening I-5 from Country Club Drive to Eight Mile Road: The PSR specified planned improvements to widen this section of I-5 to eight lanes. The City has initiated the process necessary to develop the environmental clearance for these proposed mainline improvements. Mitigation Measures TRA-13a and TRA-31a require the Project applicant to fund its fair share of the design and construction costs via a mechanism such as a fee program or assessment district.

Caltrans staff also inquired about project impacts on the I-5/Ben Holt and I-5/March Lane interchanges. The operations of the ramp terminal intersections at these interchanges were evaluated under 2035 with- and without-project conditions using traffic projections for the City's model to evaluate potential project impacts. With the anticipated growth in the model plus the planned transportation system improvements to accommodate that growth, the intersections are projected to operate at LOS D or better (acceptable levels) during the AM and PM peak hours with and without traffic from Sanctuary. Therefore, the project will have a less-than-significant impact on these intersections. It should be noted that improvements to these interchanges are included in the City's traffic impact fee. Therefore, the project applicant will provide its fair-share contribution to those improvements by payment of the fee.

Response to Comment 10-4

This comment states that the study does not follow Caltrans' traffic study guidelines as depicted in the *Guide for the Preparation of Traffic Impact Studies*, December 2002 edition, as it does not analyze all of the freeway segments to which Sanctuary traffic exceeds the generation threshold value. The DEIR and traffic study evaluated the freeway segments by employing methodologies and guidelines for conducting such studies that are generally accepted by practitioners and traffic experts. CEQA does not compel the agency to adopt one methodology over another, particularly where, as here, the methodology clearly and accurately identifies the impact. Here, the DEIR employed the LOS method from the *Highway Capacity Manual*, which is consistent with Caltrans guidelines. Please see also Responses to Comments 10-2 and 10-3 concerning the evaluation of additional freeway segments.

Response to Comments 10-5 and 10-6

The commenter states that the traffic analysis methodology, which evaluates intersections as isolated intersections, is unrealistic; that the evaluation of right-turn lanes as free rights is incorrect for the interchange ramp intersections; and that queuing problems will occur at various ramps and specific interchanges (I-5/Eight Mile Road, I-5/Otto Drive, and I-5/Hammer Lane interchange).

The City adopted the *Highway Capacity Manual* method and the Traffix software program for intersection operations analyses in its Transportation Impact Analysis Guidelines. This is the method that was used to evaluate all of the intersections in the DEIR analysis, except for the intersections near freeway interchanges. For the intersections near freeway interchanges, because they are so closely spaced, the traffic consultant used the Synchro software program, which more accurately evaluates the interactions and traffic operations that occur within these types of intersections. Significant project impacts were identified at all of the interchange ramp intersections. Therefore, the methodology accurately

Future 2025 Intersection Operations

As shown in Table 3.15-13, ~~20~~19 of ~~the~~ 27 study intersections would operate at an acceptable LOS (LOS D or better) in the Future 2025 scenario. Eight study intersections would operate at an unacceptable LOS:

- Eight Mile Road/Mokelumne Circle: LOS E (PM peak hour)
- Eight Mile Road/I-5 Northbound Ramps: LOS F (PM peak hour)
- Trinity Parkway/McAuliffe Road: LOS F (PM peak hour)
- Otto Drive/Trinity Parkway: LOS E (PM peak hour)
- Otto Drive/I-5 Southbound Ramps: LOS F (AM peak hour)
- Hammer Lane/I-5 Northbound Ramps: LOS E (PM peak hour)
- Hammer Lane/Kelley Drive: LOS F (PM peak hour)
- Hammer Lane/Pershing Avenue: LOS F (PM peak hour)

The following changes are made to the text of the DEIR on page 3.15-22.

Future 2035 Intersection Operations

The added land use development and roadway improvements in 2035 result in more intersections on Eight Mile Road operating at an unacceptable LOS. As shown in Table 3.15-17, ~~16~~ 15 of the 27 study intersections would operate at an acceptable LOS (i.e., LOS D or better) in the Future 2035 scenario, while ~~11~~ 12 would operate at an unacceptable LOS:

- Eight Mile Road/Trinity Parkway: LOS E (AM peak hour)
- Eight Mile Road/I-5 Southbound Ramps: LOS F (AM and PM peak hours)
- Eight Mile Road/I-5 Northbound Ramps: LOS F (PM peak hour)
- Eight Mile Road/Thornton Road: LOS E (AM peak hour) and LOS F (PM peak hour)
- Eight Mile Road/Davis Road: LOS E (AM peak hour) and LOS F (PM peak hour)
- Eight Mile Road/Lower Sacramento Road: LOS E (AM and PM peak hours)
- Trinity Parkway/Cosumnes Drive: LOS E (PM peak hour)
- Otto Drive/Trinity Parkway: LOS E (AM and PM peak hours)
- Otto Drive/I-5 Southbound Ramps: LOS F (AM peak hour)
- Hammer Lane/I-5 Southbound Ramps: LOS E (AM peak hour)
- Hammer Lane/Kelley Drive: LOS E (AM and PM peak hours)
- Hammer Lane/Pershing Avenue: LOS F (PM peak hour)

The following changes are made to the text of the DEIR on page 3.15-50.

- **Otto Drive/Trinity Parkway:** The addition of Project traffic would degrade LOS D conditions to LOS F in the AM peak hour and LOS E conditions to LOS F in the PM peak hour.
- **Otto Drive/I-5 Southbound Ramps:** The addition of Project traffic would ~~degrade LOS D conditions to~~ worsen LOS F operations in the AM peak hour by increasing the delay by more than 5 seconds and degrade LOS C operations to LOS E in the PM peak hour.
- **Otto Drive/I-5 Northbound Ramps:** The addition of Project traffic would degrade LOS D conditions to LOS F in the PM peak hour.

The following changes are made to the text of the DEIR on page 3.15-57.

Impact TRA-19: Worsened Conditions at Otto Drive/Interstate 5 Southbound Ramps Intersection under Future 2025 plus Project Conditions (Significant and Unavoidable)

~~The addition of project~~ Increased traffic from the Project at the Otto Drive/I-5 southbound ramps intersection would ~~degrade LOS D operations to~~ further degrade the existing LOS F operations during the AM peak hour and degrade LOS C operations to LOS E during the PM peak hour. This is considered a significant impact. With implementation of the improvements in Mitigation Measure TRA-19a, the impact is reduced to a less-than-significant level, as shown in Table 3.15-27.

A PA/ED is being prepared for interchanges on I-5, including the Otto Drive interchange. Through the PA/ED process, the ultimate interchange configuration will be identified. The improvement is not fully funded, and it will require Caltrans approval. Neither the City nor the applicant can control the timing or the implementation of this mitigation measure. Therefore, the impact is considered significant and unavoidable.

Mitigation Measure TRA-19a: Add Capacity to Otto Drive/Interstate 5 Southbound Ramps Intersection

The mitigation measure is to add a westbound left-turn lane and to convert an eastbound through lane to a shared through/right-turn lane and convert the eastbound right-turn lane to a free right-turn lane. The project sponsor ~~should~~ will pay its fair-share contribution toward these improvements.

The following changes are made to the text of the DEIR on page 3.15-65.

- **Otto Drive/I-5 Southbound Ramps:** The addition of project traffic would degrade ~~operations from LOS C to~~ LOS F operations in the AM peak hour and increase the delay by more than 5 seconds and degrade operations from LOS C to LOS E in the PM peak hour.
- **Otto Drive/I-5 Northbound Ramps:** The addition of Project traffic would degrade operations from LOS D to LOS F in the PM peak hour.

The following changes are made to the text of the DEIR on page 3.15-71.

Mitigation Measure TRA-34a: Add Two Westbound Through Lanes and ~~an~~ a Free Eastbound Right-Turn Lane to Eight Mile Road/Interstate 5 Southbound Ramps Intersection

The mitigation measure is to add two westbound through lanes and ~~an~~a free eastbound right-turn lane. The Project applicant ~~should~~will pay its fair-share contribution toward these improvements.

The following changes are made to the text of the DEIR on page 3.15-71.

Impact TRA-38: Worsened Conditions at Otto Drive/Interstate 5 Southbound Ramps Intersection under Future 2035 plus Project Conditions (Significant and Unavoidable)

The addition of Project traffic at the Otto Drive/I-5 southbound ramps intersection would ~~degrade LOS C conditions to~~ worsen LOS F operations in the AM peak hour and increase the delay by more than 5 seconds and degrade LOS C operations to LOS E in the PM peak hour. This is considered a significant impact. With implementation of the improvements in Mitigation Measure TRA-19a, the impact would be reduced to a less-than-significant level. A PA/ED is being prepared for interchanges on I-5, including the Otto Drive interchange. Through the PA/ED process, the ultimate interchange configuration will be identified. The improvement is not fully funded, and it will require Caltrans approval. Neither the City nor the applicant can control the timing or the implementation of this mitigation measure. Therefore, the impact is considered significant and unavoidable.

Response to Comment 10-7

The commenter is concerned that the project impacts on the state highway system are significant and unavoidable. The comment also states that Sanctuary is relying on the I-5 project to mitigate its impacts and, because the I-5 North Stockton PA/ED is not completed, the final interchange configurations have not been determined. The commenter states that there are no assurances that the configurations used in the DEIR will be selected, and further states that the DEIR therefore ignores a majority of the significant and unavoidable project impacts on the highway system.

The I-5 North Stockton PA/ED is being prepared to address the widening of I-5 and the construction or modification of the following interchanges: Hammer Lane, Otto Drive, Eight Mile Road, and Gateway Boulevard. As noted in the comment, the PA/ED is currently underway and the final interchange configurations have not yet been determined. Detailed operational analyses using traffic microsimulation techniques are being conducted as part of the PA/ED traffic operations analysis. Caltrans is an active participant in that study, will ensure that the appropriate analyses are conducted, and will ensure that they are conducted correctly.

It should be noted that the procedure used to develop traffic forecasts for the PA/ED differs from that used in the DEIR (and other project-level EIRs throughout Stockton). The cumulative scenario for these EIRs is based on full buildout of the City of Stockton General Plan, consistent with the City's guidelines for traffic impact studies. In contrast, traffic forecasts for the I-5 North Stockton PA/ED are based on a 20-year planning horizon consistent with San Joaquin Council of Governments (SJCOG) regional projections, per the approach agreed upon with Caltrans and SJCOG. This latter approach is necessary for infrastructure projects so as to provide consistency with the air quality conformity analysis completed by SJCOG.

As a result of these differences in approach, there are some circumstances in which the mitigations outlined in the DEIR exceed the interchange configurations that are currently under study in the PA/ED. However, as noted above, the PA/ED has not been completed and further adjustments to the interchange configurations may be incorporated. Until then, it is not only impracticable, but also impossible, to determine the precise mitigation. Further, because it cannot be concluded with certainty that the mitigation measures cited in the DEIR will be constructed, and because there are no assurances that the mitigation will be completed in a manner and timeline that adequately address each impact because the City does not have jurisdiction to control the implementation process, the impacts are identified as significant and unavoidable.

This does not mean that the impacts to the highway system have been ignored. On the contrary, the DEIR identifies those impacts and their importance explicitly in the document; for example, in the "Future 2035 plus Project" section alone, there are four impacts related to interchanges along the highway system (TRA-34, TRA-39, TRA-41 and TRA-42), and similar sets of impacts are discussed in the other analysis scenarios as well. The City is in the process of updating the street improvement fee program to incorporate all of the interchange improvements identified in this and other project-specific EIRs. The applicant will pay the City's impact fee as its fair share contribution to these improvements.

Letter 11

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: David Stagnaro, City of Stockton Community Development Department

From: Erin Sickler, SJCOG, Inc.

Date: August 27, 2007

Re: **Lead Agency Project Title:** Draft EIR for Sanctuary Master Development

Lead Agency Project Number: DEIR5-05

Assessor Parcel Number(s): Multiple

Total Acres to be converted from Open Space Use: approximately 1,728 acres

Habitat Types to be Disturbed: Findings to be determined by SJMSCP biologist.

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

Dear Mr. Stagnaro:

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. 11-1

SJCOG, Inc. has reviewed The Sanctuary Master Development Plan Draft EIR. It is suggested this project participate in the SJMSCP as necessary. This project involves the development of a planned mixed use community, a range of housing types and densities, as well as recreational activities. This project is located west of Interstate 5, south of Spanos Park West, and north of Lincoln Village West more commonly known as the Shima Tract.

It should be noted that two important federal agencies (U.S. Army Corps of Engineers and the California Regional Water Quality Control Board) have not issued permits to the SJCOG and so payment of the fee to use the SJMSCP will not modify requirements that could be imposed by these two agencies. Potential waters of the United States [pursuant to Section 404 Clean Water Act] are believed to occur on the project site. It may be prudent to obtain a preliminary wetlands map from a qualified consultant. If waters of the United States are confirmed on the project site, the Corps and the Regional Water Quality Control Board (RWQCB) would have regulatory authority over those mapped areas [pursuant to Section 404 and 401 of the Clean Water Act respectively] and permits would be required from each of these resource agencies prior to grading the project site. 11-2

This Project is subject to the SJMSCP. Per requirements of the SJMSCP, this project is subject to a case-by-case review. This can be a 90 day process and it is recommended that the project applicant contact SJMSCP staff as early as possible.

After this project is approved by the Habitat Technical Advisory Committee and the SJCOG Inc. Board, the following process must occur to participate in the SJMSCP:

11-3

- 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 to the City of Stockton based on SJMSCP findings

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

Responses to Comment Letter 11—Erin Sickler, San Joaquin Council of Governments, Inc.

Response to Comment 11-1

The project is eligible to participate in the SJMSCP as land within the sphere of influence of the City that appears on the certified SJCOG Stockton Habitat Area Map. As the comment notes, participation for a particular project is voluntary, but alternative mitigation in an amount and kind equivalent to the SJMSCP is required. Although not compulsory, the SMDP is encouraged to participate in the SJMSCP, and the project proponent has expressed its intent to do so. The mitigation measures outlined in the DEIR (including, for example, Mitigation Measure BIO-4a) provide the SMDP with the flexibility, as well as the equivalent mitigation outlined in the comment. With implementation of the DEIR measures, the SMDP will satisfy the requirements of the state and federal endangered species acts and the SJMSCP, as well as the requirements of CEQA.

For clarification, the following changes are made to the text of the DEIR on page 3.4-21.

> **Impact BIO-2: Loss of Special-Status Plants or Degradation of Habitat (Less than Significant with Mitigation Incorporated)**
>
> Construction activities associated with development could result in loss of special-status plants. Two special-status plants have been identified as occurring in the project area. Construction activities that could remove special-status plants include relocation of existing ditches that could support rose-mallow, and construction of the marina and placement of bank stabilization on the water side of levees that could support rose-mallow, and Mason's lilaeopsis. Because the potential loss of rose-mallow and Mason's lilaeopsis would have an adverse effect on special-status species, this would be considered a potentially significant impact. Participation in the San Joaquin Multi-Species Habitat and Open Space Conservation Plan (SJMSCP) would reduce this impact to a less-than-significant level. If participation in the SJMSCP is not possible, ~~I~~implementation of Mitigation Measures BIO-1a, BIO-2a, and BIO-2b will reduce this impact to a less-than-significant level.
>
> **Impact BIO-4: Loss of Agricultural Habitat Lands (Less than Significant with Mitigation Incorporated)**
>
> The study area is designated as agriculture habitat lands under the SJMSCP. These lands provide suitable foraging, breeding, and sheltering habitat for SJMSCP covered species. Construction of the proposed project will result in the conversion of ~~all~~ most of the project site to non–open space use. The agriculture habitat lands within the study area provide potential aquatic habitat for giant garter snakes and western pond turtles; nesting and foraging habitat for Swainson's hawks, white-tailed kites, western burrowing owls, loggerhead shrikes, Cooper's hawks, and northern harriers; winter foraging habitat for

white-faced ibis, greater sandhill cranes, long-billed curlews, and mountain plovers; and roosting habitat for Yuma myotis. This impact is considered significant.~~,~~ Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, ~~but~~ implementation of Mitigation Measure BIO-4a will reduce this impact to a less-than-significant level.

Mitigation Measure BIO-4a: Compensate for Loss of Agriculture Habitat Lands

Proponents undertaking new development projects pursuant to the SJMSCP ~~will~~ pay the applicable development fee or provide in-lieu land dedication for the conversion of agriculture habitat lands to non-open-space use at a compensation ratio of 1:1 (1 acre preserved for every 1 acre converted to non-open-space use). If participation in the SJMSCP is not possible, the project proponent will secure a conservation easement on appropriate agricultural lands at a ratio of 1:1, and provide an endowment for monitoring and management of those lands in perpetuity.

The following changes are made to the text of the DEIR on page 3.4-46.

Impact BIO-5: Construction-Related Impacts on Giant Garter Snakes (Less than Significant with Mitigation Incorporated)

Conversion of the study area from agriculture habitat land to non–open space use would result in the loss of agricultural ditches that provide potential aquatic and upland giant garter snake habitat. Construction-related activities in the agriculture ditches in the study area and in the vicinity could result in take of giant garter snakes. Habitat-related impacts are mitigated for by the implementation of Mitigation Measures BIO-3c and BIO-4a. Construction-related impacts are considered significant. Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, ~~but~~ implementation of Mitigation Measures BIO-5a and BIO-5b will reduce this impact to a less-than-significant level.

The following changes are made to the text of the DEIR on page 3.4-47.

Mitigation Measure BIO-5b: Implement Take Minimization Measures from SJMSCP for Impacts on Giant Garter Snakes

The following minimization measures are required for impacts on potential aquatic giant garter snake habitat.

- Construction in potential giant garter snake habitat will occur during the active period for giant garter snakes, between May 1 and October 1.
- Vegetation clearing within 200 feet of the banks of potential giant garter snake aquatic habitat will be limited to the minimal area necessary.
- The movement of heavy equipment within 200 feet of the banks of potential giant garter snake aquatic habitat will be confined to existing roadways to minimize habitat disturbance.

- Before ground disturbance, all onsite construction personnel will be given instruction regarding the presence of SJMSCP covered species and importance of avoiding impacts on these species and their habitats.
- If wetlands, irrigation ditches, marshes, etc. will not be relocated in the vicinity of the project, the aquatic habitat will be dewatered at least 2 weeks before beginning construction.
- Preconstruction surveys for giant garter snakes (conducted after environmental reviews and before ground disturbance) will occur within 24 hours of ground disturbance.
- Any other applicable provisions of the USFWS Standard Avoidance and Minimization Measures during Construction Activities in Giant Garter Snake Habitat (U.S. Fish and Wildlife Service 1997) and Section 5.2.48 of the SJMSCP (San Joaquin County 2000) will be implemented.

~~If preconstruction surveys determine that giant garter snakes occupy habitat within the project area, full avoidance of occupied habitat is generally required. However, conversion of occupied giant garter snake habitat will be permitted if (1) the project proponent implements Mitigation Measure BIO-5b and receives incidental take authorization from the USFWS under Section 7 or 10 of the federal ESA (authorization may include additional avoidance and minimization measures); or (2) the HCP JPA, in consultation with the TAC and with the concurrence of the permitting agencies, accomplishes the following:~~

- ~~provides alternative documentation to the permitting agencies' representatives on the TAC that the range of the giant garter snake has expanded sufficiently within areas where take is not anticipated sufficient to allow additional take to occur;~~
- ~~such take will not jeopardize the species or adversely modify critical habitat;~~
- ~~such take is mitigated and minimized to the maximum extent feasible; and~~
- ~~a major plan amendment is undertaken in accordance with SJMSCP Section 8.8.5.~~

The following changes are made to the text of the DEIR on page 3.4-48.

Impact BIO-6: Construction-Related Impacts on Western Pond Turtles (Less than Significant with Mitigation Incorporated)

Conversion of the project area from agriculture habitat land to non–open space use would result in the loss of agricultural ditches that provide potential aquatic western pond turtle habitat and therefore impacts on the turtles. Construction-related activities in agricultural ditches located in the study area and in the vicinity could result in loss of western pond turtles. Habitat-related impacts are mitigated for by the implementation of Mitigation Measures BIO-3c and BIO-4a. Construction-related impacts are considered significant. Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, ~~but~~ implementation of Mitigation Measures BIO-6a and BIO-6b will reduce this impact to a less-than-significant level.

Impact BIO-7: Construction-Related Impacts to Nesting Swainson's Hawks (Less than Significant with Mitigation Incorporated)

Construction activities such as earthmoving with heavy construction equipment occurring within the study area could cause nest failure or a reduction of available nesting habitat for Swainson's hawks, potentially contributing to local and regional declines of this species. Although nesting Swainson's hawk surveys were conducted by Huffman-Broadway and the results were negative, nesting sites can vary from year to year and Swainson's hawks could nest on the site in the future. Habitat-related impacts are mitigated for by the implementation of Mitigation Measure BIO-4a. Construction-related impacts are considered significant. Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, ~~but~~ implementation of Mitigation Measures BIO-7a and BIO-7b will reduce this impact to a less-than-significant level.

The following changes are made to the text of the DEIR on page 3.4-49.

Impact BIO-8: Construction-Related Impacts on Western Burrowing Owls (Less than Significant with Mitigation Incorporated)

Construction activities such as earthmoving with heavy construction equipment occurring within the study area could cause nest failure or a reduction of available nesting and wintering habitat for western burrowing owls, potentially contributing to local and regional declines of this species. Habitat-related impacts are mitigated for by the implementation of Mitigation Measure BIO-4a. Construction-related impacts are considered significant. Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, ~~but~~ implementation of Mitigation Measures BIO-8a and BIO-8b will reduce this impact to a less-than-significant level.

The following changes are made to the text of the DEIR on page 3.4-51.

Impact BIO-9: Construction-Related Impacts to Nesting Northern Harriers (Less than Significant with Mitigation Incorporated)

Construction activities such as earthmoving with heavy construction equipment occurring within the study area could cause nest failure or a reduction of available nesting habitat for northern harriers, potentially contributing to local and regional declines of this species. Habitat-related impacts are mitigated for by the implementation of Mitigation Measure BIO-4a. Construction-related impacts are considered significant. Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, ~~but~~ implementation of Mitigation Measures BIO-9a and BIO-9b will reduce this impact to a less-than-significant level.

Impact BIO-10: Construction-Related Impacts on Nesting Loggerhead Shrikes, Cooper's Hawks, and White-Tailed Kites (Less than Significant with Mitigation Incorporated)

Construction activities such as earthmoving with heavy construction equipment occurring within the study area could cause nest failure or a reduction of

available nesting habitat for loggerhead shrikes, Cooper's hawks, and white-tailed kites, potentially contributing to local and regional declines of these species. Although surveys for these species were conducted by Huffman-Broadway and the results were negative, nesting sites can vary from year to year and these species could nest on the island in the future. Habitat-related impacts are mitigated for by the implementation of Mitigation Measure BIO-4a. Construction-related impacts are considered significant. Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, ~~but~~ implementation of Mitigation Measures BIO-10a and BIO-10b will reduce this impact to a less-than-significant level.

The following changes are made to the text of the DEIR on page 3.4-52.

Impact BIO-12: Indirect Impacts on Nesting California Black Rails (Less than Significant with Mitigation Incorporated)

Nesting California black rails could be indirectly affected by increased wake activity from boating activities in nearby Disappointment Slough and Fourteen Mile Slough. The marina that is proposed as part of the development will allow for increased boat and jet ski activity within these sloughs. This increase in boat and jet ski activity could result in an increase in wakes in Disappointment Slough and Fourteen Mile Slough that could flood nearby nests and could cause the failure of California black rail nests and a reduction of available nesting habitat, potentially contributing to local and regional declines of these species. This loss would be considered significant because it could have a substantial adverse effect, either directly or through habitat removal, on a species listed as threatened and designated as fully protected by the DFG and would impede the use of nesting habitat. Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, ~~I~~implementation of Mitigation Measures BIO-12a and BIO-12b will reduce this impact to a less-than-significant level.

Impact BIO-13: Construction-Related Impacts on Roosting Yuma Myotis (Less than Significant with Mitigation Incorporated)

Construction activities such as earthmoving with heavy construction equipment occurring within the study area could cause the abandonment of roosting sites by Yuma myotis, and the removal of buildings could destroy occupied roosting habitat. This loss would be considered significant. Participation in the SJMSCP would reduce this impact to a less-than-significant level. If participation in the Plan is not possible, ~~but~~ implementation of Mitigation Measures BIO-13a and BIO-13b will reduce this impact to a less-than-significant level. Habitat-related impacts are mitigated for by the implementation of Mitigation Measure BIO-4a.

Response to Comment 11-2

The commenter notes that the ACOE and the RWQCB have permitting authority related to wetlands fill, and suggests that a qualified consultant prepare a preliminary wetlands map to identify which areas may be subject to federal and state wetlands regulatory authority. This topic was also raised in Comments 5-3

and 5-4. The project proponent's wetland consultant has prepared a wetland delineation showing the areas of potential waters of the United States. That delineation and an application to fill waters of the United States have been submitted to the ACOE and RWQCB. The project proponent is awaiting verification of that delineation and the Section 404 permit from the ACOE, as well as Section 401 certification from the RWQCB. These are requirements above and beyond those of the SJMSCP and CEQA.

Response to Comment 11-3

The commenter describes the process for review under the SJMSCP. No response is required.

Letter 12

SIERRA CLUB
FOUNDED 1892

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David Stagnaro
City of Stockton
Community Development Dept.
345 N. El Dorado Street
Stockton, CA 95202

27 August 2007

RE: Sanctuary Draft Environmental Impact Report

Mr. Stagnaro:

Please send the Final EIR, and all legal notices regarding this project to my home address, 1421 W. Willow St., Stockton 95203. Do NOT send copies to the Sierra Club address in Sacramento at the top of this letterhead.

We have reviewed the Draft EIR for the above project and have these comments:

We incorporate by reference all of the comments submitted by the Morada Area Association. We have read the comments by the Morada Association and agree with them. 12-1

In addition, we incorporate by reference our previous comment letters of April 23, 2007 and 13 July 2007 on the Mariposa Lakes DEIR and the Empire Ranch DEIR. Some of our comments on the Mariposa Lakes and Empire projects and DEIRs apply also to this project (such as commens on water supply, traffic, air quality, and biology), and the comments should be addressed by the DEIR consultants and City. 12-2

In summary, we believe the Sanctuary DEIR analysis is seriously deficient in the areas of biological resources, air quality, traffic, cumulative impacts. The analysis in these and other topical areas is insufficient to comply with the California Environmental Quality Act (CEQA) and must be supplemented, as recommended below, to meet the minimum requirements of State law. The DEIR should be revised and supplemented accordingly and re-circulated for another minimum 45-day public review period. Better still, the project and its accompanying DEIR 12-3 12-4

should be held until after the proposed Stockton General Plan is deliberated and finally approved by the City later this year or in 2008. 12-4 Cont.

Project Description Must be Expanded

The description of this large project is very brief and should be expanded to describe more of the details of the proposal. For example, there is no table which breaks down the specific types and densities of planned residential and commercial uses. The details of Table 3.15-22 in the Transportation section should be inserted into the Project Description. 12-5

The project is a master development plan, the Sanctuary Master Development Plan (SMDP), that would allow approximately 7,070 housing units (approximately 22,000 residents) and no-residential uses on 2,000 acres of farmland west of Stockton on the edge of the Delta. It appears that more than one-half of the housing (1,026 acres) would be typical, low density sprawl density of (presumably) 5 to 6 units per acre. Only 3% of the site (67.4 acres) would be high density. The Project Description must be augmented to describe the specific types of housing and commercial, plus describe the marina and other unique uses proposed on the site. 12-6

Consideration of Project Impacts and Project Approval is Premature before the Updated General Plan is Adopted

There is a major problem with this DEIR and the process by which the City is allowing numerous development proposals to proceed before the updated 2035 General Plan and its EIR has been subject to public hearing and certification. 12-7

This and other pending or planned project DEIRs cannot rely on analysis, conclusions, and mitigation measures in a General Plan DEIR that has not been certified!

Processing of this and other project EIRs is grossly premature and, arguably, unlawful. The project level EIRs cannot rely on an uncertified DEIR.

DEIR Conclusions are Inconsistent with Other Recent EIRs

Some of the conclusions of level of significance for identified impacts in this DEIR are different and inconsistent with conclusions found in other recent DEIRs, including the Empire, the Mariposa Lakes, and the 2035 General Plan DEIRs. While different consultants may reach somewhat different conclusions, some of the discrepancies are notable and should have been resolved through City staff review and correction prior to publication of the various DEIRs. For example, the other DEIRs found more impacts, such as on services/utilities, to be significant and unmitigable, since future funding of necessary improvements could not be guaranteed (often because another agency was responsible). These other DEIR conclusions are inconsistent with this DEIR's conclusions that all facility impacts can be mitigated through payment of fees or other mechanisms. 12-8

Inconsistency with Policies in the proposed 2035 GP

The analysis in the Land Use section (pages 12-16 et seq) of the DEIR fails to identify potentially significant impacts related to the inconsistency of the project's design and impacts 12-9

2

with the several policies in the proposed 2035 GP. The DEIR refers to a consistency table in Appendix B and the results of this consistency analysis should be summarized in section 12. Appendix B notes the project's inconsistency with some policies; these should be listed and discussed in the DEIR

12-9 Cont.

The project cannot be found to be consistent with several policies and the DEIR should recommend mitigation to be consistent.

12-10

For example, the project is not consistent with Policy PFS-2.7, since the DEIR notes that a permanent water supply has not been guaranteed. The project is not consistent with the Housing Element policies calling for affordable housing, since the project includes no dedicated affordable housing, but will consist of 100% market rate housing units. The project is not consistent with Conservation Goal 1, Policy 1, or Policy NCR-4.4, which calls for the retention of viable agricultural soils and establishment of an Ag Conservation Program, since the project would prematurely cancel approximately 1,000 acres of Williamson Act contracts and the DEIR does not specify that the project must comply with the City's recently adopted ag mitigation program (requiring purchase of a 1:1 easement).

12-11

12-12

12-13

Similarly, the DEIR fails to note that the project is inconsistent with draft GP policies related to traffic levels of service at various intersections.

12-14

Project Would Require Cancellation of Williamson Act contract(s)

The DEIR fails to offer feasible and available mitigation for the loss of agricultural lands and the cancellation of Williamson Act contracts.

12-15

Most of the project is located on prime Class I soils. All of the site is under active Williamson Act contracts. The contracts have been non-renewed in 2003 but won't come out of contract until 2013. The project appears to propose that one half of the site, approximately 1,000 acres of contracts, be annexed into the City and then terminated per Government Code Section 51243.5.

12-16

However, the DEIR analysis is extremely vague and unhelpful on this contract termination issue. The DEIR analysis must be augmented to specifically address whether the property meets the criteria as set forth in the State law. Section 51243.5 states that "(a) This section shall apply only to land that was within one mile of a city boundary when a contract was executed pursuant to this article and for which the contract was executed prior to January 1, 1991."

Was this land within one mile of the City limits? If so, what portion was within one mile? Section 51243.5 (g) states that "The option of a city to not succeed to a contract shall extend only to that part of the land that was within one mile of the city's boundary when the contract was executed." Does Figure 3.2-3 indicate the extent of the land that would have its contract terminated by the City? If so, text should be added clarifying this.

12-17

In addition to the termination of the contract, the DEIR notes that levee work would be inconsistent with the remaining contract. The DEIR cryptically notes that "levee improvement construction activities may require that Williamson Act contracts…be cancelled for those activities to proceed." To comply with CEQA, the DEIR must divulge whether or not a

12-18

3

cancellation of all or a portion of the remaining contract would be required or not. You cannot be half-pregnant.

The DEIR must be revised to provide a more accurate description of the significant and irreversible impacts that would be caused by such a cancellation and termination of contract(s). 12-18 Cont.

The DEIR analysis provides a very weak justification that the cancellations would be consistent with the findings required under State law (pages 3.2-5 et seq), because the City protested the original contracts. The DEIR states that "part of the project was subject to protest by the City…For these reasons, the existence of the Williamson Act contracts is not an impediment to the annexation." The environmental issue that must be analyzed is not "impediment to the annexation" but impacts to other ag lands and contracted lands.

The DEIR analysis should be augmented to describe what specific portion of the site was subject to protest, and note that cancellation would still be required by the City. The DEIR should discuss what findings would be required to be adopted by the City. The DEIR should discuss possible mitigation for the cancellation. The DEIR must also describe potential impacts to other adjacent or nearby contracted lands. 12-19

The DEIR must analyze whether the cancellation would be consistent with the existing and proposed City General Plans. The DEIR must also analyze whether there is any proximate noncontracted land that is suitable for the use.

The termination and cancellation of over 1,000 Acres of Williamson Act contracts is unacceptable. Coupled with the proposed cancellation of 3,200 acres of contracted land for the Mariposa Lakes project, these terminations or cancellations would set a horrible precedent. The DEIR must describes and mitigate the cumulative impacts of multiple cancellations associated with this and other pending projects. 12-20

The DEIR analysis fails to objectively discuss how termination and cancellation of such a large amount of land would affect other contracted lands throughout the Stockton and San Joaquin County area.

The project is grossly premature, and the land should not considered for development until all of the contracts have non-renewed (expired). The DEIR should propose phasing so that a no contracts would be cancelled. 12-21

DEIR Requires Inadequate Mitigation for Loss of Ag Lands

The DEIR fails to require mitigation for the loss of agricultural lands. The DEIR analysis notes the existing City mitigation program but does not include any specific mitigation. The DEIR should discuss how and where and the timing of mitigation, i.e., the purchase of easements equal to the loss of land (2,000 acres). The mitigation must state that the first easement would be required at the time of the first final subdivision map. 12-22

4

Air Quality

Mitigation Measure AQ-3bcontains a laundry list of SJVAPCD and other smart design itigation strategies measures, however the measure fails to specify exactly which strategies must be implemented by the project (the measure simply states "several measures shall be incorporated").

12-23

Which measures make the most sense to be incorporated? What measures has the project applicant already agreed to?

The project applicant must be required to propose a detailed air quality mitigation plan that commits to implementing specific actions, e.g., use of non-gas vehicles within the project site, establishment of commercial services in the earliest phases of home construction, electric solar panels and electric lawnmowers with every home, etc. If the project proposes some of these, it should be disclosed in the Project Description.

12-24

Global Warming and Greenhouse Gases

The Air Quality analysis should include a quantification of how much greenhouse gases (CO2 and others) the project would generate.

12-25

The DEIR states that the project's contribution to global warming would be less than significant (page 3.3-23), but has no empirical justification for that conclusion.

12-26

The DEIR fails to adequately take into account the cumulative impacts of global warming on water supply. Impact HYD-12 dismisses the potential impacts with no justification, stating simply that "it is reasonably expected that [an increase in dry years due to global warming] would not significantly affect the ability of COSMUD or the DWSP to supply water to the project." We disagree. Please provide factual basis for this conclusion.

12-27

Hydrology/Levees

The DEIR should also discuss how rising sea levels in the Delta could affect potential flooding of the site and require more extensive levee improvements. HYD-13 again dismisses any potential impacts by stating that flood protection at the 300-year level "will provide more than adequate freeboard." Yet, the accompanying measure only requires "100-year or greater flood protection." Please reconcile this discrepancy.

12-28

Land Use/Population and Housing

These sections note the proposed General Plan policies that call for a specific portion of new "village" development to be devoted to high density housing, but fail to conclude and adequately discuss whether this project complies. As noted above, only 3% of the site (67.4 acres) would be high density housing, which is not consistent with the requirement that "4-6% minimum" be high density.

12-29

We do not agree that the project is "generally consistent with the proposed General Plan policies." Table 3.9-2 is inconsistent, for example in how the project complies with the required high density housing. Page 10 of the table states it is "generally consistent" with the requirement

12-30

5

for "4-6% minimum" high density, when it is less, while page 3 states the project is inconsistent with single family/multiple family balance. How are these project numbers derived on page 3 of the table, which states multifamily is 15% of the total? 12-30 Cont.

The table fails (deliberately) to note that the project traffic is inconsistent with the City's existing and proposed Level of Service standards at several intersections. The table also erroneously finds the project consistent with water supply policies, when a reliable and permanent supply has not been acquired. 12-31 12-32

Biological Resources

The DEIR completely fails to discuss whether the project site is covered by the existing permit for the San Joaquin Multi Species Habitat Conservation and Open Space Plan (SJMSCP) and whether the project is eligible to pay the fee established by the current plan. Is it? Mitigation Measure BIO-2b implies that the site could be covered. 12-33

If the site is not eligible to participate in the current SJMSCP program, then the DEIR must objectively describe the process by which this portion of the site could be included in a renewed "take" permit and fee program approved by the USFWS and CDFG, and what the possibilities are that such a renewed program would be approved and implemented with the time frame of the project's phasing.

What would happen if the wildlife agencies refused to allow the SJMSCP to be expanded? 12-34

The DEIR concludes that loss of ag habitat lands can be mitigated to a less than significant level by paying a fee or providing land dedication at a 1:1 ratio (presumably through the City's recently adopted ag mitigation program). This conclusion is not consistent with the finding of "significant and unavoidable" in the Ag Resources section of the DEIR. The two section must be made consistent and cross-referenced with the same mitigation measure if they are using the same program to mitigate. 12-35

We do not agree with the DEIR's assertion that potential impacts to fish and aquatic habitat due to construction of the marina and other improvements would be less than significant, as Impacts and Measures BIO-14, 18, and -19 indicate. The DEIR must discuss and quantify how much boat traffic would be generated by the marina and how the operations (not just construction) would affect the resources. 12-36

The DEIR throughout fails to adequately describe in detail the proposed marina operations (how may slips, what types of accompanying commercial development like restaurants?) and the impacts (e.g., increased waves on Delta levees by watercraft) that could be caused by the uses.

Hydrology/Water Supplies

The DEIR states short term project water needs could be met by Phase I of the Delta Water Supply Project (DWSP). Yet, City officials have indicated in the past that Phase I of the DWSP is intended only to supply existing and planned development within the existing 1990 GP (Mark Madison comments at draft GP workshops and statements in the DWSP EIR). The DEIR must 12-37 Cont.

6

discuss whether use of the DWSP is consistent with these statements and City assertions contained in the submittal to the State Water Board.

The DEIR discussion of the DWSP should be revised to state that the City plan is to use the first phase of the DWSP to supply existing and planned development within the existing 1990 GP and for groundwater recharge, and not for new development allowed in the 2035 GP. 12-37 Cont.

We agree with the conclusion that a short term water supply for the project is not confirmed (page 3.8-42), but Measure HYD 11a is not adequate to mitigate the impact to a less than significant level. The DEIR must discuss this impact in relation to the requirements of SB 221 and draft 2035 GP Policy PFS2.8. 12-38

We incorporate by reference the extensive review and critique of the DEIR's water supply analysis that has been prepared by Morris Allen and incorporated into the comments submitted by the Morada Area Association. We agree wholeheartedly with Mr. Allen's finding that the DEIR analysis is deficient because "The consultants in the DEIR largely sidestep the issue of regional groundwater overdraft, and, instead, focus on the narrow issues regarding groundwater availability in the project area. This is a major and very significant discrepancy in the SMDP DEIR." Similar comments were submitted for the Mariposa Lakes and Empire Ranch DEIRs. 12-39

The analysis fails to comply with SB 221 requirements, since the water supply analysis relies on future water supplies that are over-estimated or highly speculative, or both, as noted below.

The DEIR must be augmented to include a thorough discussion of legal requirements and recommend specific mitigation measures to ensure compliance at all phases of the project with the requirements. The City must comply with Government Code Section 66473.7, which does not allow a subdivision to move ahead unless a water supply is proven. Measure HYD 11a is vague and does not comply with these requirements.

The law requires four items be proven to guarantee a water supply: water rights contracts; a capital program; agency permits in hand to allow the project; and other necessary regulatory approvals. These should be specified in both mitigation measures. 12-40

Government Code Section 66473.7 states:

"(d) When the written verification pursuant to subdivision (b) relies on projected water supplies that are not currently available to the public water system, to provide a sufficient water supply to the subdivision, the written verification as to those projected water supplies shall be based on all of the following elements, to the extent each is applicable:

(1) Written contracts or other proof of valid rights to the identified water supply that identify the terms and conditions under which the water will be available to serve the proposed subdivision.

(2) Copies of a capital outlay program for financing the delivery of a sufficient water supply that has been adopted by the applicable governing body.

(3) Securing of applicable federal, state, and local permits for construction of necessary infrastructure associated with supplying a sufficient water supply.

(4) Any necessary regulatory approvals that are required in order to be able to convey or deliver a sufficient water supply to the subdivision."

7

Regarding the overall water supply analysis, we agree, as Mr. Morris states, that the only firm water sources available to the City's Water Utility at this time to support the increased water demands described in the SMDP DEIR is surface water via Stockton East Water District (Second Amended Agreement) – 20,000 acre feet/yr, allocated to the City of Stockton's Water Utility, San Joaquin County Maintenance Districts, and to Cal-Water on a proportionate basis.

As Mr. Morris notes, "Non-firm supplies being relied upon by the City of Stockton's Water Utility to meet demand from this proposed subdivision and other anticipated developments:

- Groundwater basin (currently in critical overdraft). In my professional opinion, the existing groundwater basin cannot be considered a firm water supply for the ERSP since it has been found by the Department of Water Resources to be in critical overdraft, and the authorities noted above; however, the consultants who have prepared the ERSP DEIR do not concur with this assessment, and indicate that "the basin is recovering and is stabilized". If this statement is correct, why are all of the water agencies, including San Joaquin County, the City of Stockton and the City of Lodi, working diligently to find ways and means to recharge the basin?
- Surface water supplied from Stockton East from the Stanislaus River under contract from the US Bureau of Reclamation – quantity varies from 0-35,000 acre feet/yr
- Surface water supplied from Stockton East from the Stanislaus River under contract from OID/SSJID – quantity varies from 8-30,000 acre feet/yr."

12-41

Mr. Morris concludes "While this combination of sources has been meeting the immediate demands of the COSMA, they can not be considered firm or reliable, nor can they legally be committed to new developments; and the net result of COSMA utilizing increasing amounts of groundwater to meet the needs of an increasing number of customers has been to make a significant contribution to the groundwater overdraft in this subbasin."

As the City's *Water Supply Assessment* indicates, without the water supply available from the proposed Delta Water Supply project, there is insufficient water supply available to support this project, along with all of the other pending development projects which have been approved or anticipated. Further, under Term 91 of the contract with the State Water Resources Control Board, the City will be unable to divert water from the Delta at any many times of the year, due to a restriction that pumping occur only during "balanced conditions" in the Delta. The additional yields noted by the Water Supply Assessment for the Delta Water Supply Project to meet immediate, foreseeable and long-term demands will not be available at the levels indicated in the City's *Water Supply Assessment for the Sanctuary/Shima Tract Master Development Plan* (Appendix L), and cannot be included in the determination of sufficiency for this ERSP.

12-42

We agree with Mr. Morris that the *Water Supply Assessment* (WSA) consistently overstates water production by confusing capacity with production. It should be assumed that the production of a water treatment plant can be no more than 75% efficient. The Assessment should be revised accordingly. The WSA should also not assume future production of Stockton East of 60 million gallons per day, since this would speculatively assume the district

12-43

8

could acquire rights to new sources of water from the State Water Quality Control Board. There is no evidence that future rights to water will be acquired. 12-43 Cont.

We agree also that it is absurd and factually inaccurate for the DEIR analysis to argue that the project can claim an "agricultural credit" that "acknowledges that the groundwater basin was being used for agriculture prior to urbanization." In the case of a basin in critical overdraft, no "credit" can be assumed by converting from one groundwater use to another. At best, the "critical condition of overdraft" has been slightly reduced by some unquantified level of agricultural pumping. This type of speculation is a very poor substitute for actual documentation of prior water uses on the subject property, and has no place in a Water Supply Assessment. 12-44

The Sanctuary DEIR totally fails (as does the General Plan DEIR and the other two DEIRs for the Empire Ranch and Mariposa Lakes projects) to address the regional and cumulative impacts of cumulative planned growth on the existing water supply. As Mr. Morris noted in his comments on the Empire Ranch DEIR:

"While the City of Stockton and Stockton East are engaged in a number of activities to develop additional water rights for additional water supplies to serve COSMA, there is no assurance whatsoever that any additional water rights will be obtained for either expanding the Delta Water Supply Project as planned, or for expanding the Stockton East Water Treatment Plant as assumed in the City's *Water Supply Assessment*. This means that the additional 136,000 acre feet per year required to support growth contemplated in the City's proposed General Plan Update-2035 and the City's *Water Supply Assessment for the ERSP* must come from groundwater, which is already seriously overdrafted. This will increase the groundwater overdraft in the subbasin to at least 300,000 acre feet per year, which, in my professional judgment, would place the overdraft at the crisis level." 12-45

The WSA and DEIR for this sanctuary project must address this assertion from a professional water expert, and former City staff member, that potential impacts to the groundwater basin related to water supply for new growth could be disastrous to the resource.

The Water Supply Assessment in the Sanctuary DEIR fails (as does the General Plan DEIR and other project DEIRs) to acknowledge the fact that other San Joaquin County cities, including Ripon, Lathrop, Manteca, and Lodi all rely heavily on groundwater use, and that significant growth is also occurring in these cities.

All of the EIRs being circulated by the City must include an analysis that looks at the cumulative impacts of current and planned uses of groundwater with those of all other San Joaquin County cities to determine what impact all cities, including Stockton, will have on groundwater availability. There are no estimates in any of Stockton's documentation that attempt to quantify the groundwater demands of the other cities overlying the Eastern San Joaquin Groundwater Basin. This is a serious flaw in the analysis, because it underestimates the City's significant adverse direct and cumulative impacts on regional groundwater supplies. 12-46

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Finally, it is unclear whether the WSA included a discussion of how non-potable water would be provided to the planned lakes within the project. The water supply studies should be updated to include a discussion of non-potable water supplies, and it should be summarized in the DEIR.

The DEIR must discuss any impacts and uncertainty about whether the project could even build the lakes. There is no impact and mitigation to address what would happen if the developer can't find adequate non-potable water, and the lakes must be eliminated from the project. How would deletion of the lakes affect project design? How would the project manage storm waters if the lakes are deleted? What other impacts could occur if the lakes were removed or downsized? 12-47

The DEIR and water supply analysis should be updated to include a mitigation measure to delete the proposed lakes if an adequate non-potable supply cannot be identified and guaranteed.

Wastewater

The DEIR fails to discuss the expansion(s) of the City's regional wastewater treatment plant which would be required to serve this and other cumulative projects. The DEIR must be augmented to describe the existing plant and expansions, as well as the change in operations from OMI Thames back to City staff (page 3.13-10). 12-48

The whole "analysis" of wastewater simplistically looks only at the collection system. 12-49

Impact and Mitigation PSU-10 fail to justify a conclusion of less than significant impacts. The DEIR argues that "because the pump and parallel pipeline are necessary to accommodate the previously approved projects," then the impact would be less than significant. We do not agree. 12-50

The discussion notes that there may be impacts during construction of System 10 improvements, but do not map or describe the potential impacts, which is required under a project level CEQA document. 12-51

What would be the potential land use impacts of a parallel pipeline construction? How many homes and businesses would be potentially affected? The DEIR should describe the conceptual route for the parallel pipe, not avoid the issue. 12-52

Transportation

The buildout of the project will generate 71,000 new vehicle trips, and 6,000 peak morning and 6,900 peak evening trips. The project, along with all the growth occurring at the Spanos projects nearby will cause the need for massive improvements, and many of the impacts cannot be mitigated to an acceptable level.

A major deficiency of the transportation analysis (and the analyses in the other three recent DEIRs) involves the use of future lane widenings (to 10 lanes!) on I-5 south of Otto Drive that may not be consistent with Caltrans plans, and may never be approved and built. 12-53

The DEIR should be revised to explain if any 10 lane freeway has been constructed in northern California, and how a 10 lane freeway could operate with close interchanges in Stockton. Please explain if any Caltrans plans call for 10 lane freeways in Stockton or elsewhere.

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The language of Impact and Mitigation Measure TRA-31 is deceptive and should be revised to clearly explain how many total lanes are being proposed on I-5. The measure now says "widen I-5 to four mixed flow lanes." It fails to explain to the public that the modeling assumption is for four mixed flow lanes plus a fifth high occupancy vehicle lane, for a total of five lanes in each direction.

12-54

The project and cumulative traffic analysis assumes either the existing 6 lanes or 10 lanes on I-5. Why was 8 lanes on I-5 not analyzed? What would be the level of service on the mainline with the project if no more than 8 lanes (3 mixed use and 1 HOV) were in place?

Jobs/Housing

The DEIR fails to include adequate a mitigation measure to ensure that jobs and services are created with each phase of the housing. The DEIR should add a measure similar to the Mountain House project plan and EIR, which required monitoring of job creation during housing construction intervals (e.g., every 1,000 or 2,000 homes). If jobs are lagging, then appropriate actions are required, e.g., hiring a full time economic development coordinate or slowing sub map or building permit approvals.

12-55

Cumulative Impacts

The DEIR fails to adequately analyze the cumulative impacts of the project for a number of reasons including an incomplete list of pending projects within the City of Stockton and a failure to quantify cumulative impacts. The discussion of cumulative impacts must include a summary of the expected environmental effects to be produced by those projects, a reasonable analysis of the cumulative impacts, and full consideration of all feasible mitigation measures that could reduce or avoid any significant cumulative effects of a proposed project.

The cumulative impacts section must be rewritten and recirculated, because the basic assumption upon which the analysis rests is faulty. The DEIR states that for all topics analyzed, except for traffic, "the background for the cumulative impact analysis was considered to be the buildout of the 1990 General Plan." This approach seriously underestimates cumulative impacts since it fails to take into account numerous pending General Plan Amendments for large sale development projects that amount to over 42,000 housing units.

12-56

The DEIR fails to contains a list of "reasonably foreseeable projects." Such a table must be inserted which accurately reflects the pending projects which are seeking to amend either or both the 1990 General Plan as well as the proposed 2035 plan.

12-57

The cumulative impacts analysis relies exclusively on the existing 1990 General Plan to draw its conclusions, and fails to discuss and analyze cumulative impacts of the draft 2035 GP and the projects in that plan that are already being processed by the City. Thus, the cumulative agricultural impacts must refer to the approximate amount of ag land that is proposed for development under the buildout of the 1990 plan, under the pending projects, and under the proposed 2035 plan.

12-58

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One of the greatest flaws of this DEIR (as well as the other three DEIRs) is that they all fail to even mention that over one half of the growth that is proposed in the proposed 2035 General Plan is already being processed by the City, and that the City has already adopted a Sphere of Influence for growth north of 8 Mile Road.

The DEIR discussion of baseline conditions fails to even discuss or mention this uncomfortable fact and a layperson reading this document could not even begin to understand how much development proposed north of 8 Mile Road, for example, is already a "done deal." Actions by the City Council to sign development agreements with major developers prior to the November, 2004 election tried to inoculate the developers from the effects of Measure Q, if it were to be passed by voters. In the process of approving a premature SOI and agreements for lands that had not even been included within the existing City General Plan, the City Council pre-ordained the outcome of the GP Update process.

12-59

TABLE 1
Large Development Projects In Development Process City Council

Project/Location	Acres	Housing Units	Status
Arnaiz/North Stockton Village (part of Village D of draft GP)	771 acres	3,800 housing units	Master Development Plan proposed
Spanos/Thompson lands, north of 8 Mile Road (Villages B, C, and part of D of draft GP)	2,200 acres	7,500 housing units	Specific Plan in process; Development Agreement approved
Grupe Sanctuary project (Village A of draft GP)	2,000-acre Shima Tract	6,000 housing units	Development Agreement approved; EIR in process
Empire Ranch project, south of Morada (Village I of draft GP)	600 acres	2,200 housing units	EIR in process
Verner/Maripsa Lakes project, east of Route 99 between Mariposa Road and Route 4 (Villages J and K of draft GP)	3,650 acres	9,300 housing units	EIR in process
Arnaiz/Tidewater Crossing near French Camp part of Village L of draft GP)	800 acres	4,000 housing units	EIR in process
River Run/Western Pacific project, south of Weston Ranch (Villages N and part of M of draft GP)	1,850 acres	9,250 housing units	EIR in process
TOTAL	11,871 acres	42,050 units	----

Source: City of Stockton, Pending Projects Map

12-60

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TABLE 2
Portion of Draft General Plan Growth
Already Approved for Processing

	Acres	Housing Units	Population
Development projects in process	11,871 acres	42,050 units	121,150*
Total "village" development in draft General Plan (minus Bear Creek West –Village H)	25,100 acres	79,200 units	237,600
Development projects in process as % of GP villages	47.3 %	53.1 %	53.1 %

*Assumes 3.0 persons per household.

The City Council has already given approval for the processing of some 11,900 acres of urban growth, or more than one half of all the new development that is proposed in the draft 2035 General Plan. A total of almost 12,000 acres of growth are in the pipeline, equal to 42,100 housing units. As Table 2 above notes, the approximately 12,000 acres of development that are being processed before the new General Plan is adopted compares to a total of about 25,000 acres of farmland that will be paved over if all the planned "villages" in the new General Plan are built (these figures are from the City). Thus, the Council has already set in motion the approval of over 50% of the total "village" growth proposed in the draft General Plan, and over half the proposed housing and population growth.

12-60 Cont.

All of the above listed projects must be included in a revised environmental document that is circulated to the public. In order for the DEIR to be adequate it must list, analyze, and mitigate to the extent feasible the cumulative impacts from all of these development projects.

Alternatives

The DEIR fails to adequately consider a wide range of alternatives.

For example, a major impact (although erroneously not considered such by the DEIR) related to the project is termination and cancellation of the Williamson Act contract on one-half or more of the site. Thus, the DEIR should include an alternative that reduces the amount of cancellation required. The DEIR should consider in detail an alternative that is phased so that cancellation is delayed until the contracts expire (2013), or that reduces the size of the contract that must be cancelled, by allowing only the first phase of 200-300 acres to be annexed.

12-61

We would like to see a new alternative that (1) reduces the amount of contracted land that had to be cancelled; and (2) reduces the project so that there is more verifiable water and sewer service and traffic impacts are reduced.

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If you have any questions about these comments, you may contact me at 209/462-7079 or eparfrey@sbcglobal.net.

Again, please send the Final EIR, and all legal notices regarding this project to my home address, 1421 W. Willow St., Stockton 95203. Do NOT send copies to the Sierra Club address in Sacramento at the top of this letterhead.

Sincerely,

Eric Parfrey, Executive Committee
Sierra Club, Mother Lode Chapter

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Responses to Comment Letter 12—Eric Parfrey, Executive Committee, Sierra Club, Mother Lode Chapter

Response to Comment 12-1

The commenter refers to the comments in Letter 9. Please see the Responses to Comment Letter 9.

Response to Comment 12-2

Upon review of the letters referenced by the commenter, it was found that the comments in those letters were either specific to projects addressed by the letter, or were addressed to the City's General Plan Update. Specific comments in those letters concerning water supply are mirrored in this letter and are responded to in this document (see, for example, Responses to Comments 12-37, 12-39, and 12-46).

Response to Comment 12-3

The commenter expresses his opinion that the EIR is deficient in the areas of biological resources, air quality, traffic, and cumulative impacts. The commenter expresses his opinion that the EIR should be altered to the extent that recirculation of the EIR is required. Please see responses to the commenter's specific comments below. The comment letter does not identify any "significant new information" that would require recirculation of the DEIR.

Response to Comment 12-4

The commenter expresses his opinion that the proposed project should not be considered before the City has made a decision on the General Plan Update.

This EIR considers the proposed project in relation to the existing adopted General Plan and, where applicable, the DEIR also considers the proposed project in relation to the General Plan Update (which was proposed but not yet approved at the time of preparation and circulation of the DEIR) in order to provide further analysis of potential environmental impacts.

The commenter's concern is a policy issue and not a CEQA issue. This comment will be brought to the attention of the decision makers.

Response to Comment 12-5

The project description is found in Chapter 2 of the DEIR. Information on the types and amounts of proposed development is presented in that chapter. In addition, the Master Development Plan itself was included in the DEIR document as Appendix C.

Response to Comment 12-6

Types of housing proposed are described on page 2-7 of the DEIR. The types of commercial and other non-residential uses proposed are described on pages 2-9 through 2-10 of the DEIR.

Response to Comment 12-7

Please see Response to Comment 12-4. This EIR is a project-level EIR proceeding under the 1990 General Plan (and amendments thereto) and does not tier from or otherwise rely on the 2035 General Plan EIR, which was only just certified in December 2007. It is not atypical for individual projects to proceed with an application for general plan amendment, rather than having to wait a number of years for the entire general plan to be updated. Here, the 2035 General Plan Update is proceeding on a parallel track. Consequently, where applicable, the analysis in the SMDP EIR evaluates both the existing General Plan, as well as the projections underlying the 2035 General Plan Update.

Response to Comment 12-8

This EIR addresses the impacts of this specific project. Other EIRs address the impacts of other projects. The commenter does not provide specific examples of inconsistencies in the analysis of similar impacts. Provision of utilities may differ from project to project in Stockton, specifically for water, and therefore the impact conclusions may differ.

Response to Comment 12-9

The DEIR presents consistency of the project with the 1990 General Plan in Table 3.9-1. The DEIR presents consistency of the project with the Draft 2035 General Plan in Table 3.9-2.

Response to Comment 12-10

In several areas, the proposed project is identified in Table 3.9-2 as inconsistent with a specific policy requirement in the Draft 2035 General Plan Update. However, discussion in Table 3.9-2 provides information on how the proposed project would be consistent with the applicable goals of the Draft General Plan. It will be up to the City Council to determine consistency of the project with the adopted General Plan at the time it considers action on the proposed project.

Response to Comment 12-11

Please see Response to Comment 12-32 regarding the availability of water to serve the proposed project and Response to Comment 8-12 regarding certainty in infrastructure improvements and water rights.

In this comment, the commenter states that the project is not consistent with the proposed General Plan Policy PFS-2.7, because a permanent water supply has not been "guaranteed." The Comment misstates the proposed 2035 Stockton General Plan Update Policy PFS-2.7. Nonetheless, the SMDP is consistent with this General Plan Policy.

Policy PFS-2.7 does not state that a permanent water supply must be guaranteed. Instead, Policy PFS-2.7 states that, "The City shall ensure that water supply capacity and infrastructure are in place prior to granting building permits for new development." Existing measures are in place to achieve this policy. For example, under Mitigation Measure HYD-11a, the project cannot increase its water demand "unless and until sufficient water supply exists to serve the increment of demand generated by a particular phase of Project development." In other words, before a particular phase of the project can proceed, the water supply and necessary infrastructure must be there. In addition, SB 221 requires a "written verification" that water supplies will be sufficient to meet the demands of the project before final map approval. Final map approval is typically one of the last approvals necessary before the City issues a building permit for construction. Thus, the written verification must be secured and the requirements of Mitigation Measure HYD-11a must be fulfilled before a building permit is issued and construction can commence on each phase of development. In this respect, the policy is fulfilled. To clarify, however, the following addition is made to Mitigation Measure HYD-11a on page 3.8-42 of the DEIR:

> **Mitigation Measure HYD-11a: Require that the Project have Sufficient Interim Water Supplies**
>
> To ensure that water supply is adequate to support the project, as a condition of project approval, the City shall require that the project does not increase water demand unless and until sufficient water supply exists to serve the increment of demand generated by a particular phase of project development. Sufficient water supply shall be provided by either (1) the DWSP, or (2) an alternative source of water to supply the project. The alternative source of water, if

implemented, shall be demonstrated to not result in adverse effects such as groundwater overdraft or impacts on other water rights holders. Potential alternative sources of water could include new supply sources (i.e., surface or groundwater supplies) or demand offsets (e.g., installation of low-flow fixtures in existing development, water recycling, etc.). COSMUD must verify that the water supply capacity and infrastructure are in place before the City may issue building permits for construction of each phase of the project.

Response to Comment 12-12

The commenter states that the project is not consistent with the Housing Element of the General Plan because the project includes no dedicated affordable housing.

The Housing Element of the General Plan does not include any requirement for affordable housing, though it does include incentive programs for developers. There is a proposed program to amend the zoning code to establish a process by which a variety of residential densities will apply for newly annexed land that is to be implemented at a later date. Therefore, though the project does not include dedicated affordable housing, it is not inconsistent with the General Plan.

Response to Comment 12-13

The EIR notes on page 3.2-10 of the Draft EIR that the project is subject to the City's Agricultural Land Mitigation Program. As a result, the project would not be inconsistent with the policies specified in the comment.

Response to Comment 12-14

The comment states that the DEIR is inconsistent with certain proposed 2035 Draft Stockton General Plan Update policies related to traffic LOS at various intersections.

The traffic analysis relies on the planning objectives listed in the adopted 1990 Stockton General Plan ("Street and Highway Goal 1.9"), which identifies "LOS D" on a PM peak hour basis as a threshold for evaluating "new development, mitigation measures, impacts fees and public works capitol improvement programs." The traffic analysis used LOS D as the threshold of acceptable operations for city intersections on both AM and PM peak-hour basis, and for roadway segments on a daily basis.

Where the DEIR employs the LOS D threshold, the proposed 2035 General Plan Update would provide greater flexibility. Under the General Plan Update as proposed, the City could relax the LOS D standard to LOS E for Eight Mile Road from Trinity Parkway to I-5, Hammer Lane from I-5 to Kelley Drive, and Hammer Lane from West Lane to SR 99 because of physical constraints that

limit the improvements that can be constructed in those segments. The DEIR analysis uses a more stringent set of criteria for measuring impacts. Consequently, the project would be consistent with either General Plan policy.

Response to Comment 12-15

Partial mitigation for loss of agricultural lands will be provided through the project's participation in the City's Agricultural Land Mitigation Program, as noted on page 3.2-10 of the DEIR. This mitigation alone will not be enough to reduce the project's impacts to a less-than-significant level. There is no feasible mitigation for the loss of agricultural resources because Prime Farmland is a non-replaceable resource.

Response to Comment 12-16

A specific discussion of the issues regarding Williamson Act contracts, their non-renewal or termination, and the phasing of the project is found on pages 3.2-11 through 3.2-14 of the DEIR. Figure 3.2-3 specifically describes the portion of the project site for which the Williamson Act contracts are eligible for removal from contract upon annexation to Stockton.

Response to Comment 12-17

Please see Response to Comment 12-16. This information is provided on page 3.2-3 and Figure 3.2-3 of the DEIR.

Response to Comment 12-18

Impact AG-3 identifies potentially significant impacts to lands currently under Williamson Act contracts where levee improvement activities will take place (shown on Figures 2-4 and 2-7a through 2-7i of the DEIR). As the DEIR points out, there are no feasible measures available to mitigate this impact. For example, no development can occur without the levee improvements. Therefore, the project cannot avoid the impact altogether. The project already minimizes the impacts by phasing development to coincide with the expiration of those contracts. The DEIR thus concludes that the impact will be significant and unavoidable (DEIR, page 3.2-12).

Response to Comment 12-19

Please see Response to Comment 12-16. The specific impacts resulting from termination of Williamson Act contracts are disclosed in Impacts AG-2, AG-3, and AG-4. Analysis of the availability of an alternative site for the proposed project is found on page 5-4 of the DEIR.

Response to Comment 12-20

Cancellation of 1,000 acres is not proposed as a part of the project. As discussed on page 3.2-11 of the DEIR, the project is designed to be phased such that development would not take place on lands now under Williamson Act contract until the contracts have either been removed from contract upon annexation or expired through non-renewal. Mitigation Measure AG-2a is designed to ensure that this occurs. The only potential for cancellation of a portion of a Williamson Act contract would be if an activity required as a part of the levee improvements was required to occur on land still under Williamson Act, and that activity were to be found to be inconsistent with the provisions of the Williamson Act contract covering that land. This may not occur, but the potential impact is disclosed in Impact AG-3.

Response to Comment 12-21

Please see Response to Comment 12-20. Mitigation Measure AG-2a requires phasing of the project so that no contracts would be cancelled.

Response to Comment 12-22

Please see Responses to Comments 12-13 and 12-15. The City's program will provide the specific requirements. The City's requirements provide partial mitigation. No additional mitigation measures were found to be available that could address the impact.

Response to Comment 12-23

The commenter states that the Mitigation Measure AQ-3b must specify which strategies must be implemented by the proposed project.

CEQA requires an EIR to identify mitigation measures that will avoid, minimize, rectify, reduce, eliminate, or compensate for the project's impacts on air quality. Mitigation Measure AQ-3b requires the project applicant to implement additional innovative measures to reduce air quality impacts. The mitigation measure then

goes on to identify measures recommended by the SJVAPCD to help reduce air quality impacts related to project operations. The mitigation measure, as written, requires the project applicant to implement measures to reduce air quality impacts, and then proceeds to identify potential mitigations the project applicant may implement.

Because none of these measures will fully mitigate the project's impacts on air quality, the DEIR concludes that the project's impacts on air quality will be significant and unavoidable. The project proponent has already agreed to incorporate the following measures into the project:

- Plant deciduous trees on the south- and west-facing sides of buildings.
- The City shall implement measures to reduce the amount of vehicle traffic to and from the project area to further reduce air pollution in the valley. This could include provisions such as encouraging employees to rideshare or carpool to the project site, or incentives for employees to use alternative transportation.
- Efficient interior circulation and pedestrian access within the project area and logical connection points for future development on the surrounding properties shall be provided.
- Measures shall be implemented to reduce the amount of vehicle traffic to and from the residential area(s) that further reduce air pollution in the Sacramento Valley Air Basin (SVAB). This could include providing an information center for residents to coordinate carpooling.
- As many energy-conserving features as possible shall be incorporated into the design and operation of the proposed project. These include:
  - energy-efficient windows (double-paned or Low-E);
  - installation of programmable thermostats for all heating and cooling systems;
  - porch, patio, and walkway overhangs;
  - electrical outlets around the exterior of units to encourage the use of electric landscape maintenance equipment;
  - use of low and no–volatile organic compound (VOC) coatings and paints;
  - natural gas fireplaces (instead of wood-burning fireplaces or heaters) and natural gas lines (if available to the project area) in backyard or patio areas to encourage the use of gas barbecues; and
  - pre-wire units with high-speed modem connections/DSL and extra phone lines.

The project proponent has agreed to incorporate the following measures into the project where feasible:

- Energy-efficient design shall be provided for homes and buildings, including automated control systems for heating and air conditioning and energy efficiency beyond Title 24 requirements, lighting controls and energy-efficient lighting in buildings, increased insulation beyond Title 24 requirements, and light-colored roof materials to reflect heat.
- Large-canopy trees shall be carefully selected and located to protect buildings from energy-consuming environmental conditions and shade-paved areas. Trees shall be selected to shade 50% of paved areas within 15 years.
- If transit service is available to the project site, improvements shall be made to encourage its use. If transit service is not currently available, but is planned for the area in the future, easements shall be reserved to provide for future improvements. These include bus turnouts, loading areas, route signs, and shade structures. Pedestrian access shall be directed to the main entrance of the project from existing or potential public transit stops, and appropriately designed sidewalks shall be provided. Such access shall consist of paved walkways or ramps and shall be physically separated from parking areas and vehicle access routes. Appropriations made to facilitate public or mass transit will help mitigate trips generated by the project.
- Exits to adjoining streets shall be designed to reduce time to re-enter traffic from the project site.
- As many energy-conserving features as possible shall be incorporated into the design and operation of the proposed project. These include:
  - increased energy efficiency;
  - increased wall and ceiling insulation (beyond building code requirements);
  - high-albedo (reflecting) roofing materials;
  - cool paving;
  - radiant heat barriers;
  - energy-efficient lighting, appliances, and heating and cooling systems;
  - installation of solar water-heating systems;
  - provide low-oxides of nitrogen (NO_x)-emitting or high-efficiency, energy-efficient water heaters;
  - installation of clean-energy features that promote energy self-sufficiency (e.g., photovoltaic cells, solar thermal electricity systems, small wind turbines);
  - installation of geothermal heat pump systems;
  - awnings or other shading mechanisms for windows;
  - ceiling fans or whole-house fans;

- passive solar cooling and heating designs (e.g., natural convection, thermal flywheels);
- daylighting (natural lighting) systems such as skylights, light shelves, and interior transom windows;
- bicycle parking facilities for patrons and employees in covered secure areas (shall be conveniently located at each destination point);
- on-site employee cafeterias or eating areas;
- employee shower and locker areas for bicycle and pedestrian commuters; and
- use of low or nonpolluting landscape maintenance equipment (e.g., electric lawn mowers, reel mowers, leaf vacuums, electric trimmers and edgers).

Response to Comment 12-24

Please see Response to Comment 12-23.

The commenter states that the proposed mitigation for the project's impacts on air quality should be included in the DEIR's project description. The project description refers to those proposed actions that may result in either direct physical changes or foreseeable indirect physical changes in the environment. Mitigation, on the other hand, describes the measures that will be taken to avoid, minimize, rectify, reduce, eliminate, or compensate for the project's impacts. The proposed mitigation measure, Mitigation Measure AQ-3b, is therefore not part of the project description.

Response to Comment 12-25

The comment states that the air quality analysis should include a quantification of greenhouse gases the project would generate.

Without agreed-upon thresholds of significance, inventories of emissions for Stockton or California, or any agreed-upon quantified state targets under Assembly Bill (AB) 32, there is no generally accepted quantitative framework for determining under CEQA whether greenhouse gases produced by a project are significant.

CEQA gives discretion to lead agencies to determine how to analyze the environmental impacts of a given project. The lead agency does not need to conduct every recommended test or perform all requested research or analysis (State CEQA Guidelines, Section 15204[a]; *Laurel Heights Improvement Association v. Regents of California* [1988] 47 Cal. App. 3d 376, 410). In determining the significance of a particular impact, the lead agency may employ

a "qualitative," rather than a quantitative, analysis (State CEQA Guidelines, Section 15064.7[b]). Here, the City has analyzed the impacts of the project qualitatively rather than quantitatively, based largely on the fact that there is no generally accepted method for quantifying and attributing greenhouse gas emissions to a particular project. The California Air Resources Board (ARB), for example, has itself acknowledged that no protocols or methodologies exist to quantify greenhouse gas emissions on a project-by-project basis. Instead, ARB has identified the development of such methodologies as a suggested tool for local governments. It is still in the process of elaborating appropriate modeling tools and protocols to support emission quantifications at the local level.[4]

Even a technical advisory recently issued by the Governor's Office of Planning and Research (OPR) does not dictate a particular threshold of significance or method for quantifying emissions.[5] Instead, the advisory encourages lead agencies to make an effort to "calculate, model, *or estimate* [emphasis added]" emissions, and it recommends that until there is formal statewide guidance, each lead agency should "develop its own approach to performing a climate change analysis for projects that generate GHG [greenhouse gas] emissions." The advisory acknowledges, however, that "neither the CEQA statute nor the CEQA Guidelines prescribe thresholds of significance or particular methodologies for performing an impact analysis," and that "not every individual project that emits GHGs must necessarily be found to contribute to a significant cumulative impact on the environment." It does encourage lead agencies to develop and implement policies that result in land use patterns that use less energy and reduce greenhouse gas emissions, such as compact, mixed-use, transit oriented development designed to reduce vehicle miles traveled. Likewise, the ARB *Climate Change Draft Scoping Plan* released earlier this summer encourages local governments to develop climate actions plans to address energy use, including the "siting and design of new residential and commercial developments in a way that reduces greenhouse gases associated with energy, water, waste, and vehicle travel."[6] The Sanctuary project, with its mixed-use layout and energy-efficient design elements, helps to address these goals in the OPR technical advisory and ARB draft scoping plan.

The City has concluded that the project will generate greenhouse gases and that the greenhouse gases generated by the project will have a cumulatively considerable impact. In response to Comment 12-25, the City undertook a quantitative analysis of the project's impacts on global climate change. However, the quantitative analysis did not change the DEIR's conclusions concerning the cumulatively considerable impacts of greenhouse gas emissions. This is partly because of the shortcomings in existing quantitative models. The existing models are limited to evaluating aggregate emissions and are not

[4] California Air Resources Board. 2007. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration.* October. C-8 to C-10.
[5] Governor's Office of Planning and Research. 2008. *Technical Advisory: CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review*. June 19. Sacramento, CA.
[6] California Air Resources Board. 2008. *Climate Change Draft Scoping Plan: A Framework for Change*. Discussion Draft. June. Sacramento, CA.

designed to identify which emissions are directly attributable to a given project under CEQA. For example, approval of a particular mixed use development project might not create substantial new greenhouse gases, but would rather move existing greenhouse gases generated by energy usage, water consumption, and transportation from one location to another. Quantitative modeling does not clarify which greenhouse gases are created, which are moved, or which might be reduced. A new project with smart growth design elements such as the SMDP may ultimately lead to net reductions in future greenhouse gas emissions within the city, county, and state by providing better transit opportunities, closer linkages between residences and work spaces, opportunities for shopping within walking or biking distance from residencies, and more energy-efficient buildings. Nonetheless, for the purposes of providing additional information in response to this comment, a quantification using available models was performed. The results are as follows.

Construction of the project would generate greenhouse gas emissions from activities such as use of onsite heavy-duty construction equipment, on-road vehicle travel miles attributed to construction worker and haul-truck trips, and asphalt paving. The assessment of construction climate change impacts considers each of these potential sources. Because greenhouse gases have long atmospheric lifetimes, total greenhouse gas emissions from construction were summed by year and totaled for the length of the construction period. Project-related factors used to evaluate construction climate change impacts include the following:

- **Carbon Dioxide (CO_2) Emissions from Construction Equipment**: Type, number of pieces, and usage for each type of construction equipment; estimated fuel usage and type of fuel (diesel, gasoline) for each type of equipment; and emission factors for each type of fuel.
- **CO_2 Emissions from Delivery and Haul Trucks:** Type, capacity, number of trips, haul distance, and EMFAC2007 emission factors.
- **CO_2 Emissions from Grading, Excavation, and Hauling Equipment:** Type and number of pieces of equipment to be used; projected haul routes associated with soil movement; and fuel emission factors.
- **CO_2 Emissions from Other Mobile Sources:** Number and average length of construction worker trips to the project site per day, and the duration of construction activities. Greenhouse gas emissions embodied in the paving of roads within the project area were estimated using a CO_2 emission factor per square foot of paved area (King County 2007).

URBEMIS2007 (Version 9.2.4)

URBEMIS2007 (version 9.2.4) is a computer program used to estimate emissions from construction, vehicle trips, and fuel use resulting from land use development projects. URBEMIS2007 (version 9.2.4) estimates emissions based on the type of land use and area source and vehicular emissions typically associated with the land use.

CO_2 emissions associated with the operation of the project were quantified using URBEMIS2007 (version 9.2.4). Greenhouse gas emissions from residential electricity use were quantified using the California Energy Commission's (CEC's) *California Statewide Residential Appliance Saturation Study* (2004).[7] Greenhouse gas emissions from commercial electricity use were quantified using the CEC's *California Commercial End-Use Survey* (2006).[8] Greenhouse gas emissions associated with water supply to the project were estimated with a default energy intensity factor per acre-foot of water supplied to the project area.

For area sources, URBEMIS2007 (version 9.2.4) was used to predict emissions from natural gas usage and landscape maintenance. For mobile sources, emission calculations for design-year with-project conditions are based on the daily trip generation data provided by Fehr & Peers and URBEMIS2007 (version 9.2.4). Revised Tables 3.3-4 and 3.3-5 from the DEIR were updated to summarize the results of these calculations for 2025 and 2035 conditions, respectively.

Project construction would generate greenhouse gas emissions from heavy-duty construction equipment operating on the project site, mobile-source emissions attributed to construction workers who would travel to and from the project site, and haul/delivery trucks that would travel to and from the project site. Additional greenhouse gas emissions will result from the paving of the project area. Table 3-4 summarizes CO_2 emissions resulting from construction and paving.

Table 3-4. Net Greenhouse Gas Emissions during Project Construction

Phase/Year	CO_2 Emissions (Tons per Year)
Phase 1a—Construction Emissions	
2008	1,441.68
2009	5,923.26
2010	5,925.22
2011	977.30
Subtotal	**14,267.46**
Phase 1b—Construction Emissions	
2011	947.77
2012	521.43
Subtotal	**1,469.20**
Phase 2—Construction Emissions	
2012	2,292.65
2013	1,348.20
Subtotal	**3,640.85**

[7] California Energy Commission. 2004. *California Statewide Residential Applicance Saturation Study*. June. Sacramento, CA.
[8] California Energy Commission. 2006. *California Commercial End-Use Survey*. March. Sacramento, CA.

Phase/Year	CO_2 Emissions (Tons per Year)
Phase 3—Construction Emissions	
2013	2,292.94
2014	5,733.93
2015	1,210.01
Subtotal	**9,236.88**
Phase 4—Construction Emissions	
2015	1,939.24
2016	1,100.30
Subtotal	**3,039.54**
Phase 5—Construction Emissions	
2016	700.80
2017	1,269.71
2018	275.52
Subtotal	**2,246.54**
Phase 5—Paving Emissions	
2008–2018	622,805.89
Total	**656,706.36**

Operation of the proposed project would generate on-road vehicle travel, which would result in mobile-source greenhouse gas emissions. In addition, project greenhouse gas emissions would result from electricity consumption of residential and nonresidential buildings, natural gas combustion (to facilitate cooking and heating), use of on-site landscaping equipment, fireplace use, use of consumer products, and water supplied to the project area. Each of these sources was taken into account in calculating the project's annual operational emissions. Revised DEIR Tables 3.3-4 and 3.3-5 summarize the results of these calculations for 2025 and 2035 conditions, respectively.

As part of the project design, the project applicant has agreed to construct all residential buildings to Build It Green Standards and all non-residential buildings will be Leadership in Energy and Environmental Design (LEED) Silver Certified. The Build It Green Standards require residences to be a minimum of 15% efficiency above Title 24, which would result in a 15% decrease in natural gas consumption of residential buildings. LEED requires a minimum of 14% efficiency above Title 24 in all nonresidential buildings, which would result in a 14% decrease in natural gas consumption of these buildings. Although Build It Green and LEED guidelines require a minimum efficiency above Title 24, buildings may also exceed these minimum standards. The minimum energy efficiency requirements were incorporated into the project emissions analysis. Construction of the residential and nonresidential buildings to these standards will help decrease energy consumption for these buildings. While this reduction in energy consumption is significant, it is unlikely that such reductions would reduce the project's contribution to the cumulative impact to a less-than-significant level. The AB 32 process may ultimately develop legislative or

regulatory thresholds and methodologies for calculating emissions attributable to particular development projects. In the meantime, however, a truly quantitative approach is infeasible and would be speculative. Nonetheless, the DEIR takes the precautionary approach and identifies greenhouse gas emissions as a significant impact of the project. The DEIR requires mitigation to offset those impacts. However, because a zero-emissions project is infeasible and incalculable, the DEIR identifies the impact as significant and unavoidable. Thus, the DEIR has done its best to disclose the impacts and address the consequences. The quantification completed in response to Comment 12-25 does not change the DEIR's ultimate conclusions, but rather reflects the ongoing controversy and shortcomings of the various approaches.

Response to Comment 12-26

The DEIR states that the project's contribution to cumulative impacts related to global warming is cumulatively considerable and unavoidable in Impact CE-4 on page 4-33 of the DEIR. Implementation of Mitigation Measure AQ-3b will reduce some impacts of the project, but will not lessen the impact of the property to less than cumulatively considerable.

Response to Comment 12-27

The comment states that the DEIR's water supply analysis does not adequately account for global warming. Specifically, the comment disagrees with the statement that a possible increase in the number of dry years "would not significantly affect the ability of COSMUD or the DWSP to supply water to the Project."

Global climate change was evaluated in the DEIR, and specifically to address whether it might affect COSMUD's water supplies (see pages 3.8-42 and 3.8-43 of the DEIR). The DEIR acknowledges that climate change may affect precipitation in California. There is no consensus, however, on the precise effects of climate change on California's water supplies or how soon those effects may occur. For example, as the DEIR points out, some models are predicting lower flows and drier conditions, while others are predicting higher flows (see, for example, University of California, Berkeley, 2005, *Climate Change and Water Supply Reliability*, at 13—noting that the HadCM2 model predicts "increased reservoir inflows, increased storage limited by existing capacity, and increased releases for deliveries and river flows").

In a white paper released by the California Climate Change Center last year, the center evaluated economic water management adaptations, effects, and other implications concerning the sate's water supplies based on the driest climate change scenarios to 2085, which presumed water demand and land use scenarios

Table 3.3-4. 2025 Operational Stationary and Mobile Source Air Emissions during Project Operation

	Emissions (Tons per Year)					
Area	ROG	NO_X	CO	PM10	PM2.5	CO_2
Village Center						
Electricity Use						
Residential	–	–	–	–	–	816.84
Commercial/Municipal	–	–	–	–	–	1,691.58
Area source emissions						
Natural gas	0.18	2.44	1.41	0.00	0.00	3,046.03
Hearth	3.18	0.57	28.90	4.71	4.54	804.91
Landscaping	0.22	0.02	1.70	0.01	0.01	2.91
Consumer products	7.75	–	–	–	–	–
Architectural coatings	1.66	–	–	–	–	–
Vehicular emissions	3.92	3.59	34.91	13.55	2.62	8,772.39
Subtotal	**16.91**	**6.62**	**66.92**	**18.27**	**7.17**	**15,134.66**
North Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	503.44
Commercial/Municipal	–	–	–	–	–	1,900.80
Area source emissions						
Natural gas	0.27	3.63	2.68	0.01	0.01	4,425.99
Hearth	3.18	0.68	34.59	5.64	5.43	960.03
Landscaping	0.35	0.02	2.00	0.01	0.01	3.24
Consumer products	3.05	–	–	–	–	–
Architectural coatings	2.55	–	–	–	–	–
Vehicular emissions	4.17	3.62	34.87	13.60	2.63	8,791.86
Subtotal	**13.57**	**7.95**	**74.14**	**19.26**	**8.08**	**16,585.36**
South Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	1,003.61
Commercial/Municipal	–	–	–	–	–	844.80
Area source emissions						
Natural gas	0.23	3.01	1.78	0.01	0.01	3,746.81
Hearth	7.59	1.35	68.95	11.25	10.83	1,913.84
Landscaping	0.68	0.04	3.85	0.01	0.01	6.21
Consumer products	6.07	–	–	–	–	–
Architectural coatings	2.10	–	–	–	–	–
Vehicular emissions	4.92	5.22	50.82	19.66	3.80	12,736.59
Subtotal	**21.59**	**9.62**	**125.40**	**30.93**	**14.65**	**20,251.86**

Area	Emissions (Tons per Year)					
	ROG	NO_X	CO	PM10	PM2.5	CO_2
Marina Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	575.85
Commercial/Municipal	–	–	–	–	–	–
Area source emissions						
Natural gas	0.11	1.43	0.61	0.00	0.00	1,822.03
Hearth	4.09	0.73	37.18	6.07	5.84	1,033.46
Landscaping	0.49	0.03	2.87	0.01	0.01	4.66
Consumer products	5.22	–	–	–	–	–
Architectural coatings	0.96	–	–	–	–	–
Vehicular emissions	10.02	2.28	32.80	4.78	4.60	2,961.08
Subtotal	**20.89**	**4.47**	**73.46**	**10.86**	**10.45**	**6,397.08**
Great Park Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	1,596.21
Commercial/Municipal	–	–	–	–	–	1,689.60
Area source emissions						
Natural gas	0.40	5.28	3.25	0.01	0.01	6,555.66
Hearth	12.08	2.15	109.67	17.89	17.22	3,043.89
Landscaping	1.08	0.07	6.04	0.02	0.02	9.72
Consumer products	9.66	–	–	–	–	–
Architectural coatings	3.69	–	–	–	–	–
Vehicular emissions	7.90	8.09	78.70	30.45	5.89	19,726.70
Subtotal	**34.81**	**15.59**	**197.66**	**48.37**	**23.14**	**32,621.78**
Northeast Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	836.45
Commercial/Municipal	–	–	–	–	–	382.11
Area source emissions						
Natural gas	0.14	1.84	0.92	0.00	0.00	2,326.03
Hearth	3.48	0.62	31.57	5.15	4.96	878.32
Landscaping	0.52	0.04	3.20	0.01	0.01	5.26
Consumer products	5.64	–	–	–	–	–
Architectural coatings	1.25	–	–	–	–	–
Vehicular emissions	3.63	4.05	39.53	15.27	2.95	9,896.56
Subtotal	**14.66**	**6.55**	**75.22**	**20.43**	**7.92**	**14,324.73**

Table 3.3-4. Continued

Area	Emissions (Tons per Year)					
	ROG	NO_X	CO	PM10	PM2.5	CO_2
Lake Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	1,506.86
Commercial/Municipal	–	–	–	–	–	–
Area source emissions						
Natural gas	0.21	2.69	1.15	0.01	0.01	3,439.19
Hearth	11.40	2.03	103.54	16.89	16.26	2,873.87
Landscaping	1.01	0.06	5.57	0.01	0.01	8.94
Consumer products	9.12	–	–	–	–	–
Architectural coatings	1.87	–	–	–	–	–
Vehicular emissions	6.17	7.35	71.61	27.68	5.35	17,934.64
Subtotal	**29.78**	**12.13**	**181.87**	**44.59**	**21.63**	**25,763.50**
Water Supply						
All Neighborhoods	**–**	**–**	**–**	**–**	**–**	**600.16**
Total	**152.21**	**62.93**	**794.67**	**192.71**	**93.04**	**131,679.13**

Table 3.3-5. 2035 Operational Stationary and Mobile Source Air Emissions during Project Operation

	Emissions (Tons per Year)					
Area	ROG	NO_X	CO	PM10	PM2.5	CO_2
Village Center						
Electricity Use						
Residential	–	–	–	–	–	816.84
Commercial/Municipal	–	–	–	–	–	1,691.58
Area source emissions						
Natural gas	0.18	2.44	1.41	0.00	0.00	3,046.03
Hearth	3.18	0.57	28.90	4.71	4.54	804.91
Landscaping	0.22	0.02	1.70	0.01	0.01	2.91
Consumer products	7.75	–	–	–	–	–
Architectural coatings	1.66	–	–	–	–	–
Vehicular emissions	2.79	2.43	26.83	13.52	2.59	8,820.03
Subtotal	**15.78**	**5.46**	**58.84**	**18.24**	**7.14**	**15,182.30**
North Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	503.44
Commercial/Municipal	–	–	–	–	–	1,900.80
Area source emissions						
Natural gas	0.27	3.63	2.68	0.01	0.01	4,425.99
Hearth	3.81	0.68	34.59	5.64	5.43	960.03
Landscaping	0.35	0.02	2.00	0.01	0.01	3.24
Consumer products	3.05	–	–	–	–	–
Architectural coatings	2.55	–	–	–	–	–
Vehicular emissions	2.92	2.44	26.81	13.57	2.61	8,838.75
Subtotal	**12.95**	**6.77**	**66.08**	**19.23**	**8.06**	**16,632.25**
South Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	1,003.61
Commercial/Municipal	–	–	–	–	–	844.80
Area source emissions						
Natural gas	0.23	3.01	1.78	0.01	0.01	3,746.81
Hearth	7.59	1.35	68.95	11.25	10.83	1,913.84
Landscaping	0.68	0.04	3.85	0.01	0.01	6.21
Consumer products	6.07	–	–	–	–	–
Architectural coatings	2.10	–	–	–	–	–
Vehicular emissions	3.58	3.54	39.06	19.63	3.77	12,804.68
Subtotal	**20.25**	**7.94**	**113.64**	**30.90**	**14.62**	**20,319.95**

Area	Emissions (Tons per Year)					
	ROG	NO_X	CO	PM10	PM2.5	CO_2
Marina Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	575.85
Commercial/Municipal	–	–	–	–	–	–
Area source emissions						
Natural gas	0.11	1.43	0.61	0.00	0.00	1,822.03
Hearth	3.22	0.57	29.22	4.77	4.59	812.85
Landscaping	0.49	0.03	2.87	0.01	0.01	4.66
Consumer products	5.22	–	–	–	–	–
Architectural coatings	0.96	–	–	–	–	–
Vehicular emissions	2.24	2.36	26.05	13.08	2.52	8,537.38
Subtotal	**12.24**	**4.39**	**58.75**	**17.86**	**7.12**	**11,752.77**
Great Park Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	1,596.21
Commercial/Municipal	–	–	–	–	–	1,689.60
Area source emissions						
Natural gas	0.40	5.28	3.25	0.01	0.01	6,555.66
Hearth	12.08	2.15	109.67	17.89	17.22	3,043.89
Landscaping	1.08	0.07	6.04	0.02	0.02	9.72
Consumer products	9.66	–	–	–	–	–
Architectural coatings	3.69	–	–	–	–	–
Vehicular emissions	8.64	7.75	78.96	30.55	5.96	21,238.22
Subtotal	**35.55**	**15.25**	**197.92**	**48.47**	**23.21**	**34,133.30**
Northeast Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	836.45
Commercial/Municipal	–	–	–	–	–	382.11
Area source emissions						
Natural gas	0.14	1.84	0.92	0.00	0.00	2,326.03
Hearth	3.48	0.62	31.57	5.15	4.96	878.32
Landscaping	0.52	0.04	3.20	0.01	0.01	5.26
Consumer products	5.64	–	–	–	–	–
Architectural coatings	1.25	–	–	–	–	–
Vehicular emissions	2.67	2.74	30.36	15.25	2.93	9,949.49
Subtotal	**13.70**	**5.24**	**66.05**	**20.41**	**7.90**	**14,377.66**

Table 3.3-5. Continued

Area	Emissions (Tons per Year)					
	ROG	NO_X	CO	PM10	PM2.5	CO_2
Lake Neighborhood Group						
Electricity Use						
Residential	–	–	–	–	–	1,506.86
Commercial/Municipal	–	–	–	–	–	–
Area source emissions						
Natural gas	0.21	2.69	1.15	0.01	0.01	3,439.19
Hearth	11.40	2.03	103.54	16.89	16.26	2,873.87
Landscaping	1.01	0.06	5.57	0.01	0.01	8.94
Consumer products	9.12	–	–	–	–	–
Architectural coatings	1.87	–	–	–	–	–
Vehicular emissions	4.61	4.97	55.02	27.63	5.31	18,030.56
Subtotal	**28.22**	**9.75**	**165.28**	**44.54**	**21.59**	**25,859.42**
Water Supply						
All Neighborhoods	–	–	–	–	–	**600.16**
Total	**138.69**	**54.80**	**726.56**	**199.65**	**89.64**	**138,857.81**

at 2050.[9] That report concluded that California's urban areas would see an average of 1% less deliveries than demand targets (at 2050), and that the urban economy would "remain largely unhindered by water supply limitations." More importantly, the report found that southern California would experience "almost all of the urban water scarcity." The report also acknowledges its major limitation—"great and arguably unavoidable uncertainty and hydrologic drivers of the system" (Id., App. A, pg. A-9).

In addition, COSMUD's conjunctive use program, combined with reasonably certain DWSP surface rights, will provide the sort of operational flexibility to withstand multiple dry years, even under worsening climatic conditions, as discussed in Responses to Comments 8-10, 8-11, and 8-13. In any event, the sort of time horizon contemplated in the scientific literature for measuring demonstrable changes in San Joaquin basin surface flows (from about 55 to 100 years) is well beyond the planning horizon necessitated by SB 610 or the 2035 General Plan Update.

No one knows to what degree, between now and 2035, California's water systems, including the Delta, will experience global warming effects similar to those reported by DWR 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 DWR 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."

In sum, given the uncertainty of the scientific evidence, the wide range of predicted outcomes, the long-term horizon for climate change to occur, and the programs and infrastructure underway by COSMUD to secure its long-term water supplies, climate change is not anticipated to significantly affect COSMUD's water deliveries over the reasonably foreseeable planning horizon.

Response to Comment 12-28

As discussed in detail on pages 3.8-43 through 3.8-46, the regulatory requirement is for 100-year flood protection, but the project proposes an even higher level of protection—a 300-year level of protection.

In addition to designing the Sanctuary levee system to provide 300-year flood protection, an additional 25-foot setback area has been reserved at the base of the proposed levee toe to accommodate possible future levee raising requirements and potential structural integrity changes in future urban levee design.

[9] California Climate Change Center. 2006. *Climate Warming and Water Supply Management in California.* March.

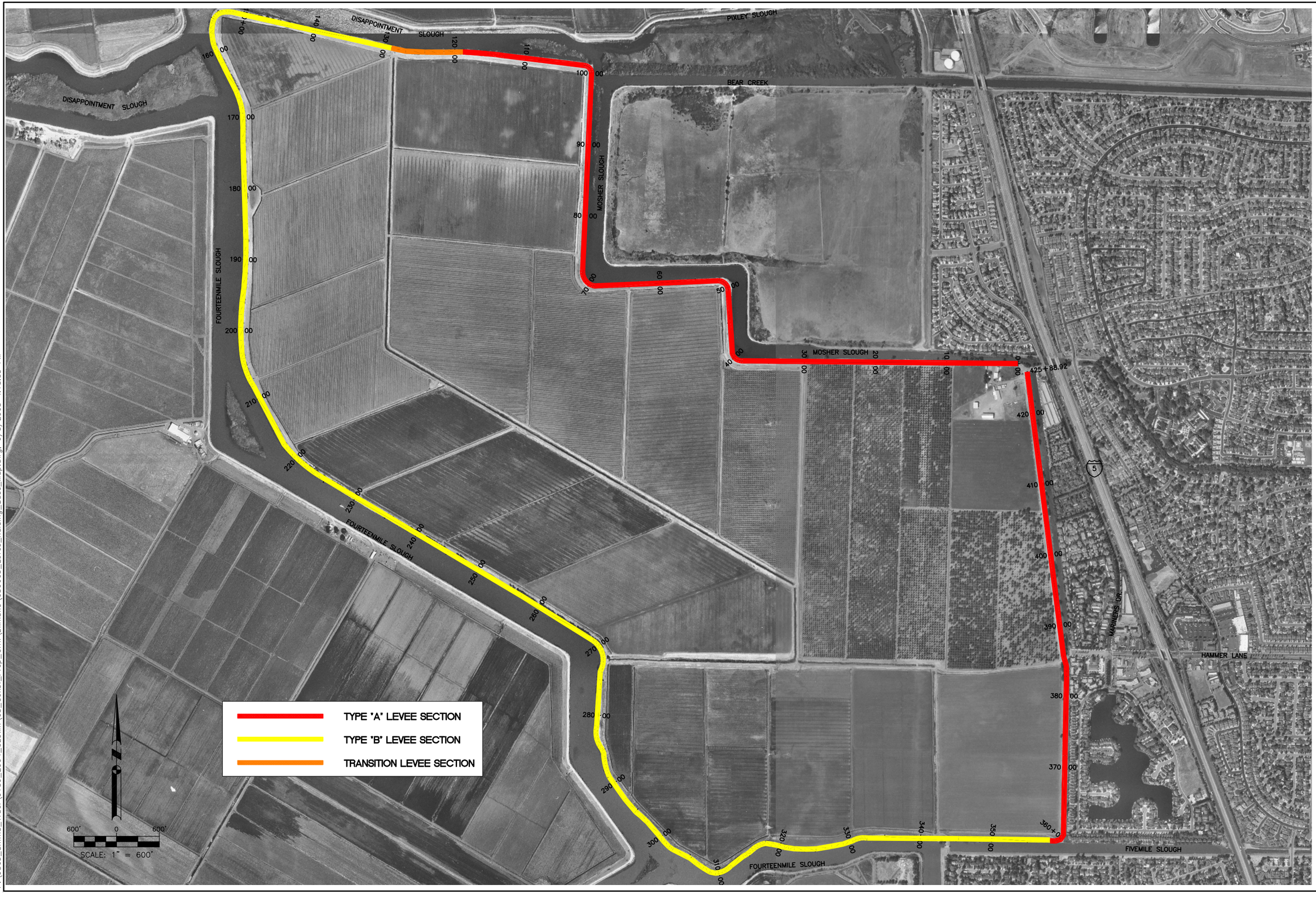
Figures 3-1 to 3-3, which follow this page, show that in addition to the existing 300-year flood protection, an additional 3.4 feet can be added to the levee crown elevation if deemed necessary.

Response to Comment 12-29 and 12-30

The commenter states that he does not agree that the project is "generally consistent with the proposed General Plan policies," and that Table 3.9-2 of the DEIR is inconsistent because it states on page 10 that it the project generally consistent with the high-density requirements and page 3 states that the project is inconsistent with the single-family/multiple-family balance.

The discussion in the DEIR for DV-5.4 on page 10 of 28 of Table 3.9-2 states that the percentage of Village High Density Residential is 2.5. This is incorrect. Page 10 of Table 3.9-2 following page 3.9-14 of the DEIR is corrected to reflect the accurate numbers as below.

Chapter	Policy	Consistency
	DV-5.4 Village Types Housing Mix The City shall ensure that village areas maintain a mix of residential types and densities, and that the residential mix will provide appropriate transitional features that integrate the villages with the surrounding area. Within each village, the land area designated for residential use will be distributed (on an acreage basis) using the ranges specified in Table 7-3 of the Master Development Plan listed below. Percent of Residential Acreage • Village Residential Estates (VRE)—5% min • Village Low Density Residential (VLDR)—72–78% min • Village Medium Density Residential (VMDR)—13–17% min • Village High Density Residential (VHDR)—4–6% min	Consistent. Although the exact locations of housing types are not known at this time (to be later determined in the subdivision process), the project will provide a variety of new residential types and densities for each of the villages described in the Master Development Plan. Although the lot types and densities proposed for the project do not exactly match those in the General Plan, the project does provide for a variety of housing types and densities. Furthermore, the Master Development Plan, once adopted, can replace the City's zoning regulations. The zoning designations shown in the General Plan will be used for requirements not specifically addressed in the Master Development Plan. • Customs and Semi-Customs are similar to VRE in terms of density, and the plan includes approximately ~~15~~10% of residential acreage—generally consistent. • SF Medium lots, SF Large lots, and SF Small lots are all generally similar to VLDR in terms of density, and the plan includes approximately 71% of residential acreage—generally consistent. • Green Courts and Paseos alley lots, medium-density alley lots and SF attached townhomes are similar to VMDR in terms of density, and the plan includes approximately ~~12~~13% of residential acreage—generally consistent. • Multi-Family Residential lots are similar to VHDR in terms of density and the plan includes approximately ~~2.5~~6% of residential acreage—generally consistent.



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Design JAM
Drawn JAM
Check CHN

Revisions

No.	Description	Date	By	Aprvd. By

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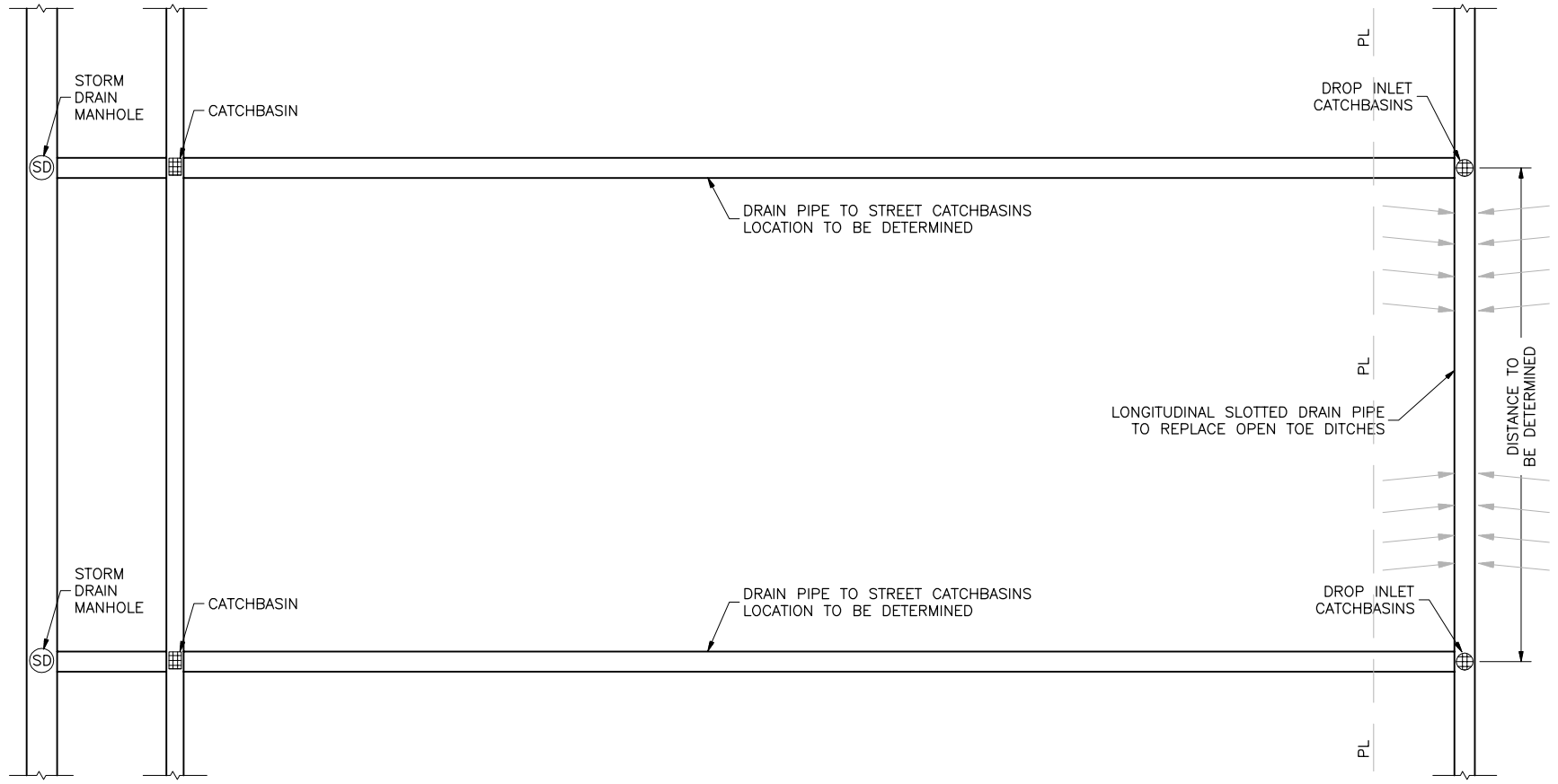
RECLAMATION DISTRICT NO. 2115
SHIMA TRACT

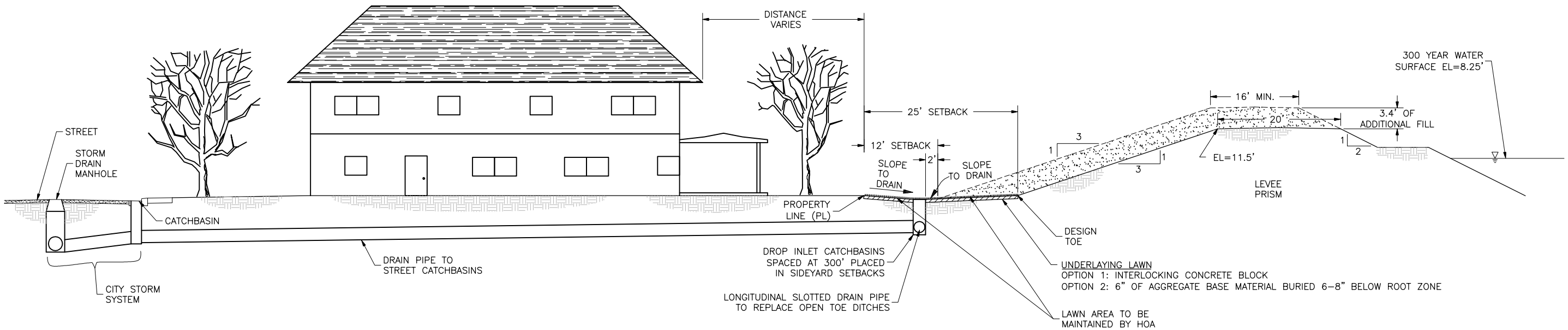
LEVEE IMPROVEMENT PROJECT PHASE II

BASE MAP

Date JUNE 2008
Scale 1" = 600'
Original Drawing Scale 0 ½" 1"
Sheet Number 1 Of 1
Project File No. 0863-0150



1 LEVEE DRAINAGE DETAIL – PLAN VIEW
NOT TO SCALE



2 LEVEE RAISING DETAIL (TYPE "A" LEVEE SECTION WITH 16' MIN. CROWN)
NOT TO SCALE

Design	JAM
Drawn	JAM
Check	CHN

Revisions				
No.	Description	Date	By	Apprvd. By

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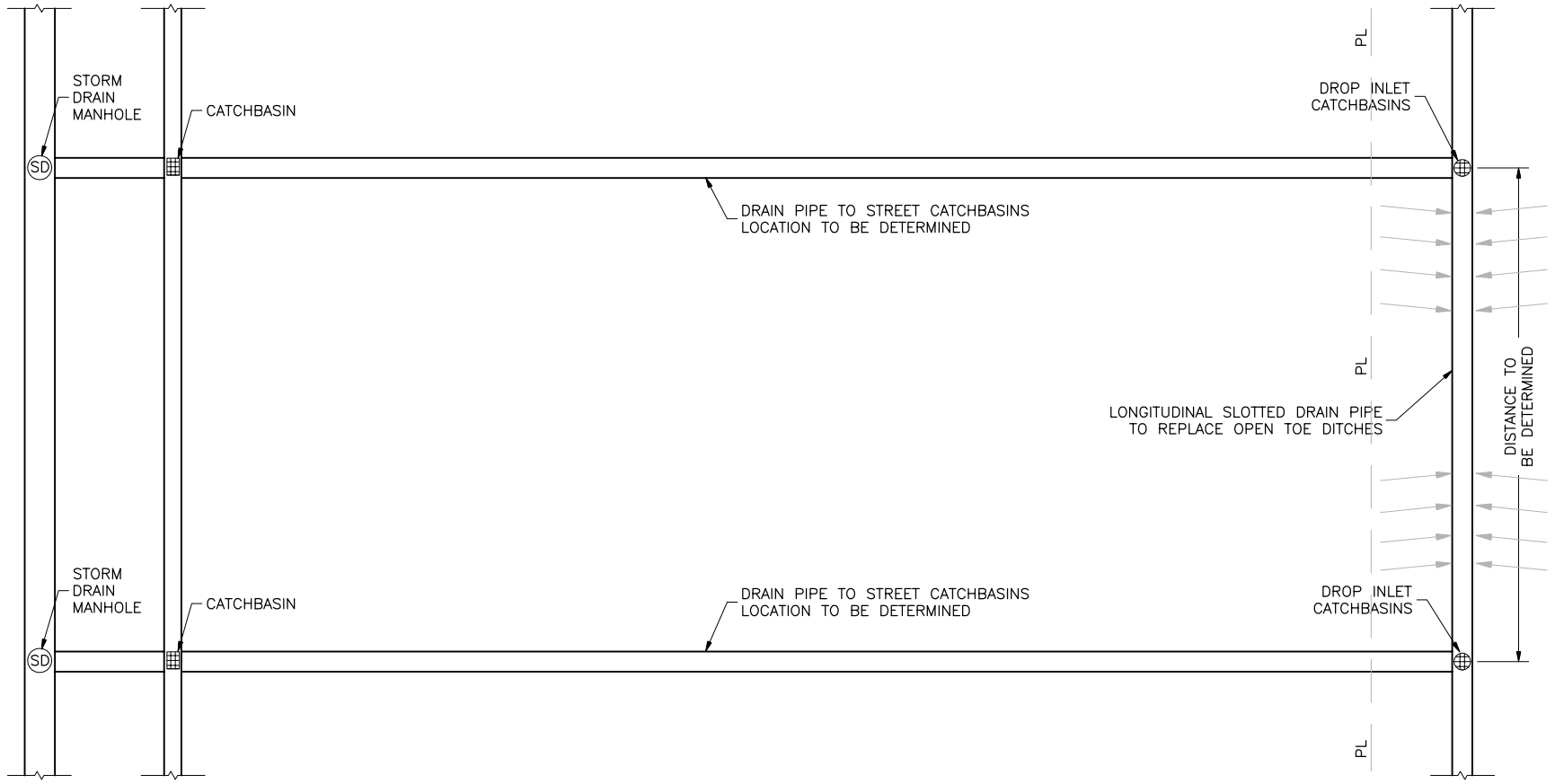
RECLAMATION DISTRICT NO. 2115
SHIMA TRACT

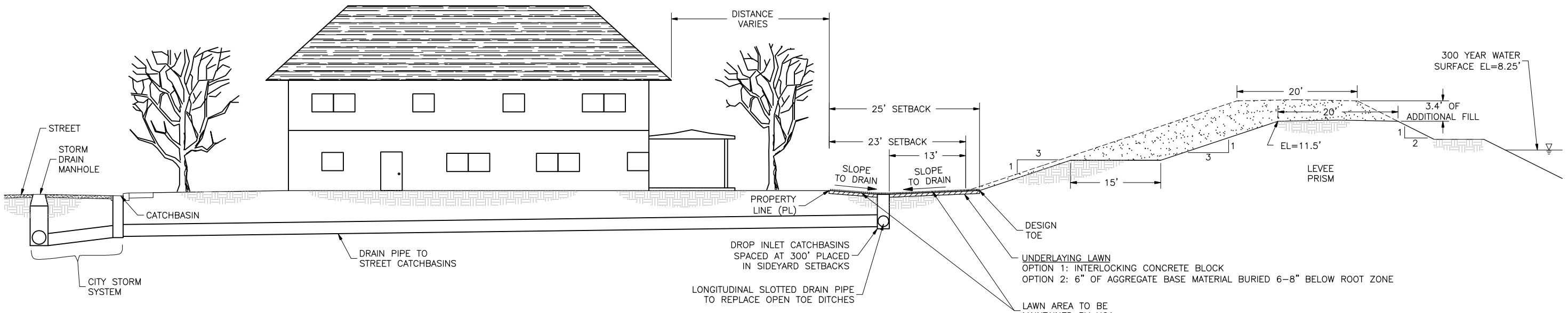
LEVEE IMPROVEMENT PROJECT

LEVEE RAISING DETAIL

Date	JUNE 2008
Scale	NOT TO SCALE
Original Drawing Scale	0 ½" 1"
Sheet Number	1 Of 1
Project File No.	0863–0150



1 LEVEE DRAINAGE DETAIL – PLAN VIEW
NOT TO SCALE



2 LEVEE RAISING DETAIL (TYPE "B" LEVEE SECTION)
NOT TO SCALE

Design JAM
Drawn JAM
Check CHN

Revisions				
No.	Description	Date	By	Apprd. By

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RECLAMATION DISTRICT NO. 2115
SHIMA TRACT

LEVEE IMPROVEMENT PROJECT

LEVEE RAISING DETAIL

Date JUNE 2008
Scale NOT TO SCALE
Original Drawing Scale 0 ½" 1"
Sheet Number 1 Of 1
Project File No. 0863–0150

DV-5.4 refers to percent of residential acreage. In contrast, the measure addressed on page 3 of Table 3.9-2 (LU-3.1) refers to residential units. The project is inconsistent with the Policy LU-3.1 of the General Plan because the project provides only a maximum of 15% multifamily units instead of the 30% identified in LU-3.1. The project is consistent with DV-5.4 as shown above.

Response to Comment 12-31

The comment states that Table 3.9-2 fails to note that the project is inconsistent with the City's existing and proposed LOS standards at several intersections.

Please see Response to Comment 12-14 regarding how the 1990 General Plan and 2035 General Plan Update LOS policies were incorporated into the transportation impact analysis.

Response to Comment 12-32 to 12-34

Please see Response to Comment 12-11.

Response to Comment 12-35

Please see Response to Comment 11-1. The SJMSCP process and the City's Agricultural Land Mitigation Program impose separate mitigation requirements. Habitat mitigation is inherently different, particularly because habitat conservation programs (HCPs) generally aid in the enhancement and long-term management of the lands for the conservation of multiple species and populations. Long-term management helps ensure the viability of the habitat for species. Conservation easements for agricultural production, particularly at this magnitude, cannot replace the lands taken out of agricultural production (see, for example, *Friends of the Kangaroo Rat v. The California Department of Corrections* [2003] 111 Cal.App.4th 1400 (depublished)—creation of an agricultural easement on neighboring parcels would not avoid, minimize, rectify, reduce, eliminate, or compensate for the loss of farmland; *Defend the Bay v. City of Irvine* [2004] 119 Cal.App.4th 1261—off-site mitigation for loss of farmland was infeasible because there were no comparable lands planned for future agricultural production).

Response to Comment 12-36

A detailed analysis of project effects on listed fish species and critical habitat will be conducted as part of the ESA and essential fish habitat (EFH) consultation process following selection of the preferred alternative and final design. Based on current information and the CEQA significance criteria, the proposed marina

is not expected to result in significant impacts on fish or aquatic habitat. This conclusion was based on the low quality of existing habitat, the predicted low abundance of native species in the project area, and the minimal exposure of these populations to adverse effects given the project size, location, and degree of overlap between Project activities and species occurrence.

The potential for adverse effects on fish and aquatic habitat (including noise, propeller contacts, and wave erosion from increased boating activity) is expected to be greatest in the immediate project area where the magnitude of project construction and operational effects are expected to be relatively high because of the confined nature of the adjacent channels. However, substantial effects on native fish species (including special-status species) and their habitat are unlikely because of poor habitat conditions, relatively low use of the project area by native species, and implementation of the BMPs and other actions that are expected to be required during the permitting phase (e.g., speed limits, including no wake zones).

Please see also Response to Comment 11-1.

Response to Comment 12-37

While the City's DWSP Phase 1 supplies are currently limited to the City's 1990 General Plan Place of Use identified in its DWSP Phase 1 water right permit, the City may serve areas outside its Place of Use with other water supplies (e.g., SEWD water supplies or groundwater). An agency or water district with multiple water supplies may apportion those water supplies to serve its respective Places of Use based on the several surface water entitlements and overlying groundwater appropriation rights available, all based on volume and not on each molecule of water as it blends with all three sources of water supply. While City is currently limited to the 1990 General Plan Place of Use identified in its water right permit, it can serve areas outside the Place of Use with either SEWD water supplies or groundwater. It is anticipated that the City will petition the SWRCB to amend the water right to include the General Plan Update now that it is approved. The SWRCB is expected to approve the amendment, particularly since the original permit application's demand projections included the demands of this project, as well as the fact that the DWSP is designed to meet growing needs to 2050 and the most cost-effective phasing of the intake and treatment plant construction.

Response to Comment 12-38

Please see Responses to Comments 12-11 and 12-40.

The comment states that Mitigation Measure HYD-11a is not adequate to address the project's short-term water supplies, and that the DEIR must discuss this impact in relation to SB 221 and draft 2035 General Plan Policy PFS-2.8.

Please see Response to Comment 8-12. The commenter fails to acknowledge that Phase 1 of the DWSP is expected to be completed by 2010, before build-out of the SMDP. Thus, the short-fall identified in the comment is not expected to occur. As a precautionary measure, however, the DEIR identifies Mitigation Measure HYD-11a, which would prohibit future phases of the SMDP to proceed without an alternative source of water and which requires the City to condition approval of each phase of the SMDP on a sufficient water supply—either the DWSP or an alternative supply meeting specified criteria. This measure is sufficient to address any short-term delay in the DWSP because it will ensure proper phasing of the DWSP and the SMDP. The DWSP is reasonably certain to occur, and thus the potential short-term impact can be addressed simply by providing a minor adjustment to the phasing of the SMDP. Further, because the SMDP is already anticipated to occur in phases, there is no other environmental impact under CEQA associated with implementation of this measure. Proposed 2035 Stockton General Plan Update Policy PFS-2.8 limits the City's approval of new development that relies on the DWSP "until this Delta water is allocated through a water right to the City by the State Water Resources Control Board or a replacement water supply is secured." As explained above, the SWRCB has approved Phase 1 of the DWSP, which is the portion of the DWSP that the project will rely on. Consequently, the condition has already been met for this project, and there is no inconsistency. In any event, like Policy PFS-2.8, Mitigation Measure HYD-11a conditions approval of the project on the DWSP or an alternative (i.e., "replacement") water supply.

Finally, an EIR need not address specifically the requirements of SB 221. Even so, Mitigation Measure HYD-11a is consistent with the requirements of SB 221 in that both measures require the project to confirm a sufficient water supply before it can proceed. Separate and distinct from SB 610's "water supply assessment," cities and counties must impose as a condition of tentative subdivision map approval that an applicant obtain a "written verification" of adequate water supply before the final subdivision map can issue (CGC 66473.7 et seq.). Such determination must be based on "substantial evidence," which may include the current UWMP, a WSA, or "other information relating to the sufficiency of the water supply" (CGC 66473.7[c][1]–[c][3]). Much like SB 610, "sufficient water supply" under SB 221 means "the total water supplies available during normal, single-dry, and multiple-dry years within a 20-year projection that will meet the projected demand associated with the proposed subdivision, in addition to existing and planned future uses, including, but not limited to, agricultural and industrial uses" (Id., CGC 66473.7[a][2]).

SB 221 includes the ultimate fail-safe. If, for example, the written verification issued by the public water system (e.g., COSMUD) indicates that its water supplies are not sufficient to meet the projected demand associated with the proposed subdivision, "then the local agency may make a finding…that additional water supplies not accounted for by the public water system are, or will be, available prior to completion of the subdivision that will satisfy the requirements of this section" (Id., CGC 66473.7[b][3]). Absent that finding, however, the final subdivision map cannot issue. While SB 221 provides an added fail-safe that adequate water supplies will be available, it is a separate and

distinct requirement from that of CEQA. As the California Supreme Court recently explained:

> Taken together, [SB 610 and SB 221] thus demand…that 'water supplies must be identified with more specificity at each step as land use planning and water supply planning move forward from general phases to more specific phases.' The plans and estimates that [SB 610] mandates for future water supplies at the time of *any* approval subject to CEQA must, under [SB 221], be replaced by firm assurances at the subdivision map approval stage. To interpret CEQA itself as requiring such firm assurances of future water supplies at relatively early stages of the land use planning and approval process would put CEQA in tension with these more specific water planning statutes. (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* [2007] 40 Cal.4th 412.)

Thus, CEQA does not mandate that the EIR employ the sort of analysis required by SB 221, and Mitigation Measure HYD-11a is yet another independent fail-safe that can be applied to the project in conjunction with its parallel statutory mandates.

Response to Comment 12-39

The commenter expresses his agreement with the comments in Letters 8 and 9. Please see the Responses to Comment Letters 8 and 9.

Response to Comment 12-40

Please see Responses to Comments 8-12 and 12-38.

Response to Comment 12-41

The commenter quotes comments in Letter 8. Please see the Responses to Comment Letter 8.

Response to Comment 12-42

Please see Response to Comment 8-8 for a detailed discussion of this question. Term 91 conditions do not apply to COSMUD's water right. Consequently, the additional yields identified in the WSE for the DWSP will be available to meet the immediate, foreseeable, and long-term demands at the levels indicated in the SMDP WSA. Given the relative certainty of this water supply (it is based in large part on the level of treated wastewater discharged to the Delta), COSMUD can reasonably conclude that water supplies will be sufficient for the SMDP and existing and planned future uses.

Response to Comment 12-43

Please see Response to Comment 8-9 regarding WTP capacity versus production. It should also be noted that the instantaneous rate of WTP capacity has no bearing on the volumetric quantity of water that can be delivered under a specific contract over time (e.g., a 15,000 acre-feet/year contract can be diverted in 1 month or over 12 months).

Also, contrary to the comment, there is substantial evidence that a future right—the DWSP Phase 2—will be acquired. As explained in Response to Comment 8-8, the current DWSP 1485 water right is based on the level of treated wastewater discharged to the Delta. Because the level of those discharges is more or less constant over time, it is reasonable to conclude that the water right will be available as well. Further, unlike a number of other projects and water rights held throughout the system, the DWSP water right is not part of the CVP or State Water Project, and thus is not constrained as such. Finally, the DWSP Phase 1 water right permit was obtained on the premise that Phase 2 would also be implemented at some point in the future, and the Phase 1 EIR allowed for the oversizing of certain facilities to accommodate Phase 2. There has been no indication from any state agencies that Phase 2 is infeasible. In any event, Phase 2 of the DWSP is not necessary to serve the demands of the SMDP and all existing and planned future uses within the requisite planning horizon. At full build-out of the 2035 General Plan Update, water demands within the COSMA can be served by Phase 1 of the DWSP, SEWD supplies, the conjunctive use program, and other sources (e.g., short-term transfers, water conservation).

Response to Comment 12-44

The SMDP WSA and DEIR do not rely on the so-called agricultural credit for its finding that water supplies will be sufficient to meet the demands of the SMDP and all existing and planned future uses in wet, dry, and critically dry years. That said, the agricultural conversion rates and relative pumping rates are a reasonable basis for evaluating sustainable yield of the groundwater basin. As the comment points out, with conversion from highly consumptive agricultural uses to less consumptive urban uses, pumping from the basin will be reduced. Existing demand calculations have been developed for agricultural and other water uses throughout the basin, and those demand calculations have likewise been used to evaluate the sustainable yield of the groundwater basin. Again, these calculations have thus far proven conservative. Please see also Response to Comment 8-18.

Response to Comment 12-45

The commenter suggests that “the additional 136,000 acre-feet per year required to support growth contemplated in the City’s proposed General Plan Update-

2035 and the City's *Water Supply Assessment* for the ERSP must come from groundwater." The commenter misstates the level of pumping that will be required from the groundwater basin to meet existing and planned future uses, and does not consider the surface supplies that are available to support the growth contemplated under the City's 2035 General Plan Update.

Existing water demand within the COSMA is approximately 68,000 acre-feet/year. At full build-out under the 2035 General Plan Update, which is not anticipated to occur for almost 30 years, demand is projected to grow to about 156,083 acre-feet/year (146,945 acre-feet/year with rationing).[10] Contrast those demand numbers with COSMUD's current water supplies. According to the Sanctuary WSA and the City's 2005 UWMP, "total *existing firm surface water supplies* for municipal and industrial (M&I) uses from SEWD are approximately to yield 104.1 TAF/year under wet and above average hydrologic conditions."[11] When interim supplies are included in today's supply calculations, COSMUD's total surface waters supplies are approximately 134,170 acre-feet/year in normal water years, with a maximum possible yield of 180,000 acre-feet/year (Sanctuary WSA, page 13). The Sanctuary DEIR and WSA acknowledge that these supplies are not available at these levels during dry or critically dry years, and conservatively estimate that some of these supplies will not be available in the long term. However, current dry-water surface water supplies still amount to about 58,170 acre-feet/year, which does not include: 1) the 18,828 to 29,663 acre-feet/year of groundwater that have historically and consistently been available to serve municipal and industrial uses within the COSMA; 2) the additional groundwater supplies available through the COSMUD's conjunctive use program (12,934 acre-feet/year); or 3) the DWSP Phase 1 water (currently permitted or 33,000 acre-feet/year, but projected to ultimately yield about 125,900 acre-feet/year under Phase 2 of the DWSP). (Please see also Response to Comment 8-11 concerning groundwater yields from conjunctive use.)

As to the demand projected under build-out of the 2035 General Plan Update—156,083 acre-feet/year—several studies conducted on behalf of the City and COSMUD, including the WSA for this project, have all concluded that COSMUD's water supplies will be sufficient. For example, the UWMP found that COSMUD's full entitlements, "including interim and future supply sources could yield 154.1 TAF." Further, according to the UWMP, the DWSP is expected to yield from 20,000 acre-feet/year initially and, at full build-out of Phase 2, up to 125,900 acre-feet/year by 2050 (UWMP, at 2-4).

The WSE prepared for the 2035 General Plan Update echoed the WSA and UWMP's projections, and found that the City's water supplies would be sufficient to meet the region's water demands through build-out of the 2035 General Plan, even though this period exceeds the planning horizon for both the

[10] Build-out of the 2035 General Plan Update will occur over a planning horizon that is well beyond the 20-year horizon necessitated by SB 610. Further, given the current economic climate, build-out may occur over a much longer time horizon. Consequently, the 2035 General Plan Update is a conservative estimate of long-term growth.
[11] Kennedy/Jenks Consultants. 2005. *City of Stockton Urban Water Management Plan*. Dec. 6. 2-1; MWH Americas, Inc. 2007. *Water Supply Assessment for the Sanctuary/Shima Tract Master Plan Development.* April 25. E-3.

project and that required by SB 610. Indeed, COSMUD can satisfy the 2035 General Plan build-out without having to rely on the DWSP Phase 2 (WSE, at 51–55—noting that the projected average surface water contract use from 2000 to 2035 does not rely on DWSP Phase 2 water). The WSE modeled projected supplies against historical hydrology over the past 70 years (WSE, Fig. 19). The model demonstrated that even in the "driest historical hydrologic periods…there is sufficient water supply to meet 2035 water demands" (WSE, at 47).

The Sanctuary WSA conservatively assumes that some of the interim supplies will not be available over the long term. Yet, a number of those supplies are currently undergoing contract negotiations that would ensure water availability over the 2035 General Plan Update planning horizon. (For example, the South San Joaquin Irrigation District and Oakdale Irrigation District contracts are both being pursued, and it is likely that there will be a renewal of at least one, if not both.) Further, since the City prepared and circulated the DEIR, the City has negotiated an additional 40-year contract with Woodbridge Irrigation District for 6,500 acre-feet/year in surface water supplies, which is anticipated to be available during the time of year when Delta diversions are curtailed for fish. This new contract must still undergo CEQA review. The new contract (6,500 acre feet/year), however, is in addition to, and was not relied upon, in the Sanctuary WSA or the EIR's conclusions concerning Sanctuary's water supply. Nevertheless, the City's WSAs for the General Plan Update and Sanctuary project demonstrate the considerable surface supplies available to meet the demands of the project and all current and planned future uses, and the commenter's estimate of the surface water short-fall (136,000 acre-feet/year) does not comport with the evidence.

Moreover, CEQA does not require absolute certainty. As the California Supreme Court recently explained, "to satisfy CEQA, an EIR for a specific plan need not demonstrate certainty regarding the project's future water supplies" (*Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* [2007] 40 Cal.4th 412). Instead, it is sufficient if the record contains substantial evidence demonstrating a "reasonable likelihood" that the water supply will be available to meet the needs of the project (Id.). Here, the record contains substantial evidence that Phase 1 of the DWSP, groundwater, and other supplies will be available to meet the needs of the SMDP, as well as existing and reasonably foreseeable future uses, including build-out of the 2035 General Plan Update. This is more than sufficient to satisfy SB 610 and CEQA.

Please see also Response to Comment 8-12, and the discussion on pages 3.8-36 through 3.8-43 of the DEIR.

Response to Comment 12-46

Please see Responses to Comments 8-2 and 8-14**.** The methodology employed by COSMUD to evaluate future regional demands outside the COSMA and the long-term sustainability of the regional groundwater basin conservatively compares existing conditions of the groundwater basin with planned future

conditions—continued conversion of native, fallowed, and agricultural uses to urban uses. That methodology relies partly on anecdotal evidence and partly on scientific studies.

COSMUD further acknowledges five key findings that support its current policies in the use and protection of the region's groundwater resources. First, agricultural rates of water consumption are higher than urban rates of water consumption. This acknowledges that while urban conversion reduces the pervious area for surface recharge, the net water use is less for urban uses. Second, urban development throughout the region is occurring in areas currently zoned or devoted to agricultural production. Third, past predictions of water savings (the so-called "agricultural credit") have proven accurate—groundwater use is generally declining from previous conditions. Fourth, the region's Groundwater Management Plan (GMP) contains significant and relevant information as it relates to the evaluation of basin-wide sustainability and the need to monitor groundwater. Fifth, new growth should financially and institutionally support projects and programs identified in the GMP that bring supplemental water supplies to the basin. These supplies may include, but are not be limited to, treated surface water, raw surface water, reclaimed water, active groundwater recharge projects, and water conservation. Thus, the GMP includes demand and growth calculations throughout the groundwater basin and sub-basins, and has taken those into account in calculating sustainable yield over the long term. Consequently, the WSA, DEIR, and DWSP EIR accurately gauge the long-term cumulative impacts associated with delivering water to the SMDP and existing and planning future uses within the COSMA.

In addition, in implementing the GMP's BMOs, the COSMA and other urbanized areas will continue to improve regional management of groundwater resources. As noted above, a large part of the GMP BMOs is accomplished through projects like the DWSP that bring supplemental water supplies to the region that are targeted for improving the groundwater basin. The GMP assists the planning process for new urban growth outside the COSMA by holding to the same standard of groundwater protection and enhancement. The overall net effect of this action is a future reduction in the long-term average extractions over the entire groundwater basin. This is partially demonstrated in the methodology employed to model regional groundwater sustainability. To model regional groundwater and evaluate COSMA's targeted sustainable groundwater yields, the models held the areas outside the COSMA (e.g., Lodi, Manteca) at near-1990 levels of groundwater extraction. This methodology is appropriate and conservative given that success of the GMP and the overall reduction in extractions in the basin. While the spatial distribution of groundwater extractions may change over time relative to the modeling assumptions, the overall difference in the groundwater behavior resulting from this change is considered to be small absent some significant groundwater recharge or extraction program. There are no significant new extraction programs proposed or reasonably foreseeable, and therefore COSMUD's regional demand estimates hold true.

Response to Comment 12-47

As described in the SMDP (pages 6-2 through 6-7), the lakes will serve multiple purposes, including acting as detention facilities for stormwater runoff, and will provide supplies of non-potable water to be used for irrigation of parks and landscaping. The EIR and SMDP, which was included as an appendix of the DEIR, explain the operation of the storm drain system, including the lakes, and its interaction with the purple-pipe system. Figure 3-4 illustrates lake operation. As the lakes have been sized to handle stormwater run-off and drainage, there is expected to be adequate water to fill the lakes from these sources. The stormwater lake treatment system may require some supplemental surface water supplies as "make up" water to maintain lake levels during "dry" or "critically dry" years. Typically, however, the stormwater lake treatment system will collect stormwater runoff and treat and recirculate that water within the lake system. In "above normal" or "wet" years, the lake system is expected to provide supplemental water supplies for landscape irrigation and other non-potable uses within the SMDP. Consequently, the water demands of the lake system are anticipated to be marginal (no more than 4 feet/year of water due to evaporation) during multiple "dry" or "critically dry" years.

The comment states that the DEIR fails to discuss expansion of the City's wastewater treatment plant to serve this and cumulative projects. The comment also states that the DEIR must describe the existing plant and expansions, as well as the transfer of management from OMI/Thames (a private management company) back to the City.

As noted in the DEIR, a project could have a significant effect associated with public services and utilities if it would result in the expansion of existing wastewater treatment facilities, construction of new wastewater treatment facilities, or a determination by the wastewater treatment provider that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. Impact PSU-10, on page 3.13-32, presents an assessment of the potential for the project to result in the need for expansion or construction of new wastewater treatment facilities, and the EIR concludes that no new infrastructure will be required to accommodate the wastewater expected to be generated by the Project. Enlargement of the existing lift station immediately south of the project site, as described in the SMDP and the DEIR, and is already underway to address previously approved projects. The SMDP by itself will not cause or result in the expansion of the existing wastewater treatment facilities or construction of any new wastewater treatment facilities. The existing wastewater treatment plant has adequate capacity to serve the project's projected flows (approximately 2.10 million gallons per day [MGD]) in addition to the provider's existing commitments. The City is also undertaking its own separate capital improvement program to continue to expand and improve existing wastewater treatment capacity, but that program is separate and independent, and thus is not part of this project.

Regarding the comment concerning the transfer of management from OMI/Thames back to the City, that issue is entirely separate and does not pertain

to the SMDP. Consequently, no further changes to the Sanctuary EIR are necessary as a result of this comment.

In 2003, the City contracted with OMI/Thames Water Stockton, Inc., to provide water, wastewater, and stormwater management and operation services. The contract also included the potential for a number of construction projects. The City completed CEQA review of each of the construction projects, almost all of which are nearly complete. The validity of the services contract was subsequently challenged in court. In a recent settlement of that law suit, the City and OMI/Thames agreed to transfer management and operation services back to the City. This process is an independent process, however, with no bearing on the SMDP and capacity of the municipal wastewater collection and treatment system.

Response to Comment 12-49

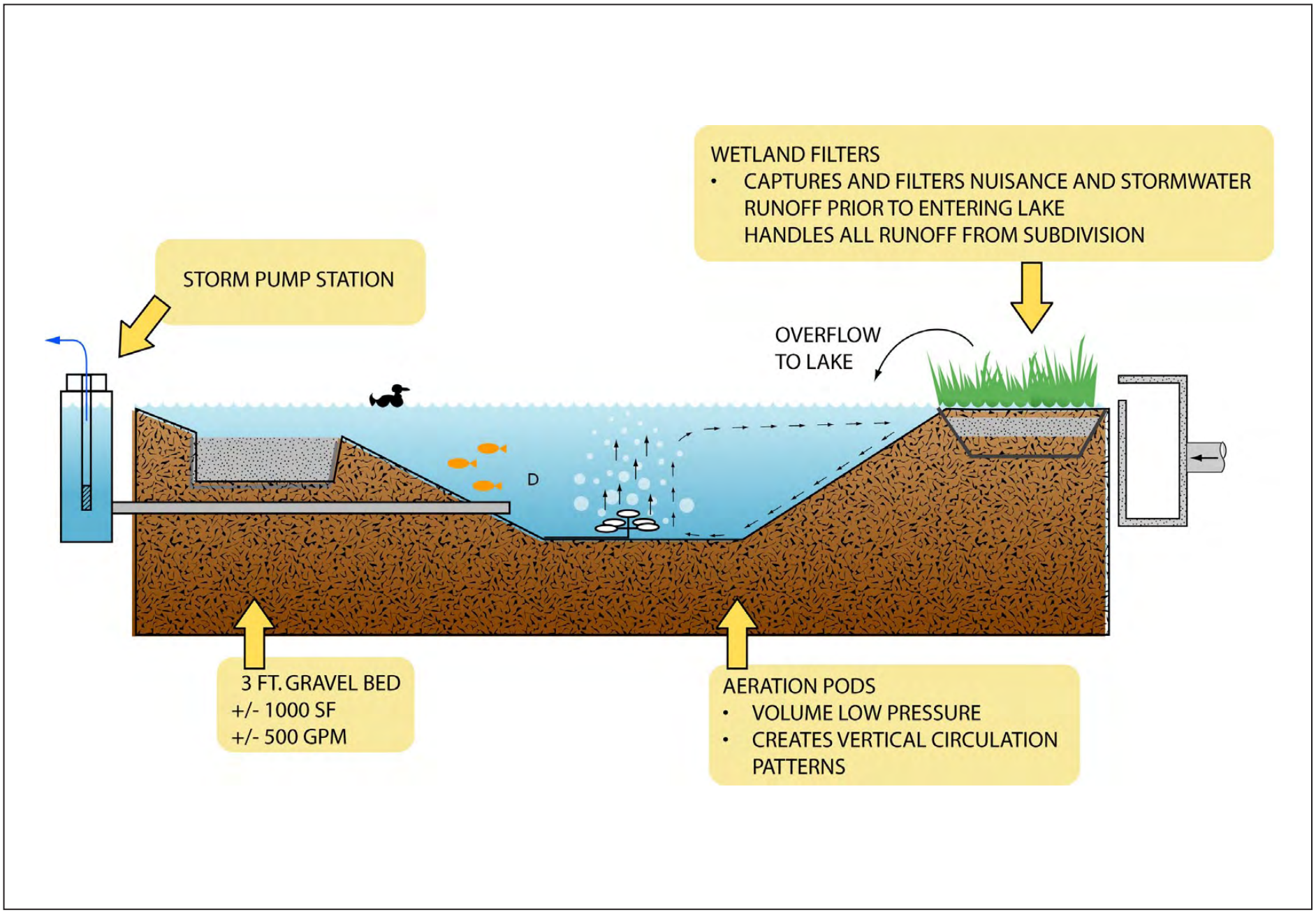
The comment indicates that the discussion of wastewater focuses only on the collection system.

The DEIR appropriately focuses on the collection system because the collection system is the only infrastructure that is being constructed to serve the Project. The wastewater treatment facilities have adequate capacity to accommodate the Project. Please also see Response to Comment 12-48.

Response to Comment 12-50

The comment states that Impact PSU-10 fails to justify a conclusion of less-than-significant impacts. The commenter does not agree with the statement that this impact would be less than significant "because the pump and parallel pipeline are necessary to accommodate the previously approved projects."

CEQA case law delineates the circumstances under which public improvements must be evaluated as part of proposed projects (*Plan for Arcadia, Inc. v. City Council of Arcadia* [1974] 42 Cal.App.3d 712—roadway widening was part of separate and ongoing public works program and thus was not a part of the project; compare *Tuolumne County Citizens for Responsible Growth, Inc. v. City of Sonora* [2007] 5th App. Dist.—approval of a project was conditioned on certain roadway improvements that were, in turn, "integral" to the project). Those circumstances are not present here. System 10 improvements (including the parallel pipeline) are not being constructed under the SMDP, nor will those improvements be funded by development of the SMDP (other than general connection and service fees). Those improvements are occurring as a part of other, previously approved projects and are not required for implementation of the SMDP. Moreover, the threshold of significance described in Comment 12-50 applies to the project's potential to require new facilities to convey or treat wastewater. As such, the project would not result in the need for facilities not



04293.04 EIR (08/08)

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Figure 3-4
Lake Operation

already proposed and underway by the City under its regular capital improvement program. Because it is part of an independent public program, impacts from the construction of the System 10 improvements are not considered part of the proposed project. Impact PSU-10 adequately addresses this threshold of significance and does not require further analysis. Please see also Response to Comment 12-48.

Response to Comment 12-51

The commenter notes that there "may be impacts during construction of System 10 improvements" which must be described in a project-level CEQA document.

The System 10 improvements are not proposed as a part of the SMDP. Those improvements have been planned and are proposed and will occur with or without the SMDP. Because the effects of the SMDP do not exceed the significance thresholds in the DEIR, the Project's impacts on the waster system will remain less than significant. Please see also Response to Comment 12-50.

Response to Comment 12-52

The commenter states that the route for the parallel pipeline should be described. The commenter also asks what the potential land-use impacts of that parallel pipeline construction might be.

The pipeline construction associated with the pumphouse and the approved projects in System 10 are not being implemented specifically for this Project, but are proposed and will be constructed to accommodate other, previously approved projects. As described in the SMDP in Appendix C (page 6-5), an existing 54/66-inch sewer gravity trunk line along 7,000 feet of the easterly side of the Project will accommodate all wastewater to be generated by the Project. The pump station associated with the wastewater conveyance system will not require any additional capacity to service the Project. Beginning in 2007, COSMUD began expanding the capacity of the pump station to 22.5 MGD, which is more than adequate to address the expected 2.10 MGD of wastewater generated by the Project. Please also see Responses to Comments 12-50 and 12-51.

Response to Comment 12-53

The commenter restates the trip generation estimates and concludes that extensive roadway improvements are needed due to growth occurring at other projects nearby and states that many of the impacts cannot be mitigated to acceptable levels.

This comment is a restatement of information in the DEIR. Because the comment does not raise an issue regarding the analysis in the DEIR, no further response is required for CEQA compliance.

As the comment notes, the DEIR, in Section 3.15, identifies a number of traffic impacts that cannot be mitigated to acceptable levels—particularly where mitigation measures and other roadway and interchange improvements depend on the I-5 North Stockton PA/ED still underway.

The commenter states that a deficiency of the transportation analysis is that it includes the future widening of I-5 south of Otto Drive to 10 lanes and that this widening is not consistent with Caltrans plans. The commenter would like the DEIR revised to explain whether any 10-lane freeway has been constructed in northern California and how a 10-lane freeway could operate with close interchanges in Stockton.

The 2035 Draft Stockton General Plan Update contains proposed land use changes and the infrastructure to accommodate the projected land uses. The future widening of I-5 to 10 lanes is included in the 2035 traffic analysis, which was conducted to evaluate consistency with the 2035 Draft Stockton General Plan Update.

There are a number of freeway segments in northern California that include at least 10 lanes (five in each direction). Some examples include:

- I-80 between State Route (SR) 51 and Greenback Lane in the Sacramento area;
- I-580 between I-680 and Santa Rita Road in Dublin/Pleasanton; and
- U.S. Highway 101 near the San Francisco International Airport.

The San Joaquin County 2007 Regional Transportation Plan Project List contains widening I-5 between Roth Road and Otto Drive to 10 lanes as a Tier II project (Project SJ07-1025). Plus, the Caltrans Route Concept Report for I-5 through much of Stockton shows the need for 10 lanes in order to meet its LOS D standard. These lane requirements are based on forecasts out to only 2020–2025 that do not include all of the new development anticipated in the draft 2035 Stockton General Plan update. The Caltrans Route Concept Report for SR 99 also shows a need for 10 lanes, but because of right-of-way constraints, only eight lanes are included.

Response to Comment 12-54

The commenter states that the language of Impact and Mitigation Measure TRA-31 is deceptive and asks whether the measure described as “widen I-5 to four mixed-flow lanes” includes a hidden fifth high occupancy vehicle (HOV)

lane. The commenter also states that the analysis assumes either six or 10 lanes on I-5 and questions why an eight-lane option was not analyzed.

Mitigation Measure TRA-31 includes widening I-5 between Hammer lane and Otto Drive to four travel lanes in each direction only. It does not include adding an HOV lane in each direction.

In response to the second question, the DEIR did evaluate eight lanes along certain freeway segments where applicable—for example, segments north of Otto Drive. Currently, I-5 from Eight Mile Road south to Monte Diablo undercrossing is six lanes wide. It is also a six-lane facility in the 1990 General Plan model. Therefore, it was evaluated as a six-lane facility under Existing, EPAP, and EPAP Plus Project, 2025 No Project, and 2025 With Project Conditions. In the 2035 Draft Stockton General Plan Update, I-5 is a 10-lane facility south of Otto Drive and an eight-lane facility north of Otto Drive. Therefore, segments north of Otto Drive were evaluated as an eight-lane freeway and segments south of Otto Drive were evaluated as a 10-lane facility under 2035 No Project and 2035 With Project Conditions to be consistent with current planning scenarios and the proposed General Plan Update.

Response to Comment 12-55

The commenter compares the SMDP to the Mountain House, a master-planned, full-service new town, with nearly three times the land area, nearly three times the number of residential units, and including a major job-generating commercial area planned to generate 20,000 jobs. The proposed project will be a neighborhood of the existing City of Stockton, not a self-contained new town. As described in the SMDP, neighborhood-type commercial services will be provided in the various areas of the project as development occurs. There will not be a major employment center in the Project, although some jobs will be created at the local-serving commercial areas. Monitoring job creation would not be necessary for this project.

Response to Comment 12-56 and 12-57

The basis for the assessment of cumulative impacts is described on pages 4-3 through 4-5 of the DEIR. The basis for the analysis of the cumulative impacts was the adopted General Plan, referred to in the EIR as the 1990 General Plan. For certain impacts (e.g., traffic and air quality), where appropriate, the DEIR evaluated the project under both the approved 1990 General Plan (as amended) and the proposed 2035 General Plan Update. This is specifically described on pages 4-4 and 4-5 of the DEIR. The draft 2035 General Plan projections consider buildout of all proposed development areas within the draft General Plan, which includes the project site and the sites of other proposed major developments. Please see also Response to Comment 12-60.

The assessment of cumulative impacts on public services and utilities also considered buildout of the adopted master plans for provision of drainage, wastewater, and water services. For this reason, the text of the DEIR is corrected as follows in the third paragraph on page 4-4 of the DEIR.

> **Related Projects**
>
> The analysis in this chapter is primarily based upon the projections of the 1990 General Plan regarding future development within the City's sphere of influence. This analysis incorporates reasonably foreseeable, relevant projects and focuses on those that, when combined with the proposed project, could contribute to cumulative effects. The basis for the analysis of cumulative traffic impacts is described in detail in Section 3.15 of this document. A summary is below. ~~For all other issue areas, the background for the cumulative impact analysis was considered to be the buildout of the 1990 General Plan.~~

Response to Comment 12-58

As stated in the DEIR, on page 4-6, "[t]he conversion of this farmland will contribute to the cumulative loss of farmland in the area and throughout the Central Valley." The impact disclosed in the EIR is the project's contribution to the acknowledged cumulative impact of conversion of farmland region-wide and state-wide.

Response to Comment 12-59

The commenter expresses his opinion of the decisions and actions of the City in its General Plan update process and its development approval process in general, including this project. Under California's zoning and planning laws, it is common for cities to approve individual projects like those listed in the comment through the general plan amendment process, rather than having to wait for a comprehensive update that only occurs periodically over a much longer term. The commenter refers to proposed projects north of Eight Mile Road, whereas the proposed SMDP project is located south of Eight Mile Road. Consequently, the comment addresses a policy issue under the City's general plan update process, but does not provide information relevant under CEQA.

Response to Comment 12-60

Under CEQA, an EIR must evaluate the cumulative impact of a project—that is, "the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects" (State CEQA Guidelines Section 15355[b]). The State CEQA Guidelines provide two distinct approaches to evaluating cumulative impacts: the "list method" and the "summary of projections" method (Section 15130[b][1]). Under the list method,

the EIR must evaluate "[a] list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency" (Id.). Under the summary of projections method, however, the EIR need only evaluate a "summary of projections contained in an *adopted* general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact." (Id.). Here, the DEIR utilizes the summary of projections method, which relies primarily on the 1990 General Plan (and amendments thereto). Where appropriate and necessary to adequately evaluate cumulative projects (including the projects listed in the comment), the DEIR also evaluates the projections in the proposed 2035 General Plan Update (i.e., on traffic, water supply, air quality). Buildout of the 1990 General Plan was appropriate because it was the most recently "adopted" General Plan, and because it is based on growth projections and not simply individual projects (which might never be built).

For issues related to the Sanctuary project's contribution to cumulative impacts, please see Response to Comment 12-56.

Response to Comment 12-61

Please see Responses to Comments 12-16, 12-18, 12-19, and 12-20 for a response to the comments regarding Williamson Act contracts. As noted in Response to Comment 12-20, and as discussed on page 3.2-11 of the DEIR, the project is designed to be phased such that development would not take place on lands now under Williamson Act contract until the contracts have either been removed from contract upon annexation or expired through non-renewal. Mitigation Measure AG-2a is designed to ensure that this occurs. No contracts are proposed to be cancelled unless necessary to accommodate levee improvement activities (see Response to Comment 12-20).

CEQA requires the lead agency to examine a reasonable range of alternatives to the project or the location of the project that feasibly attain most of the basic objectives of the project but avoid or substantially lessen any of the significant effects of the project. The DEIR examined three different reduced-density alternatives that meet the project objectives of building a mixed-use village that integrates residential and commercial uses. The impacts on water and sewer usage were found to be similar to the proposed project because a mixed-use village requires a certain critical mass of people to be in residence in order to attract commercial businesses.

The DEIR did not examine a reduced footprint higher density project because it would not substantially lessen any of the significant effects of the project. With a reduced footprint for the project, the significant traffic impacts would remain the same as the proposed project because the same number of off-site trips would be expected. The sewer impacts would also remain the same because the population numbers for the project would be comparable to those for the proposed project.

There could be a greater impact on water resources for a reduced footprint project because the remainder of the land could remain in agricultural production and agricultural users require more water than residential users.

The lead agency (the City) did not consider a "reduced footprint/ reduced density" project to be part of the reasonable range of alternatives for the same reason that it rejected a significantly reduced project alternative (see page 5-4 of the DEIR). Such a project would not meet the project objectives of providing the critical mass necessary for retail businesses and offices to locate within the project. Because a substantially reduced density project would not provide the needed population to support an integrated commercial, office, and residential project, it would result in additional travel trips for the project's residents.

Like the "reduced footprint" project discussed above, the "reduced footprint/reduced density project" could keep the land outside the project footprint in agricultural production, which would require more water than residential uses. While impacts on the sewer system might be less with a significantly reduced population, the lead agency need only review alternatives that feasibly attain most of the basic objectives of the project.

Letter 13

STOCKTON – SAN JOAQUIN COUNTY PUBLIC LIBRARY

MEMORANDUM

August 31, 2007

TO: David Stagnaro, Planning Manager, Planning Div., Community Development

FROM: Natalie R. Rencher, Director of Library Services

SUBJECT: COMMENTS ON DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE SANCTUARY MASTER DEVELOPMENT PLAN PROJECT (DEIR5-05)

1. Library service for the residents of the Sanctuary community will be provided by the Stockton – San Joaquin County Public Library, a department of the City of Stockton. Library services for Sanctuary's residents not be the shared responsibility of the City of Lodi Library and the Stockton – San Joaquin County Public Library as shown in Table 3.13-1 "Existing Service Providers" on pg. 13.1-2, and in the paragraphs under "Library Services" on pg. 3.13-4. 13-1

There are no existing branch libraries in the northwest Stockton area where the Sanctuary project will be built. There will be an impact, therefore, on the other four branch libraries and on the Margaret Troke Branch in north central Stockton in particular, on the central library, and the mobile library in Stockton.

2. Pg. 3.13-4 Library Services—2nd paragraph, last sentence: "The library also provides literacy (not literary) services, including a mobile family literacy unit, and online catalog and reservation services." 13-2

Natalie R. Rencher
Director of Library Services

NRR:KY:ky

cc: Michael M. Niblock, Director, Community Development Department
Barbara C. Berlin, Deputy Director, Planning Division, Community Dev.
Patty Wong, Deputy Director of Library Services
Greg Brazile, Program Manager III
Jane Cook, Library Division Manager
Ken Yamashita, Library Division Manager

Responses to Comment Letter 13—Natalie Rencher, Director of Library Services, Stockton–San Joaquin County Public Library

Response to Comment 13-1

The Director of Library Services for the Stockton–San Joaquin County Public Library notes that library services for the residents of the proposed project site will be provided by the Stockton–San Joaquin County Public Library, not jointly by the City of Lodi Library and the Stockton–San Joaquin County Library as indicated in the DEIR.

The following text changes are made to the Table 3.13-1 on page 3.13-2 and the Library Services discussion on page 3.13-4 in the DEIR.

Table 3.13-1. Existing Service Providers

Service	Service Provider
Public works	San Joaquin County
Water	None (Wells and Delta Water District)
Wastewater Collection, Treatment, and Disposal	None
Stormwater Drainage	Reclamation District 2115
Solid Waste	None
Law Enforcement/Fire	San Joaquin County/Delta Fire
Parks and Recreation	None
Schools	Lincoln and Lodi Unified School Districts
Transportation/Roads	San Joaquin County
Libraries	~~City of Lodi~~/City of Stockton
Power	Pacific Gas & Electric

Library Services

~~The City of Lodi Public Library, located at 201 W. Locust Street in Lodi, California, has a staff of 15 full time employees, including five professional librarians and a literacy specialist, and eight part-time employees. The library currently contains approximately 150,000 books as well as collections of audio-books, videos, music CDs, and CD-ROM software. The library subscribes to 235 magazines and 12 newspapers. About 52,000 registered borrowers check out about 340,000 items annually.~~

The commenter also notes that because there are no existing branch libraries in the northwest Stockton area, the other four branch libraries, the Margaret Troke Library, the central library and the mobile library will be used by the residents of the Project site. The director notes that this will be an impact. Impact PSU-4

beginning on page 3.13-28 of the DEIR discloses this potential impact, concluding that the impact will be less than significant because the Stockton Municipal Code (16-355) requires developers to pay fees for the development of new public facilities if City public officials determine that it is necessary to construct new facilities to accommodate increased demand, and payment of these fees will ensure that impacts will be reduced to a less-than-significant level.

Response to Comment 13-2

The director notes a typographic error on page 3.13-4; "literary" should be "literacy." The following changes are made to the text of the DEIR on page 3.13-4.

> The Stockton-San Joaquin County Public Library is made up of the Cesar Chavez Central Library (located at 605 North El Dorado Street) and four branch libraries in Stockton. The Weston Ranch branch library is located at 1453 West French Camp Road. The Troke branch library is located at 502 West Benjamin Holt Drive. The Fair Oaks branch library is located at 2370 East Main Street. The Angelou branch library is located at 2324 Pock Lane. Branch libraries are also located in Escalon, Lathrop, Linden, Manteca, Ripon, Thornton, and Tracy. There is a mobile library service in the County and in Stockton. The library also provides ~~literary~~ literacy services, including a mobile family literacy unit, and online catalog and reservation services.

Letter 14

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

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September 11, 2007

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CITY OF STOCKTON
PERMIT CENTER/PLANNING

Mr. David Stagnaro, AICP, Planning Manager
City of Stockton
Community Development Department
345 North El Dorado Street
Stockton, California 95202

SUBJECT: PUBLIC REVIEW OF DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE SANCTUARY MASTER DEVELOPMENT PLAN PROJECT (DEIR5-05)

Dear Mr. Stagnaro:

The San Joaquin County (County) Department of Public Works has reviewed the above referenced document and our concerns, recommendations, and corrections are as follows:

Transportation Planning:

1. Comment No. 3 from the County's comments dated February 28, 2006, regarding fair share costs of the Hammer Lane Improvements, Phase 3 was not addressed – please include the same comment again. 14-1

2. Comment No. 4 from the County's comments dated February 28, 2006, regarding this project being subject to Regional Transportation Improvement Funds was not addressed – please include the same comment again. 14-2

3. This document does not address the actual construction of the Interstate 5 (I-5) and Otto Drive interchange, only improvements to the interchange after it is constructed. Since the need for this interchange is due entirely to new development within City of Stockton Limits in this area, the fair share cost of the actual construction of the interchange should be calculated and included in the Environmental Impact Report. 14-3

4. The County has recently completed an alternatives analysis for Pershing Avenue, from Meadow Avenue to Thornton Road, and plans to construct a three lane facility. The Environmental Impact Report indicates the need for a second eastbound to northbound left-turn lane from Hammer Lane onto Pershing Avenue, which Pershing Avenue cannot accommodate. Traffic should be routed to Thornton Road, the major arterial in this area, and additional improvements identified for the intersection of Hammer Lane and Thornton Road to mitigate the additional traffic at that intersection. 14-4

Mr. David Stagnaro -2-
SANCTUARY MASTER DEVELOPMENT
PLAN PROJECT

5. Comment No. 6 from the County's comments dated February 28, 2006, regarding the inclusion of the intersection of Pershing Avenue and Thornton Road in the studied intersections was not addressed – please include the same comment again. Additionally if traffic projections show the need for the additional left-turn lane (No. 4), this traffic will be moving through the Pershing Avenue and Thornton Road intersection, thus making the study of this intersection absolutely mandatory. 14-5

6. Page 3.15-6 states that Thornton Road is "primarily a two-lane north-south major arterial." This is incorrect, as the road in question is four lanes between Hammer Lane and Davis Road, and between Bear Creek and Eight Mile Road. The four-lane sections account for more than half of the total length of this segment. 14-6

7. Page 3.15-6 states that Lower Sacramento Road is "a two-lane north-south rural road." This is incorrect, as the road in question is a major urban arterial between Hammer Lane and Eight Mile Road, and is four lanes from Hammer Lane to Bear Creek, which also accounts for over half of the total length of this segment. 14-7

8. Why do the traffic counts for Hammer Lane show daily volumes of 68,600 east of I-5 and 84,600 from Mariners to I-5 under Existing Plus Approved Project+Project (table 3.15-11), but show a drop to 67,400 east of I-5 and 54,100 from Mariners to I-5 under Future 2035 + Project (table 3.15-19)? A drop of 30,000 by 2035 west of Interstate 5 seems possible, but not likely, due to other access points (Otto Drive, Trinity Parkway, etc.), but the drop of 1,200 cars over the next 28 years on Hammer Lane east of I-5 seems entirely wrong. Please address these inconsistencies. 14-8

Flood Management:

The Bridge over Mosher Slough connecting to Trinity Parkway, north end.

9. Any work done within Mosher Slough Rights-of-Way, on the levee or in the channel, shall require a State Reclamation Board Permit. 14-9

10. Bridges shall have a minimum of 14 feet wide by 14 feet high vehicle access clearances under them with paved maintenance roads immediately adjacent to the abutments on the bank.

11. Bridges: all bridges shall have vehicle access across each end, for maintenance vehicle access, in line with the levee maintenance road along the channel at street elevation. This access will cross through any median. Any curb along the access shall not exceed 1½ inches in height. Minimum width for these access points is 20 feet. 14-10

12. Bridge bottom members (soffits) shall have a minimum of 3 feet of clearance above the design flood elevation.

13. Gates: County specification - gates shall be installed at right angles to the access roads a minimum of 50 feet from the most outwardly point of the bridge structure.

Mr. David Stagnaro -3-
SANCTUARY MASTER DEVELOPMENT
PLAN PROJECT

14. Access Roads shall be paved a minimum of 14 feet wide with 2 feet shoulders of ¾ inch asphalt base.

15. Schedule 80 Pipe Fence shall be joined by welding to the gates (No. 13) and run parallel along the Access Roads (No. 14), and join into fencing or railing running along the adjacent street or bridge.

    a. The minimum pipe diameter shall be 3 inches.
    b. The pipe post shall be set on a maximum of 6 feet-0 inch centers.
    c. The pipe posts shall be concrete filled.
    d. The top of the single pipe rail shall be set at 27 ¾ inches + or - ¾ inch above finished grade.
    e. The rail shall be connected to the post and end to end by welding. (Full fillet weld)
    f. The pipe posts shall be fitted to the rail by a saddle cut into the post.

16. Rip-rap shall be placed under all bridges, a minimum of 50 feet up and down stream of the bridge, and shall be engineered to prove no loss of water flow and placed in a manner approved by the State and County, again not to reduce the flow.

17. A minimum of 4 feet of levee free board is required 100 feet up and down stream of bridge or other structures – Federal Emergency Management Agency requirements.

14-10 cont.

Hammer Lane Extension Main Entrance

18. The levee between Mosher and Five Mile Slough is non-project, maintained by the San Joaquin County Channel Maintenance Division, any work done to the levee or the adjacent ditch requires an Encroachment Permit from San Joaquin County Flood Management until Conditional Letters Of Map Amendment is approved by the Federal Emergency Management Agency and all proposed levee construction is completed.

14-11

Addition Comments

19. A set of "as constructed" drawings shall be submitted to the San Joaquin County Flood Control and Water Conservation District, California Reclamation Board, and the United States of Army Corps of Engineers upon completion of the project(s).

14-12

20. The United States Army Corps of Engineers' requirements for levee maintenance shall be minimum requirements for the Telephone Cut and its upstream drainage ditch extension Rights-of-Way. Higher standards may be required as a part of the Reclamation Board Permit.

21. Additional requirements may be required and specified during the permitting process for the State Reclamation Board and San Joaquin County Flood Management Division.

14-13

22. Conditional Letters of Map Amendment approval, levee improvements completed, and annexation to the City of Stockton are required prior to the start of construction.

14-14

23. Levee Maintaining Agency not mentioned on Page 2-11. 14-15

24. Due to increasing input into the storm water facilities from continuing development and draining on groundwater, should it be considered by the developer to incorporate into this development the sunken sports facilities idea? Where any place used as sports area (baseball, football, soccer) would be sunk into the ground for catching storm water. This would lessen the input on the existing systems, and perhaps help in recharging our depleting groundwater level. This system works in Lodi and other Cities around our County. Maybe it will not work here, but it is worth a try to help the other related problems. 14-16

25. We must make sure that any work done on this or any other project meets our criteria on bridges, gates, or any other points of contention. If any of these developments would possibly be brought into San Joaquin Area Flood Control Agency, then they must meet our requirements. 14-17

Community Infrastructure Comments:

26. The document fails to discuss the antidegradation policy in State Water Board Resolution 68-16 and the Federal policy in 40 CFR 131.12. An antidegradation study should be completed to show the impact, if any, of this project. 14-18

Thank you for the opportunity to be heard. Should you have questions or need additional information regarding the above comments, please contact me at (209) 468-3085.

Sincerely,

MARK HOPKINS
Environmental Coordinator

MH:mk
TP-7H100-M1

c: Roger Churchwell, Senior Civil Engineer
Larry (Butch) Waddle, Channel Maintenance Superintendent
Ron Flockhart, Engineering Assistant II
Charles F. Kelly, Senior Civil Engineer
Jeff Levers, Engineer II

Responses to Comment Letter 14—Mark Hopkins, Environmental Coordinator, San Joaquin County Public Works Department

Response to Comment 14-1

The commenter states that Comment 3 from the County's comments dated March 3, 2006 regarding the fair share costs of the Hammer Lane Improvements, Phase 3, was not addressed. This comment requests that the City collect the fair share costs from the project applicants and, should the Hammer Lane Improvements Phase III project be segmented, forward funds collected for the County portion to the San Joaquin County Public Works Department.

The project applicant will be required by existing regulation to pay the City's traffic impact fee as the project's fair share for Hammer Lane improvements.

Response to Comment 14-2

The commenter states that Comment 4 from the County's comments dated March 3, 2006 regarding the project being subject to Regional Transportation Improvement Fees (RTIF) was not addressed.

The project will be subject to the RTIF, which will be collected at the time of building permit issuance. The RTIF was not discussed in the DEIR as the project is not dependent on improvements in the RTIF as mitigation. In other words, the RTIF collects regional transportation funds that will go towards general transportation projects that are not required to mitigate the impacts of the project.

Response to Comment 14-3

The commenter states that the DEIR does not address the construction of the I-5 and Otto Drive interchange: the Project's fair share contribution to construction of the interchange should be calculated and included in the EIR.

Because the PA/ED and other pre-construction designs have not been completed for that interchange, the actual capital costs are unknown at this time. Thus, it is impossible at this early stage in the planning process to prescribe a specific cost amount. But in any event, the project applicant will be required by existing regulation to pay the City's traffic impact fee as satisfaction of the project's fair share contribution for the I-5/Otto Drive interchange.

Response to Comment 14-4

The commenter states that the EIR indicates the need for a second eastbound to northbound left-turn lane from Hammer Lane onto Pershing Avenue, which Pershing Avenue cannot accommodate, that traffic should be routed to Thornton Road, the major arterial in this area, and additional improvements identified for the intersection of Hammer Lane and Thornton Road to mitigate the additional traffic at that intersection.

The lane configuration at the intersection of Hammer Lane and Pershing Avenue with a second eastbound to northbound left-turn lane was obtained from the Hammer Lane Precise Plan. The second left-turn lane was not added as a project mitigation measure. Sanctuary is projected to add a relatively small amount of traffic to this movement, approximately 20 to 30 vehicles during the AM and PM peak hours. It is unlikely that this traffic would travel further east to Thornton Road to turn left as individual drivers tend to take the most direct route to their destination. Even if the small amount of traffic generated by the Project at the Hammer Lane/Pershing Avenue intersection were reassigned to Thornton Road, the Project's individual and cumulative impacts on the Hammer Lane/Thornton Road intersection would remain less than significant and no further improvements would be necessary.

Response to Comment 14-5

The commenter states that Comment 6 from the County's comments dated March 3, 2006, where the County requests the traffic impact study include the intersection of Pershing Avenue and Thornton Road, and revisions to Figure 2.15-1 were not addressed.

This intersection was not added to the impact analysis due to the low amount of project traffic projected to be added. The proposed project is projected to add less than 15 peak hour trips to any individual turning movement; therefore, a revision of Figure 2.15-1 to include it as a study location is unnecessary and there is no potentially significant impact of the project on this intersection.

Response to Comment 14-6

The commenter states that page 3.15-6 of the DEIR states that Thornton Road is "primarily a two-lane north-south major arterial" and that this is incorrect, as it is four-lanes wide for more than half of its length.

The following change is made to the text of the DEIR on page 3.15-6.

> **Thornton Road (County Road 8*)*** is primarily a two- to four-lane north-south major arterial that extends from north of Eight Mile Road to Hammer Lane, where it continues south as Pacific Avenue. Speed limits range from 45 to 55

mph along the roadway. Sidewalks are provided along improved sections of Thornton Road throughout the study area.

Response to Comment 14-7

The commenter states that page 3.15-6 states that Lower Sacramento Road is "a two-lane north-south rural road" and that this is incorrect, as the road is a major urban arterial between Hammer Lane and Eight Mile Road, and is four lanes wide from Hammer Lane to Bear Creek, which accounts for more than half of its length.

The EIR text has been corrected. The following changes are made to the text of the DEIR on page 3.15-6.

> **Lower Sacramento Road (County Road 10)** is a two- to four-lane north-south ~~rural road~~ arterial that extends from north of Eight Mile Road to Thornton Road. No bicycle or pedestrian facilities are provided on this roadway in the study area. The posted speed limit is 55 mph.

Response to Comment 14-8

The commenter asks why the traffic projections for Hammer Lane show daily volumes of 68,600 east of I-5 and 84,600 from Mariners to I-5 under EPAP, but show a drop to 67,400 east of I-5 and 54,100 from Mariners to I-5 under 2035 plus Project conditions. The commenter states that the drop of 30,000 by 2035 west of I-5 seems possible, but not likely, due to other access points (Otto Drive, Trinity Parkway) but the drop of 1,200 cars over the next 28 years on Hammer Lane east of I-5 seems wrong.

The reduction in vehicles on Hammer Lane between Mariners Drive and I-5 from EPAP plus Project to 2035 plus Project conditions is due to traffic being diverted to other roadways via new roadway connections, primarily the I-5/Otto Drive interchange and extension of Trinity Parkway south of Hammer Lane, as those connections are constructed. Hammer Lane east of I-5 is projected to operate at capacity (LOS E) under both EPAP and 2035 Without Project conditions. In 2035, the project site will have more roadway connection providing access. Therefore, less project traffic will use Hammer Lane under 2035 Plus Project conditions as reflected on the trip distribution figures (Figures 3.15-11 and 3.15-12), which reflects lower total volumes on Hammer Lane under 2035 Plus Project conditions.

Response to Comment 14-9

The Environmental Coordinator for Public Works, San Joaquin County, notes that any work conducted within Mosher Slough Rights-of-Way (on the levee or

in the channel) will require a State Reclamation Board Permit. As DWR notes in its comment letter (Comment 3-1), the Project might require an encroachment permit "if" it encroaches on an "adopted State plan for flood control." The Project does not encroach on any area identified by the state legislature or the Reclamation Board as a "designated floodway," and the Project will not encroach on the State Adopted Plan of Flood Control. Thus, no Reclamation Board permit is required. Nonetheless, the proposed levee system will meet or exceed federal and state design criteria for urban-standard levees.

Response to Comment 14-10

The Environmental Coordinator for Public Works, San Joaquin County, reviews the required specification for bridges, gates, and access roads applicable to the bridge over Mosher Slough and related facilities. Additionally, he provides the information concerning the minimum required freeboard per Federal Emergency Management Agency (FEMA) requirements.

Mitigation Measure HYD-13a, beginning on page 3.8-35 of the DEIR, states that levee protection measures for the project will be designed and implemented to maintain or improve access for levee and bank protection activities and flood conveyance capacity and reliability, and will meet FEMA requirements. The project proponent is required to comply with applicable standards regarding the bridges, gates, access roads, rip rap embankments, and other features identified in the comment. The project proponent will comply with the requirement of the levee maintaining agency (Reclamation District [RD] 2115) and the City regarding vehicle access for levee maintenance purposes.

Response to Comment 14-11

The commenter notes the requirement for an encroachment permit for the levee alignment between Mosher Slough and Five-Mile Slough. The following addition is made to the text of the DEIR on page 2-13.

- Encroachment permits as needed from San Joaquin County

Response to Comment 14-12

The Environmental Coordinator for Public Works, San Joaquin County, states that a set of "as constructed" drawings shall be submitted to the San Joaquin County Flood Control and Water Conservation District, California Reclamation Board, and the ACOE upon completion of the project.

This comment is procedural in nature. To clarify the process, the flood control system will require a Section 404 permit from ACOE, certification by FEMA, and approvals from the City and RD 2115. No CEQA issue is raised.

Response to Comment 14-13

The commenter notes standards for the Telephone Cut. Telephone Cut is not a part of this project but rather the proposed Gateway Project by the Spanos Company north of Shima Tract on RD 2042 – Bishop Tract.

The remainder of the comment concerns the permitting process for the levees, and does not raise a CEQA issue. No response is required in the EIR.

Please see also Response to Comment 14-12.

Response to Comment 14-14

The Environmental Coordinator for Public Works, San Joaquin County, states that the levee improvements must be completed, a Conditional Letter of Map Revision must be received and the land must be annexed to Stockton prior to the start of construction.

The project description includes annexation of the project site to Stockton. If the project is approved by the City, the levee improvements and construction of urban development cannot occur prior to annexation. Further, the EIR acknowledges that levee improvements must occur, and the Letter of Map Revision must be approved prior to construction of buildings on the project site.

Response to Comment 14-15

The Environmental Coordinator for Public Works, San Joaquin County, notes that the levee maintaining agency is not mentioned on page 2-11. The following addition is made to the text of the DEIR on page 2-11 as follows.

Public Facilities

The Sanctuary will be served by the following service providers:

- Water—Stockton Municipal Utilities Department
- Levee maintenance—Reclamation District 2115
- Sanitary sewer—Stockton Municipal Utilities Department and Regional Wastewater Control Facility (RWCF)
- Solid waste—Sunrise Sanitation (a franchisee of the City)
- Electricity and natural gas—PG&E
- Telephone service/fiber optics—SBC
- Cable television—Comcast
- Fire protection—Stockton Fire Department

- Police protection—Stockton Police Department

Response to Comment 14-16

The Environmental Coordinator for Public Works, San Joaquin County, inquires if the developer should consider incorporating sunken sports facilities into parks to aid in storm water control and groundwater recharge.

As noted in Response to Comment 12-47, as described in the SMDP (pages 6-2 to 6-7), the lakes will serve multiple purposes, including acting as detention facilities for stormwater runoff, and will provide supplies of non-potable water to be used for irrigation of parks and landscaping. The EIR and SMDP, which was included as an appendix of the DEIR, fully explain the operation of the storm drain system, including the lakes, and its interaction with the purple-pipe system. Figure 3-4 illustrates lake operation. As the lakes have been sized to handle stormwater run-off and drainage, additional detention facilities should not be necessary.

Response to Comment 14-17

The Environmental Coordinator for Public Works, San Joaquin County, states that Public Works must ensure that work done on this and other projects meets their criteria for bridges, gates, and other facilities. RD 2115 is responsible for levee maintenance. Levees will be designed and constructed to meet RD 2115 requirements. No further response to this comment is required.

Response to Comment 14-18

The Environmental Coordinator for Public Works, San Joaquin County, states that the DEIR fails to discuss the antidegradation policy in SWRCB Resolution 68-16 and the federal policy in 40 CFR 131.12 and recommends that an antidegradation study be completed for this project.

The EIR provides a detailed analysis of the proposed project's potential impacts on water quality, considering baseline conditions and potential for degradation of water quality. The antidegradation analysis referred to in this comment is beyond the scope of, and is not required by, CEQA. Such an analysis could be required by the RWQCB as part of the permitting process for that agency.

Chapter 4

Revised Summary of Impacts and Mitigation Measures

Table ES-2, which presents a summary of the impacts and mitigation measures identified in the EIR, has been updated to correctly reflect the text of the DEIR and to reflect changes made in this final EIR. Table ES-2 is found on the following pages.

Table ES-2. Updated Summary of Impacts and Mitigation Measures

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Aesthetics and Visual Resources			
Impact AES-1: Adverse Effects on Scenic Vista	No Impact	–	–
Impact AES-2: Substantial Damage to Scenic Resources along a Scenic Highway	No Impact	–	–
Impact AES-3: Substantial Degradation of Existing Visual Character or Quality during Construction	Significant	Mitigation Measure AES-3a: Implement Measures to Minimize Construction-Related Visual Impacts	Less than significant
Impact AES-4: Substantial Degradation of Existing Visual Character or Quality Following Implementation of Project	Significant	Mitigation Measure AES-4a: Design Project to Be Compatible with Site Surroundings	Significant and unavoidable
Impact AES-5: Changes in Light and Glare during Construction	Less than significant	–	–
Impact AES-6: Changes in Light and Glare following Implementation of Project	Significant	Mitigation Measure AES-6a: Incorporate Light- and Glare-Reduction Measures	Less than significant
Agricultural Resources			
Impact AG-1: Conversion of Important Farmland	Significant	None available.	Significant and unavoidable
Impact AG-2: Conflict with Existing Zoning for Agricultural Use or Williamson Act Contract from Proposed Land Uses	Significant	Mitigation Measure AG-2a: Phase Project Implementation with Williamson Act Contract Termination or Expiration	Less than significant
Impact AG-3: Conflict with Existing Zoning for Agricultural Use or Williamson Act Contract from Levee Improvements	Significant	None available.	Significant and unavoidable
Impact AG-4: Other Changes in Existing Environment That, Due to Their Location or Nature, Could Result in Conversion of Farmland to Nonagricultural Use	Significant	Mitigation Measure AG-4a: Incorporate Short-Term Buffers into Project Phasing	Less than significant

Table ES-2. Continued

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Air Quality			
Impact AQ-1: Temporary Increase in Construction-Related Emissions	Significant	Mitigation Measure AQ-1a: Prepare and Implement a Dust Control Plan Mitigation Measure AQ-1b: Implement Measures to Reduce Construction Emissions	Less than significant with mitigation
Impact AQ-2: Exposure of Sensitive Receptors to Elevated Levels of Diesel Exhaust from Construction Activities and Increased Health Risk	Less than significant	–	–
Impact AQ-3: Generation of Emissions of Reactive Organic Gases and Oxides of Nitrogen in Excess of San Joaquin Valley Air Pollution Control District Thresholds	Significant	Mitigation Measure AQ-3a: Eliminate Wood-Burning Fireplaces and Wood Stoves Mitigation Measure AQ-3b: Incorporate Additional Innovative Measures to Reduce Air Quality Impacts	Significant and unavoidable
Impact AQ-4: Exposure of Sensitive Receptors to Substantial Concentrations of Carbon Monoxide	Less than significant	–	–
Impact AQ-5: Conflict with or Obstruct Implementation of the Applicable Air Quality Management Plan	Significant	Mitigation Measure AQ-3a: Eliminate Wood-Burning Fireplaces and Wood Stoves Mitigation Measure AQ-3b: Incorporate Additional Innovative Measures to Reduce Air Quality Impacts	Significant and unavoidable
Impact AQ-6: Global Climate Change	Less than significant	–	–
Biological Resources			
Impact BIO-1: Loss or Disturbance of Protected Oak Trees	Significant	Mitigation Measure BIO-1a: Install Construction Barrier Fencing to Protect Sensitive Biological Resources Adjacent to Construction Zone Mitigation Measure BIO-1b: Avoid and Minimize Potential Indirect Disturbance of Oak Trees Mitigation Measure BIO-1c: Conduct a Preconstruction Tree Survey Mitigation Measure BIO-1d: Compensate for Removal of Oak Trees	Less than significant

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact BIO-2: Loss of Special-Status Plants or Degradation of Habitat	Significant	Mitigation Measure BIO-1a: Install Construction Barrier Fencing to Protect Sensitive Biological Resources Adjacent to Construction Zone	Less than significant
		Mitigation Measure BIO-2a: Conduct Preconstruction Surveys for Special-Status Plants	
		Mitigation Measure BIO-2b: Avoid or Compensate for Impacts on Special-Status Plant Populations Consistent with SJMSCP	
Impact BIO-3: Loss and/or Degradation of Waters of the United States	Significant	Mitigation Measure BIO-1a: Install Construction Barrier Fencing to Protect Sensitive Biological Resources Adjacent to Construction Zone	Less than significant
		Mitigation Measure BIO-3a: Avoid and Minimize Disturbance of Waters of the United States	
		Mitigation Measure BIO-3b: Implement Resource Protection/Impact Minimization Measures Identified in Federal, State, and Local Permits	
		Mitigation Measure BIO-3c: Compensate for the Loss of Waters of the United States	
Impact BIO-4: Loss of Agricultural Habitat Lands	Significant	Mitigation Measure BIO-4a: Compensate for Loss of Agriculture Habitat Lands	Less than significant
Impact BIO-5: Construction-Related Impacts on Giant Garter Snakes	Significant	Mitigation Measure BIO-5a: Conduct Preconstruction Surveys for Giant Garter Snakes	Less than significant
		Mitigation Measure BIO-5b: Implement Take Minimization Measures from SJMSCP for Impacts on Giant Garter Snakes	
Impact BIO-6: Construction-Related Impacts on Western Pond Turtles	Significant	Mitigation Measure BIO-6a: Conduct Preconstruction Surveys for Western Pond Turtles	Less than significant
		Mitigation Measure BIO-6b: Implement Take Minimization Measures from the SJMSCP for Impacts on Western Pond Turtles	
Impact BIO-7: Construction-Related Impacts to Nesting Swainson's Hawks	Significant	Mitigation Measure BIO-7a: Conduct Preconstruction Surveys for Swainson's Hawks	Less than significant
		Mitigation Measure BIO-7b: Implement Take Minimization Measures from the SJMSCP for Impacts on Nesting Swainson's Hawks	

Table ES-2. Continued

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact BIO-8: Construction-Related Impacts on Western Burrowing Owls	Significant	Mitigation Measure BIO-8a: Conduct Preconstruction Surveys for Western Burrowing Owls	Less than significant
		Mitigation Measure BIO-8b: Implement Take Minimization Measures from SJMSCP for Impacts on Burrowing Owls	
Impact BIO-9: Construction-Related Impacts to Nesting Northern Harriers	Significant	Mitigation Measure BIO-9a: Conduct Preconstruction Surveys for Northern Harriers	Less than significant
		Mitigation Measure BIO-9b: Implement Take Minimization Measures from SJMSCP for Impacts on Nesting Northern Harriers	
Impact BIO-10: Construction-Related Impacts on Nesting Loggerhead Shrikes, Cooper's Hawks, and White-Tailed Kites	Significant	Mitigation Measure BIO-10a: Conduct Preconstruction Surveys for Loggerhead Shrikes, Cooper's Hawks, and White-Tailed Kites	Less than significant
		Mitigation Measure BIO-10b: Implement Take Minimization Measures from SJMSCP for Impacts on Nesting Loggerhead Shrikes, Cooper's Hawks, and White-Tailed Kites	
Impact BIO-11: Construction-Related Impacts on Greater Sandhill Cranes, Long-Billed Curlews, White-Faced Ibis, and Mountain Plovers	Less than significant	–	–
Impact BIO-12: Indirect Impacts on Nesting California Black Rails	Significant	Mitigation Measure BIO-12a: Conduct Preconstruction Surveys for California Black Rails	Less than significant
		Mitigation Measure BIO-12b: Implement Take Minimization Measures from the SJMSCP for Indirect Impacts to Nesting California Black Rails	
Impact BIO-13: Construction-Related Impacts on Roosting Yuma Myotis	Significant	Mitigation Measure BIO-13a: Conduct Preconstruction Surveys for Yuma Myotis	Less than significant
		Mitigation Measure BIO-13b: Implement Take Minimization Measures from the SJMSCP for Impacts to Roosting Yuma Myotis	
Impact BIO-14: Construction-Related Impacts on Fish Habitat	Significant	Mitigation Measure BIO-14a: Avoid Impacts on Fish Habitat	Less than significant

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact BIO-15: Increase in Sedimentation and Turbidity during Construction Activities	Significant	Mitigation Measure HYD-1a: Implement Provisions for Work in Surface Waters	Less than significant
		Mitigation Measure BIO-15a: Place Surplus Excavated Material Outside OHWM	
Impact BIO-16: Short-Term Degradation of Water Quality and Fish Habitat from Accidental Spills or Seepage of Hazardous Materials during Construction	Significant	Mitigation Measure HYD-1a: Implement Provisions for Work in Surface Waters	Less than significant
		Mitigation Measure BIO-16a: Avoid Water Quality Degradation during Construction	
Impact BIO-17: Loss of Fish Habitat from Riprap Installation	Significant	Mitigation Measure BIO-14a: Avoid Impacts on Fish Habitat	Less than significant
Impact BIO-18: Potential for Habitat Modification in Fourteen Mile Slough from Marina and Bridge Construction	Less than significant	–	–
Impact BIO-19: Potential Disturbance to Fish from Bridge and Marina Construction	Significant	Mitigation Measure BIO-19a: Employ Measures to Minimize Sound and Disturbance Effects	Less than significant
Cultural Resources			
Impact CR-1: Destruction of Potentially Significant Cultural Resources at Camps 7 and 8	Significant	Mitigation Measure CR-1a: Conduct Test Excavations at Camps 7 and 8 and Evaluate Resources for Eligibility for Listing in the CRHR	Less than significant
Impact CR-2: Potential Disturbance to or Destruction of Buried Cultural Resources	Significant	Mitigation Measure CR-2a: Stop Work if Buried Cultural Resources are Discovered during Construction	Less than significant
Impact CR-3: Direct or Indirect Destruction of a Unique Paleontological Resource or Site or Unique Geologic Feature	Significant	Mitigation Measure CR-3a: Stop Work in Event of Fossil Discovery	Less than significant
Impact CR-4: Inadvertent Discovery of Native American Human Remains	Significant	Mitigation Measure CR-4a: Comply with State Laws Relating to Native American Remains	Less than significant
Geology and Soils			
Impact GEO-1: Potential Structural Damage and Injury from Fault Rupture	Less than significant	–	–
Impact GEO-2: Potential Structural Damage and Injury from Groundshaking	Less than significant	–	–

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact GEO-3: Potential Structural Damage and Injury from Development on Materials Subject to Liquefaction	Significant	Mitigation Measure GEO-3a: Implement Liquefaction Minimization Methods to Prevent Localized Liquefaction Zones	Less than significant
Impact GEO-4: Potential Accelerated Runoff, Erosion, and Sedimentation from Grading Activities	Significant	Mitigation Measure GEO-4a: Comply with the Geotechnical Report	Less than significant
Impact GEO-5: Potential Structural Damage and Injury from Development on Expansive or Compressible or Weak Soils	Significant	Mitigation Measure GEO-5a: Implement Corrective Actions Identified as Part of Geotechnical Report	Less than significant
Impact GEO-6: Increased Risk Associated with Stability of Flood Control Levee System	Less than significant	–	–
Impact GEO-7: Consistency of Project with City of Stockton Policy for Development in Geologically Hazardous Areas	Less than significant	–	–
Impact GEO-8: Postconstruction Settlement from Consolidation of Both Embankment and Foundation Soils	Less than significant	–	–
Hazards and Hazardous Materials			
Impact HAZ-1: Significant Hazard from Routine Transport, Use, or Disposal of Hazardous Materials	Less than significant	–	–
Impact HAZ-2: Significant Hazard from Reasonably Foreseeable Upset and Accident Conditions Involving Release of Hazardous Materials	Significant	Mitigation Measure HAZ-2a: Develop and Implement Plans to Reduce Exposure to Hazardous Conditions Mitigation Measure HAZ-2b: Follow City of Stockton Fire Department and Other Guidelines for Storage and Handling of Hazardous Materials Mitigation Measure HAZ-2c: Immediately Contain Spills, Excavate Spill-Contaminated Soil, and Dispose of It at Approved Facility Mitigation Measure HAZ-2d: Screen Surface Soils in Project Area for Residuals from Agricultural Chemicals Mitigation Measure HAZ-2e: Adopt Utility Avoidance Measures Recommended by Underground Service Alert Evaluation	Less than significant

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact HAZ-3: Hazardous Emissions or Handling of Hazardous or Acutely Hazardous Materials, Substances, or Waste within 0.25 Mile of an Existing or Proposed School	Significant	Mitigation Measure HAZ-2a: Develop and Implement Plans to Reduce Exposure to Hazardous Conditions	Less than significant
		Mitigation Measure HAZ-2b: Follow City of Stockton Fire Department and Other Guidelines for Storage and Handling of Hazardous Materials	
		Mitigation Measure HAZ-2c: Immediately Contain Spills, Excavate Spill-Contaminated Soil, and Dispose of It at Approved Facility	
		Mitigation Measure HAZ-2d: Screen Surface Soils in Project Area for Residuals from Agricultural Chemicals	
		Mitigation Measure HAZ-2e: Adopt Utility Avoidance Measures Recommended by Underground Service Alert Evaluation	
Impact HAZ-4: Inclusion on List of Hazardous Material Sites	No impact	–	–
Impact HAZ-5: Close Proximity to Airport or Private Airstrip	No impact	–	–
Impact HAZ-6: Interference with Emergency Plan or Evacuation Plan	No impact	–	–
Impact HAZ-7: Significant Risk of Loss, Injury, or Death from Wildland Fires	No impact	–	–
Impact HAZ-8: Significant Risk of Loss, Injury, or Death due to Levee Failure	Significant	Mitigation Measure HAZ-8a: Develop an Emergency Evacuation Plan or Include the Project in the City's Emergency Response Plan	Less than significant
Hydrology and Water Quality			
Impact HYD-1: Impair Surface Water Quality as a Result of Construction-Related Earth-Disturbing Activities and Construction Related Hazardous Materials	Significant	Mitigation Measure HYD-1a: Implement Provisions for Work in Surface Waters	Less than significant
		Mitigation Measure HYD-1b: Develop and Implement a Frac-Out Contingency Plan for Jack-and-Bore Activities.	
Impact HYD-2: Water Quality Impacts from Construction below the Water Table	Less than significant	–	–

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact HYD-3: Impacts to Water Quality From Dredging During Construction and Operation of Marina	Significant	Mitigation Measure HYD-3a: Implement Measures to Maintain Water Quality During Dredging	Less than significant
Impact HYD-4: Impacts Associated with Marina Operation	Significant	Mitigation Measure HYD-4a: Design and Construct Marina Facilities to Avoid Flooding Impacts	Less than significant
Impact HYD-5: Increased Amounts of Surface Runoff and Associated Impacts to Drainage Facilities due to Increased Amounts of Impervious Surfaces	Significant	Mitigation Measure HYD-5a: Prepare and Implement a Drainage Master Plan	Less than significant
Impact HYD-6: Water Quality Effects of Urban Runoff	Significant	Mitigation Measure HYD-6a: Implement Measures to Maintain Water Quality after Construction	Less than significant
		Mitigation Measure HYD-6b: Develop Management Plan for Onsite Water Features	
Impact HYD-7: Water Quality Impacts from Discharges to Surface Water Where Water Bodies are 303(d) Listed	Less than significant	–	–
Impact HYD-8: Impacts to Groundwater and Surface Water from Infrastructure Failure	Less than significant	–	–
Impact HYD-9: Degradation of Surface Water or Groundwater Quality from Use of Recycled Water	Significant	Mitigation Measure HYD-9a: Implement Measures to Maintain Surface and Groundwater Quality Associated with Recycled Water Use	Less than significant
Impact HYD-10: Risk to Human Health as a Result of Use and/or Exposure to Recycled Water (Less than Significant with Mitigation Incorporated)	Significant	Mitigation Measure HYD-9a: Implement Measures to Maintain Surface and Groundwater Quality Associated with Recycled Water Use	Less than significant
Impact HYD-11: Short-Term Sufficiency of Water Supply	Significant	Mitigation Measure HYD-11a: Require That the Project Have Sufficient Interim Water Supplies	Less than significant
Impact HYD-12: Long-Term Sufficiency of Water Supply	Less than significant	–	–
Impact HYD-13: Risk of Levee Failure and Flooding	Significant	Mitigation HYD-13a: Implement Recommendations of the Levee Assessment Seepage Geotechnical Study	Less than significant

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact HYD-14: Impact from Seiche, Tsunami, Mudflow, or Dam Failure	Less than significant	–	–
Land Use and Planning			
Impact LU-1: Physical Division of Established Community	No impact	–	–
Impact LU-2: Conflict with Applicable Land Use Plans, Policies, or Regulations	Less than significant	–	–
Impact LU-3: Conflict with Applicable Habitat Conservation Plan or Natural Community Conservation Plan	Significant	Mitigation Measure BIO-4a: Compensate for Loss of Agriculture Habitat Lands	Less than significant
Impact LU-4: Short-Term Land Use Conflicts	Significant	Mitigation Measure AG-4a: Incorporate Short-Term Buffers into Project Phasing	Less than significant
Mineral Resources			
Impact MIN-1: Loss of Availability of a Known Mineral Resource	Less than significant	–	–
Impact MIN-2: Loss of Availability of a Locally Important Mineral Resource Recovery Site	Less than significant	–	–
Noise			
Impact N-1: Exposure of Existing Residences to Construction Noise and Vibration in Excess of Standards	Significant	Mitigation Measure N-1a: Employ Noise-Reducing Construction Practices Mitigation Measure N-1b: Prepare a Noise Control Plan Mitigation Measure N-1c: Disseminate Essential Information to Residences and Implement a Complaint/Response Tracking Program	Less than significant
Impact N-2: Exposure of Existing Noise-Sensitive Land Uses to Traffic Noise in Excess of Standards	Significant	Mitigation Measure N-2a: Employ Noise Control Practices	Less than significant
Impact N-3: Exposure of New Noise-Sensitive Land Uses to Traffic Noise in Excess of Standards	Significant	Mitigation Measure N-2a: Employ Noise Control Practices Mitigation Measure N-3a: Design New Residential Units to Comply with the Requirements of California Noise Insulation Standards	Less than significant

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact N-4: Exposure of Noise-Sensitive Land Uses to Noise from Operations on Project Site	Significant	Mitigation Measure N-4a: Employ Noise-Reducing Practices into Project Design	Less than significant
Impact N-5: Exposure of New Noise-Sensitive Land Uses to Noise from Offsite Nontransportation Noise Sources	Less than significant	–	–
Population and Housing			
Impact POP-1: Displacement of Substantial Existing Housing Units or Numbers of People	Less than significant	–	–
Public Services and Utilities			
Impact PSU-1: Potential Increased Need for or Adverse Effects on Fire Services (Response Times or Facilities)	Less than significant	–	–
Impact PSU-2: Potential Increased Need for or Adverse Effects on Police Services (Response Times or Facilities)	Less than significant	–	–
Impact PSU-3: Adverse Impact on Public Schools	Less than significant	–	–
Impact PSU-4: Disruption of or Adverse Effects on Parks, Libraries, or Other Public Services	Less than significant	–	–
Impact PSU-5: Adverse Effects on the Capacity of Solid Waste Landfills	Less than significant	–	–
Impact PSU-6: Short-Term Sufficiency of Water Supply)	Significant	Mitigation Measure HYD-11a: Require That the Project Have Sufficient Interim Water Supplies	Less than significant
Impact PSU-7: Long-Term Sufficiency of Water Supply	Less than significant	–	–
Impact PSU-8: Require or Result in the Construction of New Water Treatment Facilities or Expansion of Existing Facilities	Less than significant	–	–
Impact PSU-9: Construction-Related Water Service Interruptions	Significant	Mitigation Measure PSU-9a: Conduct an Investigation of Utility Line Locations and Maintain Utility Services	Less than significant

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact PSU-10: Expansion or Construction of New Wastewater Collection, Conveyance, or Treatment Facilities	Less than significant	–	–
Impact PSU-11: Expansion or Construction of New Water Conveyance, or Treatment Facilities	Less than significant	–	–
Impact PSU-12: Increase in Stormwater Drainage	Significant	Mitigation Measure HYD-5a: Prepare and Implement a Drainage Master Plan	Less than significant
Recreation			
Impact REC-1: Increased Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities	Beneficial	–	–
Impact REC-2: New Recreational Facilities or Construction or Expansion of Recreational Facilities	Less than significant	–	–
Transportation			
Impact TRA-1: Unacceptable Operations at Eight Mile Road/Trinity Parkway Intersection under Existing plus Approved Projects plus Project Conditions	Significant	Mitigation Measure TRA-1a: Convert Eastbound Right-Turn Lane to Shared Through/Right-Turn Lane at Eight Mile Road/Trinity Parkway Intersection	Less than significant
Impact TRA-2: Worsened Conditions at Eight Mile Road/Interstate 5 Northbound Ramps Intersection under Existing plus Approved Projects plus Project Conditions	Significant	Mitigation Measure TRA-2a: Add Capacity at Eight Mile Road/Interstate 5 Northbound Ramps Intersection Mitigation Measure TRA-2b: Complete Phasing Analysis	Significant and unavoidable
Impact TRA-3: Worsened Conditions at Eight Mile Road/Davis Road Intersection under Existing plus Approved Projects plus Project Conditions	Significant	Mitigation Measure TRA-3a: Add Eastbound and Westbound Through Lanes and Westbound Left-Turn Lane at Eight Mile Road/Davis Road Intersection	Less than significant
Impact TRA-4: Unacceptable Operations at Eight Mile Road/Lower Sacramento Road Intersection under Existing plus Approved Projects plus Project Conditions	Significant	Mitigation Measure TRA-4a: Add Eastbound Through Lane at Eight Mile Road/Lower Sacramento Road Intersection	Less than significant

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact TRA-5: Unacceptable Operations at Hammer Lane/Loop Road Intersection	Significant	Mitigation Measure TRA-5a: Add Third Southbound Left-Turn Lane at Hammer Lane/Loop Road Intersection	Less than significant
		[OR]	
		Mitigation Measure TRA-2b: Complete Phasing Analysis	Significant and unavoidable
		Mitigation Measure TRA-5b: Construct Otto Drive from Loop Road to I-5, Construct Otto Drive/I-5 Interchange, and Extend Trinity Parkway South from Hammer Lane to March Lane	
Impact TRA-6: Worsened Conditions at Hammer Lane/Mariners Drive Intersection under Existing plus Approved Projects plus Project Conditions	Significant	Mitigation Measure TRA-2b: Complete Phasing Analysis	Significant and unavoidable
		Mitigation Measure TRA-5b: Construct Otto Drive from Loop Road to I-5, Construct Otto Drive/I-5 Interchange, and Extend Trinity Parkway South from Hammer Lane to March Lane	
		Mitigation Measure TRA-6a: Add Southbound Left-Turn Lane and Eastbound Through Lane at Hammer Lane/Mariners Drive	
Impact TRA-7: Unacceptable Operations at Hammer Lane/Interstate 5 Southbound Ramps Intersection under Existing plus Approved Projects plus Project Conditions	Significant	Mitigation Measure TRA-2b: Complete Phasing Analysis	Significant and unavoidable
		Mitigation Measure TRA-5b: Construct Otto Drive from Loop Road to I-5, Construct Otto Drive/I-5 Interchange, and Extend Trinity Parkway South from Hammer Lane to March Lane	
		Mitigation Measure TRA-7a: Add Eastbound Through Lane to Hammer Lane/Interstate 5 Southbound Ramps Intersection	
Impact TRA-8: Unacceptable Operations at Hammer Lane/Interstate -5 Northbound Ramps Intersection under Existing plus Approved Projects plus Project Conditions	Significant	Mitigation Measure TRA-2b: Complete Phasing Analysis	Significant and unavoidable
		Mitigation Measure TRA-5b: Construct Otto Drive from Loop Road to I-5, Construct Otto Drive/I-5 Interchange, and Extend Trinity Parkway South from Hammer Lane to March Lane	
		Mitigation Measure TRA-8a: Add Eastbound Through Lane to Hammer Lane/Interstate 5 Northbound Ramps Intersection	

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact TRA-9: Unacceptable Operations at Hammer Lane/Kelley Drive Intersection under Existing plus Approved Projects plus Project Conditions	Significant	Mitigation Measure TRA-2b: Complete Phasing Analysis Mitigation Measure TRA-5b: Construct Otto Drive from Loop Road to I-5, Construct Otto Drive/I-5 Interchange, and Extend Trinity Parkway South from Hammer Lane to March Lane Mitigation Measure TRA-9a: Provide an Exclusive Westbound Right-Turn Lane	Significant and unavoidable
Impact TRA-10: Unacceptable Operations at Hammer Lane/Pershing Avenue Intersection under Existing plus Approved Projects plus Project Conditions	Significant	Mitigation Measure TRA-10a: Provide Additional Northbound Left-Turn Lane and Exclusive Northbound Right-Turn Lane, Exclusive Southbound Right-Turn Lane, and Exclusive Westbound Right-Turn Lane at Hammer Lane/Pershing Avenue Intersection	Significant and unavoidable
Impact TRA-11: Unacceptable Operations at Hammer Lane/Lower Sacramento Road under Existing plus Approved Projects plus Project Conditions	Significant	Mitigation Measure TRA-11a: Add Northbound Through Lane at Hammer Lane/Lower Sacramento Road	Less than significant
Impact TRA-12: Worsened Conditions on Hammer Lane from West of Mariners Drive to East of Interstate 5 under Existing plus Approved Projects plus Project Conditions	Significant	Mitigation Measure TRA-2b: Complete Phasing Analysis Mitigation Measure TRA-5b: Construct Otto Drive from Loop Road to I-5, Construct Otto Drive/I-5 Interchange, and Extend Trinity Parkway South from Hammer Lane to March Lane Mitigation Measure TRA-12a: Expand Hammer Lane to Eight Lanes from West of Mariners Drive to East of Interstate 5	Significant and unavoidable
Impact TRA-13: Worsened Conditions at Northbound and Southbound Segments of Interstate 5 South of Hammer Lane under Existing plus Approved Projects plus Project Conditions	Significant	Mitigation Measure TRA-13a: Widen Interstate 5 to Provide Four Mixed-Flow Travel Lanes in Each Direction	Significant and unavoidable
Impact TRA-14: Worsened Conditions at Eight Mile Road/Mokelumne Circle Intersection under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA-14a: Add Eastbound Through Lane at Eight Mile Road/Mokelumne Circle Intersection	Less than significant
Impact TRA-15: Worsened Conditions at Eight Mile Road/Interstate 5 Northbound Ramps Intersection under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA-2a: Add Capacity at Eight Mile Road/Interstate 5 Northbound Ramps Intersection	Significant and unavoidable

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact TRA-16: Worsened Conditions at Trinity Parkway/Cosumnes Drive Intersection under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA-16a: Add Northbound Left-Turn Lane at Trinity Parkway/Cosumnes Drive Intersection	Less than significant
Impact TRA-17: Worsened Conditions at Trinity Parkway/McAuliffe Road Intersection under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA 17a: Provide Westbound Shared Left-Turn/Right-Turn Lane and Right-Turn Lane and Add Southbound Left-Turn Lane at Trinity Parkway/McAuliffe Road Intersection	Less than significant
Impact TRA-18: Worsened Conditions at Otto Drive/Trinity Parkway Intersection under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA-18a: Add Eastbound and Westbound Through Lanes, Exclusive Eastbound Right-Turn Lane, and Exclusive Southbound Right-Turn Lane, and Modify Signals at Otto Drive/Trinity Parkway Intersection	Less than significant
Impact TRA-19: Worsened Conditions at Otto Drive/Interstate 5 Southbound Ramps Intersection under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA-19a: Add Capacity to Otto Drive/Interstate 5 Southbound Ramps Intersection	Significant and unavoidable
Impact TRA-20: Worsened Conditions at Otto Drive/Interstate 5 Northbound Ramps Intersection under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA-20a: Add Capacity to Otto Drive/Interstate 5 Northbound Ramps Intersection	Significant and unavoidable
Impact TRA-21: Worsened Conditions at Hammer Lane/Mariners Drive Intersection under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA-21a: Add an Exclusive Westbound Right-Turn Lane to Hammer Lane/Mariners Drive Intersection Mitigation Measure TRA-6a: Add Southbound Left-Turn Lane and Eastbound Through Lane at Hammer Lane/Mariners Drive	Less than significant
Impact TRA-22: Worsened Conditions at Hammer Lane/Interstate 5 Southbound Ramps Intersection under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA-22a: Add an Eastbound Through Lane to Hammer Lane/Interstate 5 Southbound Ramps Intersection	Significant and unavoidable
Impact TRA-23: Worsened Conditions at Hammer Lane/Interstate 5 Northbound Ramps Intersection under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA-23a: Add a Northbound Left-Turn Lane and an Eastbound Through Lane to Hammer Lane/Interstate 5 Northbound Ramps Intersection	Significant and unavoidable
Impact TRA-24: Worsened Conditions at Hammer Lane/Kelley Drive Intersection under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA-24a: Add an Exclusive Eastbound Right-Turn Lane, Northbound Left-Turn Lane and Westbound Through Lane to Hammer Lane/Kelley Drive Intersection	Significant and unavoidable
Impact TRA-25: Worsened Conditions at Hammer Lane/Meadow Avenue/Don Avenue Intersection under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA-25a: Add Exclusive Northbound Right-Turn Lane to Hammer Lane/Meadow Avenue/Don Avenue Intersection	Less than significant

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact TRA-26: Worsened Conditions at Hammer Lane/Pershing Avenue Intersection under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA-26a: Add Exclusive Northbound Right-Turn Lane, Add Exclusive Eastbound Right-Turn Lane, Add Northbound Left-Turn Lane and Add Westbound Through Lane at Hammer Lane/Pershing Avenue Intersection	Significant and unavoidable
Impact TRA-27: Worsened Conditions at Hammer Lane/Thornton Road Intersection under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA-27a: Add a Southbound Left-Turn Lane at Hammer Lane/Thornton Road Intersection	Less than significant
Impact TRA-28: Worsened Conditions at Hammer Lane/Lower Sacramento Road Intersection under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA-28a: Add an Exclusive Westbound Right-Turn Lane at Hammer Lane/Lower Sacramento Road Intersection	Less than significant
Impact TRA-29: Worsened Conditions on Trinity Parkway Bridge over Bear Creek under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA-29a: Widen Trinity Parkway Bridge over Bear Creek to Six Lanes	Significant and unavoidable
Impact TRA-30: Worsened Conditions on Hammer Lane from West of Mariners Drive to East of Interstate 5 under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA 30a: Widen Hammer Lane to Six Lanes West of Mariners Drive and Eight Lanes from Mariners Drive to East of Interstate 5	Significant and unavoidable
Impact TRA-31: Worsened Conditions on Northbound and Southbound I-5 South of Hammer Lane and from Hammer Lane to Otto Drive under Future 2025 plus Project Conditions	Significant	Mitigation Measure TRA-13a: Widen Interstate 5 to Provide Four Mixed-Flow Travel Lanes in Each Direction Mitigation Measure TRA 31a: Add Capacity to Northbound and Southbound I-5 South of Hammer Lane, and from Hammer Lane to Otto Drive	Significant and unavoidable
Impact TRA-32: Worsened Conditions at Eight Mile Road/Mokelumne Circle Intersection under Future 2035 plus Project Conditions	Significant	Mitigation Measure TRA-32a: Add a Fourth Eastbound Through Lane to Eight Mile Road/Mokelumne Circle Intersection	Less than significant
Impact TRA-33: Worsened Conditions at Eight Mile Road/Trinity Parkway Intersection under Future 2035 plus Project Conditions	Significant	Mitigation Measure TRA-33a: Convert a Westbound Through Lane to Left-Turn Lane at Eight Mile Road/Trinity Parkway Intersection	Less than significant
Impact TRA-34: Worsened Conditions at Eight Mile Road/Interstate 5 Southbound Ramps Intersection under Future 2035 plus Project Conditions	Significant	Mitigation Measure TRA-34a: Add Two Westbound Through Lanes and a~~n~~ free Eastbound Right-Turn Lane to Eight Mile Road/Interstate 5 Southbound Ramps Intersection	Significant and unavoidable

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact TRA-35: Worsened Conditions at Eight Mile Road/Thornton Road Intersection under Future 2035 plus Project Conditions	Significant	Mitigation Measure TRA-35a: Add Two Northbound and Two Southbound Through Lanes, a Northbound Left-Turn Lane, a Northbound Right-Turn Lane, a Southbound Left-Turn Lane, and an Exclusive Westbound Right-Turn Lane to Eight Mile Road/Thornton Road Intersection	Significant and unavoidable
Impact TRA-36: Worsened Conditions at Trinity Parkway/Cosumnes Drive Intersection under Future 2035 plus Project Conditions	Significant	Mitigation Measure TRA-36a: Add a Left-Turn Lane at Trinity Parkway/Cosumnes Drive Intersection	Less than significant
Impact TRA-37: Worsened Conditions at Otto Drive/Trinity Parkway Intersection under Future 2035 plus Project Conditions	Significant	Mitigation Measure TRA-37a: Add an Eastbound and a Westbound Through Lane and Modify Signals at Otto Drive/Trinity Parkway Intersection	Significant and unavoidable
Impact TRA-38: Worsened Conditions at Otto Drive/Interstate 5 Southbound Ramps Intersection under Future 2035 plus Project Conditions	Significant	Mitigation Measure TRA-19a: Add Capacity to Otto Drive/Interstate 5 Southbound Ramps Intersection	Significant and unavoidable
Impact TRA-39: Worsened Conditions at Otto Drive/Interstate 5 Northbound Ramps Intersection under Future 2035 plus Project Conditions	Significant	Mitigation Measure TRA-20a: Add Capacity to Otto Drive/Interstate 5 Northbound Ramps Intersection Mitigation Measure TRA-39a: Add an Eastbound Left-Turn Lane to the Otto Drive/Interstate 5 Northbound Ramps Intersection	Significant and unavoidable
Impact TRA-40: Worsened Conditions at Hammer Lane/Mariners Drive Intersection under Future 2035 plus Project Conditions	Significant	Mitigation Measure TRA-40a: Modify the Southbound Approach to Two Left-Turn Lanes and a Shared Through/Right-Turn Lane and Convert Northbound Through Lane to a Shared Through/Right-Turn Lane at the Hammer Lane/Mariners Drive Intersection	Less than significant
Impact TRA-41: Worsened Conditions at Hammer Lane/Interstate 5 Southbound Ramps Intersection under Future 2035 plus Project Conditions	Significant	Mitigation Measure TRA-22a: Add an Eastbound Through Lane to Hammer Lane/Interstate 5 Southbound Ramps Intersection	Significant and unavoidable
Impact TRA-42: Worsened Conditions at Hammer Lane/Interstate 5 Northbound Ramps Intersection under Future 2035 plus Project Conditions	Significant	Mitigation Measure TRA-23a: Add a Northbound Left-Turn Lane and an Eastbound Through Lane to Hammer Lane/Interstate 5 Northbound Ramps Intersection	Significant and unavoidable
Impact TRA-43: Worsened Conditions at Hammer Lane/Kelley Drive Intersection under Future 2035 plus Project Conditions	Significant	Mitigation Measure TRA-43a: Add a Northbound Left-Turn Lane and Westbound Through Lane at the Hammer Lane/Kelley Drive Intersection	Significant and unavoidable

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact TRA-44: Worsened Conditions at Hammer Lane/Meadow Avenue/Don Avenue Intersection under Future 2035 plus Project Conditions	Significant	Mitigation Measure TRA-44a: Add Exclusive Northbound Right-Turn Lane at Hammer Lane/Meadow Avenue/Don Avenue Intersection	Less than significant
Impact TRA-45: Worsened Conditions at Hammer Lane/Pershing Avenue Intersection under Future 2035 plus Project Conditions	Significant	Mitigation Measure TRA-45a: Add a Northbound Left-Turn Lane, an Exclusive Eastbound Right-Turn Lane, and an Exclusive Southbound Right-Turn Lane to the Hammer Lane/Pershing Avenue Intersection	Significant and unavoidable
Impact TRA-46: Unacceptable Operations on Trinity Parkway Over Bear Creek under Future 2035 plus Project Conditions	Significant	Mitigation Measure TRA-29a: Widen Trinity Parkway Bridge Over Bear Creek to Six Lanes	Significant and Unavoidable
Impact TRA-47: Worsened Conditions on Hammer Lane East of Interstate 5 under Future 2035 plus Project Conditions	Significant	Mitigation Measure TRA-12a: Expand Hammer Lane to Eight Lanes from West of Mariners Drive to East of Interstate 5	Significant and unavoidable
Impact TRA-48: Worsened Conditions on Northbound and Southbound Interstate 5 South of Hammer Lane and from Hammer Lane to Otto Drive under Future 2035 plus Project Conditions	Significant	None feasible.	Significant and unavoidable
Impact TRA-49: Conflict with Traffic Calming Guidelines	Significant	Mitigation Measure TRA-49a: Provide Traffic-Calming Devices on Public Residential Streets Where Block Lengths Are More Than 600 Feet	Less than significant
Impact TRA-50: Potential Safety Hazards for Bicyclists and Pedestrians	Significant	Mitigation Measure TRA-50a: Add Signage and Crosswalks	Less than significant
Impact TRA-51: Increased Transit Demand	Significant	Mitigation Measure TRA-51a: Provide Onsite Transit Facilities, Including Transit Stops with Supporting Amenities	Less than significant
Impact TRA-52: Potentially Inadequate Parking Supply	Significant	Mitigation Measure TRA-52a: Provide Adequate Parking Supply as Required by City of Stockton Zoning Code	Less than significant
Growth Inducing Impacts			
Impact GI-1: Fosters Economic or Population Growth, or Additional Housing	Less than significant	–	–
Impact GI-2: Removal of a Potential Obstacle to Growth	Less than significant	–	–

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact GI-3: Tax Community Services or Facilities to an Extent that New Services or Facilities Would Be Necessary	Less than significant	–	–
Cumulative Impacts			
Impact CE-1: Cumulative Effect on Aesthetic and Visual Resources	Less than cumulatively considerable	–	–
Impact CE-2: Cumulative Loss of Agricultural Lands	Cumulatively considerable	No additional mitigation is feasible	Cumulatively considerable and unavoidable
Impact CE-3: Cumulative Effect on Air Quality	Cumulatively considerable	No additional mitigation is feasible	Cumulatively considerable and unavoidable
Impact CE-4: Global Climate Change	Cumulatively considerable	Mitigation Measure AQ-1b: Implement Measures to Reduce Construction Emissions Mitigation Measure AQ-3a: Eliminate Wood-Burning Fireplaces and Wood Stoves Mitigation Measure AQ-3b: Incorporate Additional Innovative Measures to Reduce Air Quality Impacts Mitigation Measure CE-4a: Reduce Stationary Source Emissions of Green House Gases Mitigation Measure CE-4b: Reduce Mobile Source Emissions of Greenhouse Gases	Cumulatively considerable and unavoidable
Impact CE-5: Cumulative Effects on Biological Resources	Less than cumulatively considerable	–	–
Impact CE-6: Cumulative Impacts to Cultural Resources	Less than cumulatively considerable	–	–

Impact	Significance before Mitigation	Mitigation Measure	Significance with Mitigation
Impact CE-7: Cumulative Impacts Related to Geology and Soils	Less than cumulatively considerable	–	–
Impact CE-8: Cumulative Impacts Related to Hazards and Hazardous Materials	Less than cumulatively considerable	–	–
Impact CE-9: Cumulative Water Quality Impacts to an Impaired Waterway	Less than cumulatively considerable	– ~~No additional mitigation is feasible~~	– ~~Cumulatively considerable and unavoidable~~
Impact CE-10: Cumulative Impacts Related to Flooding	Less than cumulatively considerable	–	–
Impact CE-11: Cumulative Loss of Open Space Lands	Cumulatively considerable	No additional mitigation is feasible	Cumulatively considerable and unavoidable
Impact CE-12: Cumulative Impacts Related to Mineral Resources	Less than cumulatively considerable	–	–
Impact CE-13: Cumulative Effect on Noise	Cumulatively considerable	No additional mitigation is feasible	Cumulatively considerable and unavoidable
Impact CE-14: Cumulative Effects Related to Population Growth	Less than cumulatively considerable	– ~~No mitigation is feasible~~	– ~~Cumulatively considerable and unavoidable~~
Impact CE-15: Cumulative Impacts Related to Public Services and Utilities	Less than cumulatively considerable	–	–
Impact CE-16: Cumulative Impacts Related to Recreation	Less than cumulatively considerable	–	–

Chapter 5

Mitigation Monitoring and Reporting Plan

Introduction

Pursuant to State CEQA Guidelines Section 15041(a), "a lead agency for a project has authority to require feasible changes in any or all activities involved in the project in order to substantially lessen or avoid significant effects on the environment." A Mitigation Monitoring and Reporting Plan (MMRP) is required to be prepared before project approval if adverse impacts have been identified in an Initial Study (IS) or EIR and measures have been adopted as conditions of approval to reduce the significance of impacts (Public Resources Code Section 21081.6). The purpose of this plan is to ensure that mitigation measures identified in the EIR and recommended for adoption as conditions of approval are implemented properly.

Organization and Format

The MMRP describes the requirements and procedures to be followed by the City to ensure implementation of all mitigation measures proposed in the EIR. The following sections are included in the MMRP.

Mitigation Monitoring Plan Checklist

For this project, the adopted mitigation measures would be implemented, monitored, and reported on during or after construction of the project. A topical listing of all identified mitigation measures, including the timing of implementation and verification and the responsible agency, is presented in the checklist (Table 5-1). The checklist should be used for verification throughout the duration of mitigation implementation.

Monitoring Procedures

Agency responsibilities are defined to ensure that proper actions are taken to execute requirements stipulated in this monitoring plan. Necessary review,

approvals, and site confirmation by the designated agency monitors would occur throughout the duration of the plan. The checklist would be used to record completion of each of the required measures and to establish a formal and publicly available record verifying implementation of mitigation measures. Compliance monitoring procedures for these mitigations are summarized below.

The City would be responsible for approving the MMRP and maintaining a log of all mitigation monitoring and reporting requirements.

Checklist Summary

A summary of mitigation measures, including timing of implementation, is provided in Table 5-1. The City would have primary responsibility for monitoring and verifying implementation of all mitigation measures.

Mitigation Measure	Timing	Implementing Party	Monitoring Party
AESTHETICS			
Mitigation Measure AES-3a: Implement Measures to Minimize Construction-Related Visual Impacts Construction staging areas for equipment, personal vehicle parking, and material storage will be located in areas that are concealed by levees, materials stockpiles, or vegetation and are not conspicuous to adjacent residences. Use of existing topography and vegetation for screening construction will be maximized.	Prior to and during construction	Project proponent and construction contractor	City of Stockton
Mitigation Measure AES-4a: Design Project to Be Compatible with Site Surroundings Project design shall be developed in accordance with the Citywide Design Guidelines and design guidelines described in The Sanctuary Master Development Plan. The master plan shall include descriptions and depictions of the community design development standards, land use standards, administration and implementation of the project to the satisfaction of the City's community development director.	Prior to construction	Project proponent	City of Stockton
Mitigation Measure AES-6a: Incorporate Light- and Glare-Reduction Measures The project shall be developed in accordance with The Sanctuary Master Development Plan, including implementation of lighting standards to minimize nuisance lighting. Project facilities shall be constructed of low-sheen and nonreflective building materials to minimize glare and obtrusiveness. Where lighting is required or proposed, the project proponent shall incorporate light- and glare-reduction measures into the plan and design of exterior lighting at the project site, and the project shall include measures to locate and direct exterior lighting so that it is concealed to the extent practicable when viewed from local roads, adjacent residences, and any recreation areas. Luminaires shall be the minimum required for property security to minimize incidental light. The lighting design shall also meet minimum City safety and security standards. Lighting plans shall be subject to City approval.	Prior to building permit	Project proponent	City of Stockton
AGRICULTURAL RESOURCES			
Mitigation Measure AG-2a: Phase Project Implementation with Williamson Act Contract Termination or Expiration The project phasing plan shall be reviewed to ensure that it is consistent with the schedule for the termination or expiration of the Williamson Act contracts covering lands comprising the project site. The project shall be phased such that development does not occur on lands under a current Williamson Act contract.	Prior to Final Map	Project proponent and City of Stockton	City of Stockton
Mitigation Measure AG-4a: Incorporate Short-Term Buffers into Project Phasing For areas of the project site under Williamson Act contract, short-term buffers shall be put in place surrounding those parcels to prevent land use conflicts between agricultural lands still under Williamson Act contract and lands developed with nonagricultural uses. Project design	Prior to Final Map	Project proponent and City of Stockton	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
shall identify how the lands within the buffers will be incorporated into the project at the time the Williamson Act contracts expire and development can occur. The short-term buffers can become future parks or trails, or can be incorporated into the development footprint of the lands under Williamson Act contract at the time the buffers were implemented. Buffers shall be located on lands no longer under Williamson Act contract at the time and shall consist of lands used for land uses compatible with adjacent farming operations. Examples of compatible uses include roadways, open space, trails, or parking lots. Examples of incompatible uses include residential uses, schools, and parks designed for active recreation.			
AIR QUALITY			
Mitigation Measure AQ-1a: Prepare and Implement a Dust Control Plan To control the generation of construction-related PM10 emissions, the City shall require construction contractors to prepare and submit a dust control plan to the SJVAPCD at least 48 hours before any earthmoving or construction activities. As previously indicated, implementation of a dust control plan would satisfy the requirements of Regulation VIII (Cadrett pers. comm.). The requirements of the dust control plan are included in Appendix E.	Prior to and during construction	Project proponent shall ensure construction contractor implements measure	City of Stockton
Mitigation Measure AQ-1b: Implement Measures to Reduce Construction Emissions The City shall require construction contractors to implement measures to reduce construction-related emissions. Such measures include those listed below. ■ Limit the area subject to excavation, grading, and other construction activity at one time. ■ Limit the hours of operation of heavy duty equipment or the amount of equipment in use. Replace fossil-fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set). ■ Require that all diesel engines be shut off when not in use to reduce emissions from idling. ■ Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing construction activity during the peak hour of vehicular traffic on adjacent roadways and on "Spare the Air Days" declared by the SJVAPCD. ■ Implement activity management (e.g., rescheduling activities to reduce short-term impacts). ■ During the smog season (May through October), lengthen the construction period to minimize the number of vehicles and equipment operating at the same time. ■ Off-road trucks should be equipped with on-road engines when possible. ■ Minimize the obstruction of traffic on adjacent roadways. ■ Power construction equipment with diesel engines fueled by alternative diesel fuel blends or ultra low sulfur diesel (ULSD). Only fuels that have been certified by the ARB should be used. The ARB has verified specific alternative diesel fuel blends for NO_x and PM emission	During construction	Construction contractor	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
reduction. The applicant should also use ARB certified alternative fueled (compressed natural gas [CNG], liquid propane gas [LPG], electric motors, or other ARB certified off-road technologies] engines in construction equipment where practicable. ■ Use construction equipment that meets the current off-road engine emission standard (as certified by the ARB) or re-powered with an engine that meets this standard. Tier I, Tier II, and Tier III engines have significantly less NO_x and PM emissions compared with uncontrolled engines.			
Mitigation Measure AQ-3a: Eliminate Wood-Burning Fireplaces and Wood Stoves The project applicant shall ensure that wood burning fireplaces and wood stoves are not incorporated into the design of the housing units where the density is more than two dwelling units per acre. As an alternative to these wood burning devices, natural gas fireplaces and stoves may be incorporated into the design, which are cleaner burning and more efficient than traditional wood burning devices.	Prior to building permit	Project proponent	City of Stockton
Mitigation Measure AQ-3b: Incorporate Additional Innovative Measures to Reduce Air Quality Impacts The SJVAPCD encourages innovation in measures to reduce air quality impacts. Several measures shall be incorporated into the design and operation of the proposed project to provide additional reductions in the overall level of emissions, where feasible.[1] These measures include the following: ■ Energy-efficient design shall be provided for homes and buildings, including automated control systems for heating and air conditioning and energy efficiency beyond Title 24 requirements, lighting controls and energy-efficient lighting in buildings, increased insulation beyond Title 24 requirements, and light-colored roof materials to reflect heat. ■ Large canopy trees shall be carefully selected and located to protect buildings from energy-consuming environmental conditions and shade-paved areas. Trees shall be selected to shade 50% of paved areas within 15 years. ■ Plant deciduous trees on the south- and west-facing sides of buildings. ■ Plant trees adjacent to all sidewalks 30 feet on center and at a ratio of one tree for each parking space. Structural soil shall be used under paved areas to improve tree growth in locations where street trees are located or planned. ■ The City shall implement measures to reduce the amount of vehicle traffic to and from the project area to further reduce air pollution in the valley. This could include provisions such as encouraging employees to rideshare or carpool to the project site, or incentives for employees to use alternative transportation.	Prior to approval of Tentative map	Project proponent	City of Stockton

[1] Some of the measures may already exist as City development standards. Any measures selected should be implemented to the fullest extent possible.

Mitigation Measure	Timing	Implementing Party	Monitoring Party
■ If transit service is available to the project site, improvements shall be made to encourage its use. If transit service is not currently available but is planned for the area in the future, easements shall be reserved to provide for future improvements. These include bus turnouts, loading areas, route signs, and shade structures. Pedestrian access shall be directed to the main entrance of the project from existing or potential public transit stops, and appropriately designed sidewalks shall be provided. Such access shall consist of paved walkways or ramps and shall be physically separated from parking areas and vehicle access routes. Appropriations made to facilitate public or mass transit will help mitigate trips generated by the project.			
■ Sidewalks and bicycle paths shall be provided throughout as much of the project as possible and connect to any nearby open space areas, parks, schools, and commercial areas to encourage walking and bicycling. Connections to nearby public uses and commercial areas shall be made as direct as possible to promote walking for some trips. Sidewalks and bikeways shall be designed to separate pedestrian and bicycle pathways from vehicle paths. Sidewalks and bikeways shall be designed to be accommodating and appropriately sized for anticipated future pedestrian and bicycle use. Such pathways shall be easy to navigate and designed to facilitate pedestrian movement through the project and create a safe environment for all potential users (pedestrian, bicycle, and disabled) from obstacles and automobiles. Pedestrian walkways shall be created to connect all buildings throughout the project. The walkways shall create a safe and inviting walking environment for people wishing to walk from one building to another. Walkways shall be installed to direct pedestrians from the street sidewalk to the buildings. Safe and convenient pathways shall be provided for pedestrian movement in large parking lots. Mid-block paths shall be installed to facilitate pedestrian movement through long blocks (over 500 feet in length) and cul-de-sacs. Sidewalks shall be designed for high visibility (brightly painted, different color of concrete, etc.) when crossing parking lots, streets, and similar vehicle paths. Pathways through the project shall be built in anticipation of future growth/development.			
■ Exits to adjoining streets shall be designed to reduce time to re-enter traffic from the project site.			
■ Efficient interior circulation and pedestrian access within the project area and logical connection points for future development on the surrounding properties shall be provided.			
■ Measures shall be implemented to reduce the amount of vehicle traffic to and from the residential area(s) that further reduce air pollution in the SVAB. This could include providing an information center for residents to coordinate carpooling.			
■ As many energy-conserving features as possible shall be incorporated into the design and operation of the proposed project. These include:			
❑ increased energy efficiency;			

Mitigation Measure	Timing	Implementing Party	Monitoring Party
❑ increased wall and ceiling insulation (beyond building code requirements);			
❑ energy-efficient windows (double-paned or Low-E);			
❑ high-albedo (reflecting) roofing materials;			
❑ cool paving;			
❑ radiant heat barriers;			
❑ energy-efficient lighting, appliances, and heating and cooling systems;			
❑ installation of solar water-heating systems;			
❑ provide low NO_x-emitting or high-efficiency, energy-efficient water heaters;			
❑ installation of clean-energy features that promote energy self-sufficiency (e.g., photovoltaic cells, solar thermal electricity systems, small wind turbines);			
❑ installation of geothermal heat pump systems;			
❑ installation of programmable thermostats for all heating and cooling systems;			
❑ awnings or other shading mechanisms for windows;			
❑ porch, patio, and walkway overhangs;			
❑ ceiling fans or whole-house fans;			
❑ passive solar cooling and heating designs (e.g., natural convection, thermal flywheels);			
❑ daylighting (natural lighting) systems such as skylights, light shelves, and interior transom windows;			
❑ electrical outlets around the exterior of units to encourage the use of electric landscape maintenance equipment;			
❑ bicycle parking facilities for patrons and employees in covered secure areas (shall be conveniently located at each destination point);			
❑ use of low and no-VOC coatings and paints;			
❑ natural gas fireplaces (instead of wood burning fireplaces or heathers) and natural gas lines (if available to the project area) in backyard or patio areas to encourage the use of gas barbecues;			
❑ on-site employee cafeterias or eating areas;			
❑ pre-wire units with high-speed modem connections/DSL and extra phone lines;			
❑ employee shower and locker areas for bicycle and pedestrian commuters; and			

Mitigation Measure	Timing	Implementing Party	Monitoring Party
❑ use of low or nonpolluting landscape maintenance equipment (e.g., electric lawn mowers, reel mowers, leaf vacuums, electric trimmers and edgers).			
BIOLOGICAL RESOURCES			
Mitigation Measure BIO-1a: Install Construction Barrier Fencing to Protect Sensitive Biological Resources Adjacent to Construction Zone The project proponent will install orange construction barrier fencing to identify environmentally sensitive areas to be avoided. The construction specifications will require that a qualified biologist identify sensitive biological habitat onsite and identify areas to avoid during construction. Sensitive resources that occur in the construction area, including staging and access, should be fenced off to avoid disturbance in these areas. Sensitive resources that occur in and adjacent to the construction area include Fourteen Mile, Fivemile, Mosher, and Disappointment Sloughs, an unnamed agricultural ditch between Mosher and Fivemile Slough, and oak trees. Other sensitive resources that may occur in the project area include western pond turtle nests, raptor nests, and special-status plants. Before construction, the construction contractor will identify the locations for the barrier fencing and place stakes around the sensitive resource sites to indicate their locations where possible. The protected areas will be designated as environmentally sensitive areas and clearly identified on the construction specifications. The fencing will be installed before construction activities are initiated and will be maintained throughout the construction period.	Prior to and during construction	Project proponent and construction contractor	City of Stockton
Mitigation Measure BIO-1b: Avoid and Minimize Potential Indirect Disturbance of Oak Trees To the extent possible, the project proponent will avoid and minimize potential indirect disturbance of oak trees to be preserved in the project area by implementing the following measures: ■ To protect nesting birds, the project proponent will not allow pruning or removal of oak trees between March 1 and August 15. ■ A certified arborist will be retained to perform any necessary pruning or root cutting of oak trees to be preserved. ■ The areas that undergo vegetative pruning and tree removal will be inspected immediately before construction, immediately after construction, and 1 year after construction to determine the amount of existing vegetative cover, cover that has been removed, and cover that resprouts. If after 1 year these areas have not resprouted sufficiently to return the cover to the preproject level, the contractor will replant the areas with the same species to reestablish the cover to the preproject condition.	Prior to and during construction	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
Mitigation Measure BIO-1c: Conduct a Preconstruction Tree Survey Prior to construction of each phase of the project, the project proponent will retain a botanist or certified arborist to conduct a tree survey to document the species, size, and location of all heritage trees in the construction area.	Prior to each phase of construction	Project proponent	City of Stockton
Mitigation Measure BIO-1d: Compensate for Removal of Oak Trees The project proponent will design the project to preserve as many heritage oak trees as feasible. The project proponent will replace all heritage trees identified for removal or with disturbance within their driplines. According to the provisions of the Stockton Heritage Tree Ordinance, the project proponent will obtain a tree removal permit for removal of all unavoidable heritage trees. The permit application requires specific information for each tree that will be obtained during the preconstruction tree survey (discussed above). The trees removed from the project area will be replaced on the project site to the extent feasible on a one-for-one basis using 24-inch boxed trees. The total required replacement will be based on the preconstruction tree survey and identification of unavoidable heritage trees in the project area. If feasible, replacement trees will be grown from acorns collected from the project site or within 10 miles of the project location. A 3-year monitoring and maintenance plan for the trees will be required. The expectation is that there will be 100% survival of the replacement trees at the end of 3 years. At least 50% of the total required compensation will be planted onsite. For tree replacement that cannot be accommodated on the project site, the project proponent will provide trees for planting offsite within a city park. No more than 50% of the total tree compensation will be accomplished by offsite planting.	Prior to Final Map	Project proponent	City of Stockton
Mitigation Measure BIO-2a: Conduct Preconstruction Surveys for Special-Status Plants Prior to construction of each phase of the project, the project proponent will retain a qualified botanist to document the presence or absence of special-status plants within all areas to be affected by construction, including staging areas. The botanist will conduct floristic surveys in the study area that follow the CNPS Botanical Survey Guidelines (revised Nelson 1987 surveys; approved by the CNPS on June 2, 2001). The survey guidelines require that all species be identified to the level necessary to determine whether they qualify as special-status plants or are plant species with unusual or significant range extensions. The guidelines also require that field surveys be conducted when special-status plants that could occur in the area are evident and identifiable. To observe the three species with moderate potential to occur in the study area (Suisun Marsh aster, rose-mallow, and Mason's lilaeopsis), surveys should be conducted in August. Any special-status plant populations identified during the field surveys will be mapped and documented as part of the public record. The project proponent will implement Mitigation	Prior to each phase of construction	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
Measure BIO-2b in conjunction with this mitigation measure to avoid or minimize significant impacts on special-status plants.			
Mitigation Measure BIO-2b: Avoid or Compensate for Impacts on Special-Status Plant Populations Consistent with SJMSCP The project proponent will implement the following measures to avoid and minimize impacts on special-status plants. ■ If one or more special-status plants are identified in the project area during preconstruction surveys, the project proponent will first attempt to avoid the plants and preserve the populations, including a 200-foot buffer area, in accordance with the provisions of the SJMSCP (Section 5.5.9-F). ■ If avoidance is not feasible, the project proponent will compensate for the loss of area occupied by special-status plants in accordance with the SJMSCP (Sections 5.2.4.29 and 5.3.1). The specific compensation ratio will depend on the underlying habitat type converted from open-space use consistent with the SJMSCP (Section 5.3.1).	Prior to construction	Project proponent	City of Stockton
Mitigation Measure BIO-3a: Avoid and Minimize Disturbance of Waters of the United States To the extent possible, the project proponent will minimize impacts on waters of the United States by implementing the following measures: ■ Construction activities in saturated or ponded waters during the wet season (spring and winter) will be avoided to the maximum extent possible. ■ During construction, trees, shrubs, debris, or soils that are inadvertently deposited below the high-tide line of the sloughs will be removed in a manner that minimizes disturbance of the slough. ■ All construction-related activities will be completed promptly to minimize their duration and resulting impacts. ■ Construction inspectors will routinely inspect protected areas to ensure that protective measures are in place and effective. ■ All protective measures will remain in place until all construction activities near the resource have been completed and will be removed immediately following construction activities.	Prior to and during construction	Project proponent	City of Stockton
Mitigation Measure BIO-3b: Implement Resource Protection/Impact Minimization Measures Identified in Federal, State, and Local Permits Before any construction activities are initiated and designs are finalized, the project proponent will obtain the following permits: ■ CWA Section 404 NWP from the Corps;	Prior to grading permit	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
■ CWA Section 401 water quality certification from the Central Valley RWQCB (all Section 404 permits require Section 401 water quality certification); ■ CWA Section 402/NPDES permit from SWRCB, requiring preparation of a SWPPP; ■ report of waste discharge to obtain WDRs, depending on RWQCB requirements; ■ Rivers and Harbors Act Section 10 permit; ■ CFGC 1602 streambed alteration agreement from DFG; and ■ a biological opinion or letter of concurrence from the USFWS, through ESA Section 7 with the Corps as the federal lead agency, if it is determined that there could be adverse effects on federally threatened or endangered species (e.g., VELB, giant garter snake). Copies of these permits will be provided to the contractor with the construction specifications. The project proponent will be responsible for ensuring compliance with the conditions set forth in these permits.			
Mitigation Measure BIO-3c: Compensate for the Loss of Waters of the United States The project proponent will compensate for permanent impacts on waters of the United States, as determined by the Corps, to ensure no net loss of habitat functions and values. The compensation will be provided at a minimum ratio of 1:1 (1 acre restored or created for every 1 acre filled), but final compensation ratios will be based on site-specific information and determined through coordination with state and federal agencies as part of the permitting process for the project. Compensation may be a combination of onsite restoration and creation, offsite restoration, mitigation credits.	Prior to grading permit	Project proponent	City of Stockton
Mitigation Measure BIO-4a: Compensate for Loss of Agriculture Habitat Lands Proponents undertaking new development projects pursuant to the SJMSCP pay the applicable development fee or provide in-lieu land dedication for the conversion of agriculture habitat lands to non-open-space use at a compensation ratio of 1:1 (1 acre preserved for every 1 acre converted to non-open-space use). If participation in the SJMSCP is not possible, the project proponent will secure a conservation easement on appropriate agricultural lands at a ratio of 1:1, and provide an endowment for monitoring and management of those lands in perpetuity.	Prior to grading permit	Project proponent	City of Stockton
Mitigation Measure BIO-5a: Conduct Preconstruction Surveys for Giant Garter Snakes The project proponent will conduct preconstruction surveys for giant garter snakes. The preconstruction surveys will be conducted within 60 calendar days before the start of ground-disturbing activities. If preconstruction surveys under Mitigation Measures BIO-5a or BIO-5b determine that giant garter snakes occupy habitat within the project area, full avoidance of occupied habitat is generally required. However, the conversion of occupied giant garter snake habitat will be	Prior to construction	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
permitted if (1) the project proponent implements Mitigation Measure BIO-5b and receives incidental take authorization from the USFWS under Section 7 or 10 of the federal ESA (authorization may include additional avoidance and minimization measures); or (2) the Habitat Conservation Plan (HCP) JPA, in consultation with the Technical Advisory Committee (TAC) and with the concurrence of the permitting agencies, accomplishes the following: ■ provides alternative documentation to the permitting agencies' representatives on the TAC that the range of the giant garter snake has expanded sufficiently within areas where take is not anticipated, sufficient to allow additional take to occur; ■ such take will not jeopardize the species or adversely modify critical habitat; ■ such take is mitigated and minimized to the maximum extent feasible; and ■ a major plan amendment is undertaken in accordance with SJMSCP Section 8.8.5.			
Mitigation Measure BIO-5b: Implement Take Minimization Measures from SJMSCP for Impacts on Giant Garter Snakes The following minimization measures are required for impacts on potential aquatic giant garter snake habitat. ■ Construction in potential giant garter snake habitat will occur during the active period for giant garter snakes, between May 1 and October 1. ■ Vegetation clearing within 200 feet of the banks of potential giant garter snake aquatic habitat will be limited to the minimal area necessary. ■ The movement of heavy equipment within 200 feet of the banks of potential giant garter snake aquatic habitat will be confined to existing roadways to minimize habitat disturbance. ■ Before ground disturbance, all onsite construction personnel will be given instruction regarding the presence of SJMSCP covered species and importance of avoiding impacts on these species and their habitats. ■ If wetlands, irrigation ditches, marshes, etc. will not be relocated in the vicinity of the project, the aquatic habitat will be dewatered at least 2 weeks before beginning construction. ■ Preconstruction surveys for giant garter snakes (conducted after environmental reviews and before ground disturbance) will occur within 24 hours of ground disturbance. ■ Any other applicable provisions of the USFWS Standard Avoidance and Minimization Measures during Construction Activities in Giant Garter Snake Habitat (U.S. Fish and Wildlife Service 1997) and Section 5.2.48 of the SJMSCP (San Joaquin County 2000) will be implemented.	Prior to and during construction	Project proponent and construction contractor	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
Mitigation Measure BIO-6a: Conduct Preconstruction Surveys for Western Pond Turtles The project proponent will conduct preconstruction surveys for western pond turtles. The preconstruction surveys will be conducted within 60 calendar days before the start of ground-disturbing activities. If preconstruction surveys are positive, the proponent shall implement Mitigation Measure BIO-6b	No more than 60 days prior to the start of ground-disturbing activities	Project proponent	City of Stockton
Mitigation Measure BIO-6b: Implement Take Minimization Measures from the SJMSCP for Impacts on Western Pond Turtles If nesting areas for western pond turtles are identified in the study area during preconstruction surveys, a buffer of 300 feet will be established between the nesting site (which may be immediately adjacent to wetlands or extend up to 400 feet away from wetland areas in uplands) and the wetland located near the nesting site in order to minimize take of turtles. These buffers will be indicated by temporary fencing if construction begins before the nesting periods end (from egg laying to emergence of hatchlings is normally from April to November).	Prior to and during construction, nesting period from April to November	Project proponent	City of Stockton
Mitigation Measure BIO-7a: Conduct Preconstruction Surveys for Swainson's Hawks The project proponent will conduct preconstruction surveys for nesting Swainson's hawks. The preconstruction surveys will be conducted within 60 calendar days before the start of ground-disturbing activities. If preconstruction surveys are positive, the proponent shall implement Mitigation Measure BIO-7b.	No more than 60 days prior to the start of ground-disturbing activities	Project proponent	City of Stockton
Mitigation Measure BIO-7b: Implement Take Minimization Measures from the SJMSCP for Impacts on Nesting Swainson's Hawks The project proponent has the option of retaining potential Swainson's hawk nest trees or removing the potential nest trees. If the project proponent elects to retain a nest tree and to encourage nest retention, the following incidental take minimization measure will be implemented during construction. ■ If a nest tree becomes occupied during construction activities, all construction activities will remain a distance of two times the dripline of the tree, measured from the nest. ■ If the project proponent elects to remove a nest tree, nest trees may be removed between September 1 and February 15, when nests are unoccupied.	Prior to and during construction, between September 1 and February 15	Project proponent	City of Stockton
Mitigation Measure BIO-8a: Conduct Preconstruction Surveys for Western Burrowing Owls The project proponent will conduct preconstruction surveys for western burrowing owls. The preconstruction surveys will be conducted within 60 calendar days before the start of ground-disturbing activities.	No more than 60 days prior to the start of ground-disturbing activities	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
Mitigation Measure BIO-8b: Implement Take Minimization Measures from SJMSCP for Impacts on Burrowing Owls The presence of ground squirrels and their burrows are attractive to burrowing owls. In order to discourage burrowing owls from entering or occupying construction areas and therefore being harmed, the project proponent may discourage the presence of ground squirrels. To accomplish this, the project proponent could prevent ground squirrels from occupying the study area early in the planning process by employing one of the following practices. ■ The project proponent may plant new vegetation or retain existing vegetation entirely covering the site at a height of approximately 36 inches above the ground. Vegetation should be retained until construction begins. Vegetation will discourage ground squirrel and burrowing owl use of the site. ■ If burrowing owls are not known to occur or suspected on the project site and the area is an unlikely occupation site for California red-legged frogs, San Joaquin kit fox, or California tiger salamanders, the project proponent may disc or plow the entire project site to destroy any ground squirrel burrows. At the same time burrows are destroyed, ground squirrels should be removed through one of the following approved methods to prevent reoccupation of the project site. Rodenticides and fumigants will be used in compliance with EPA label standards and as directed by the San Joaquin County Agricultural Commissioner. ❑ **Anticoagulants.** Bait stations will be established using the approved rodenticide anticoagulants chlorophacinone or diphacinone. ❑ **Zinc Phosphide.** Bait stations will be established with non-treated grain 5 to 7 calendar days in advance of rodenticide application. Zinc phosphide will then be applied to the bait stations. ❑ **Fumigants.** Below-ground gas cartridges or pellets and seal burrows will be used. Approved fumigants include aluminum phosphide (fumitoxin or photoxin) and gas cartridges sold by the local Agricultural Commissioner's office. If preconstruction surveys determine that burrowing owls occupy the project site, the following measures will be implemented. ■ During the nonbreeding season (September 1 through January 31), burrowing owls occupying the project site should be evicted from the project site by passive relocation as described in the DFG's Staff Report on Burrowing Owls (1995). ■ During the breeding season (February 1 through August 31), occupied burrows will not be disturbed and will be provided with a 75-meter protective buffer until and unless the TAC, with the concurrence of the permitting agencies' representatives on the TAC, or a qualified biologist approved by the permitting agencies, verifies through noninvasive means that the birds have not begun egg laying or that the juveniles from the occupied burrows are foraging	Prior to and during construction, September 1 through January 31, February 1 through August 31	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
independently and are capable of independent survival. Once fledglings are capable of independent survival, the burrows can be destroyed.			
Mitigation Measure BIO-9a: Conduct Preconstruction Surveys for Northern Harriers The project proponent will conduct preconstruction surveys for nesting northern harriers. The preconstruction surveys will be conducted within 60 calendar days before the start of ground-disturbing activities. If preconstruction surveys are positive, the proponent will implement Mitigation Measure BIO-9b.	No more than 60 days prior to the start of ground-disturbing activities	Project proponent	City of Stockton
Mitigation Measure BIO-9b: Implement Take Minimization Measures from SJMSCP for Impacts on Nesting Northern Harriers In the unlikely event that preconstruction surveys determine that northern harriers are nesting within the study area, a setback of 500 feet will be established and maintained around the nest during the nesting season (typically February through August) until the fledglings leave the nest. This setback applies whenever construction or ground-disturbing activities must begin during the nesting season. Setbacks will be delineated by brightly colored temporary fencing.	During construction, February through August	Project proponent and construction contractor	City of Stockton
Mitigation Measure BIO-10a: Conduct Preconstruction Surveys for Loggerhead Shrikes, Cooper's Hawks, and White-Tailed Kites The project proponent will conduct preconstruction surveys for nesting loggerhead shrikes, Cooper's hawks, and white-tailed kites. The preconstruction surveys will be conducted within 60 calendar days before the start of ground-disturbing activities. If preconstruction surveys are positive, the proponent shall implement Mitigation Measure BIO-10b.	No more than 60 days prior to the start of ground-disturbing activities	Project proponent	City of Stockton
Mitigation Measure BIO-10b: Implement Take Minimization Measures from SJMSCP for Impacts on Nesting Loggerhead Shrikes, Cooper's Hawks, and White-Tailed Kites If preconstruction surveys determine that loggerhead shrikes, Cooper's hawks, or white-tailed kites are nesting within the study area, a setback of 100 feet from the nests will be established and maintained during the nesting season (typically February through August) until the fledglings leave the nest. This setback applies whenever construction or ground-disturbing activities must begin during the nesting season. Setbacks will be delineated by brightly colored temporary fencing.	During construction, February through August or as determined	Project proponent and construction contractor	City of Stockton
Mitigation Measure BIO-12a: Conduct Preconstruction Surveys for California Black Rails The project proponent will conduct preconstruction surveys for nesting California black rails to determine the necessity of establishing incidental take minimization measures as conditions of project approval. The preconstruction surveys will be conducted within 60 calendar days before the start of ground-disturbing activities. If preconstruction surveys are positive, the proponent will implement Mitigation Measure BIO-12b.	No more than 60 days prior to the start of ground-disturbing activities	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
Mitigation Measure BIO-12b: Implement Take Minimization Measures from the SJMSCP for Indirect Impacts to Nesting California Black Rails Should nesting California black rails be identified through Mitigation Measure BIO-12a, a condition of project approval will be attached to require the location of new marina activities no closer than 200 feet from known breeding sites when such sites have been occupied by breeding black rails within the past 3 years. The project proponent will post approaches into and out of the new marina as a "no wake speed" zone within 300 feet of occupied breeding sites during the breeding season (February 1 through August 30). This requirement is not necessary from September 1 through January 30.	Prior to project approval, February 1 through August 30	Project proponent	City of Stockton
Mitigation Measure BIO-13a: Conduct Preconstruction Surveys for Yuma Myotis The project proponent will conduct preconstruction surveys for roosting Yuma myotis. The preconstruction surveys will be conducted within 60 calendar days before the start of ground-disturbing activities. If preconstruction surveys are positive, the proponent will implement Mitigation Measure BIO-13b.	No more than 60 days prior to the start of ground-disturbing activities	Project proponent	City of Stockton
Mitigation Measure BIO-13b: Implement Take Minimization Measures from the SJMSCP for Impacts to Roosting Yuma Myotis- When Yuma myotis roost sites must be removed, removal will occur outside the nursery season (May through August) and during dusk or evening hours after the bats have left the roosting site.	Prior to and during construction, September through April	Project proponent	City of Stockton
Mitigation Measure BIO-14a: Avoid Impacts on Fish Habitat The following minimization measures would be implemented as consistent with permitting requirements to decrease impacts on fish habitat: ■ avoid disturbance and removal of aquatic vegetation to the maximum extent feasible; ■ replant native aquatic vegetation (i.e., tules) at another site along the shoreline of the site at a replacement ratio of 1:1 if aquatic vegetation is removed; ■ limit the duration and extent of in-water work to the minimum necessary to complete the work; and ■ install rock slope protection and other bank protection on the banks or outside the wetted channel to the maximum extent practicable.	Prior to and during construction	Project proponent and construction contractor	City of Stockton
Mitigation Measure BIO-15a: Place Surplus Excavated Material Outside OHWM Placement of surplus excavated material should be outside the OHWM and end-hauled to an approved disposal site.	During construction	Project proponent and construction contractor	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
Mitigation Measure BIO-16a: Avoid Water Quality Degradation during Construction Increased pollutant input to all of the sloughs surrounding the Shima Tract would be avoided or minimized by requiring contractors to: ■ prevent raw cement, concrete, concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life from contaminating the soil or entering watercourses; ■ establish a spill prevention and countermeasure plan before project construction that includes strict onsite handling rules to keep construction and maintenance materials out of drainages and waterways; ■ clean up all spills immediately according to the spill prevention and countermeasure plan and notifying the DFG and NOAA Fisheries immediately of any spills and cleanup activities; ■ provide areas outside the OHWM for staging and storing equipment, materials, fuels, lubricants, solvents, and other possible contaminants; ■ remove vehicles from below the OHWM before refueling and lubricating; and ■ implement measures to avoid or minimize the effects of increased sediment input that would avoid and minimize increased input of pollutants associated with sediments (e.g., mercury) and the potential for subsequent effects on fish.	Prior to and during construction	Project proponent and construction contractor	City of Stockton
Mitigation Measure BIO-19a: Employ Measures to Minimize Sound and Disturbance Effects The developer or its contractor will develop and implement measures to minimize disturbance to migrating fish and the effects of sound. These measures may include restricting the timing of in-water work to periods when migrating fish are less likely to be present (June through September), employing a hammer type that is less likely to produce pressure waves that are damaging to fish, or deploying a bubble curtain for all impact pile-driving. The precise methods to mitigate sound and disturbance effects would be developed based on the specifics of the construction and in consultation with the resource agencies (e.g., NOAA Fisheries, USFWS, DFG).	Prior to and during construction	Project proponent and construction contractor	City of Stockton
CULTURAL RESOURCES			
Mitigation Measure CR-1a: Conduct Test Excavations at Camps 7 and 8 and Evaluate Resources for Eligibility for Listing in the CRHR Test excavations guided by the existing research design (Jones & Stokes 2006) will be implemented before project construction. These excavations will likely include the excavation of mechanical trenches to locate subsurface deposits, followed by manual excavation if necessary, to further characterize the deposits. Materials recovered from these sites will be analyzed and the archaeological deposits evaluated for eligibility for listing in the CRHR. If these resources are	Prior to grading permit	Project proponent	City Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
eligible for listing in the CRHR, mitigation measures will include, at a minimum, consultation with the City and other appropriate agencies, further research, oral histories, data recovery excavations, and creation of interpretive materials.			
Mitigation Measure CR-2a: Stop Work if Buried Cultural Resources are Discovered during Construction The project applicant and its construction contractor will take the steps specified below during project construction. If buried cultural resources such as chipped or ground stone, historic debris, building foundations, or bone are discovered during ground-disturbing activities, work will stop in that area and within 100 feet of the find until an archaeologist who meets the Secretary of the Interior's qualification standards can assess the significance of the find. If such resources are discovered during project activities, the work foreman shall ensure that all activities that have the potential to damage the remains are stopped. The City and lead federal agency shall be notified immediately. A qualified archaeologist shall determine whether the remains meet the criteria for listing on the NRHP or CRHR or are considered to be a unique archaeological site under CEQA. Resources that are determined to be eligible for the NRHP or CRHR or are unique resources under CEQA will require the development of appropriate treatment measures in consultation with the City, State Historic Preservation Officer, and other appropriate agencies. Appropriate treatment measures may include development of avoidance or protection methods, archaeological excavations to recover important information about the resource, research, or other actions determined during consultation. The specific treatment measures shall be determined through consultation between these agencies.	During construction	Project proponent and construction contractor	City of Stockton
Mitigation Measure CR-3a: Stop Work in Event of Fossil Discovery If paleontological resources such as fossilized bone, plants, impressions, or tracks are discovered during excavation operations for site development, work will cease within 100 feet of the find. A qualified paleontologist (master's degree in paleontology or geology) will be called to the site to evaluate the find and determine the significance of the fossil. If it is determined to be potentially significant (i.e., of paleontological significance), the paleontologist will document and recover the fossil from the site and submit it to an appropriate museum or other repository for curation.	During construction	Project proponent and construction contractor	City of Stockton
Mitigation Measure CR-4a: Comply with State Laws Relating to Native American Remains If human remains of Native American origin are discovered during project construction, it will be necessary to comply with state laws relating to the disposition of Native American burials, which fall under the jurisdiction of the NAHC (PRC 5097). If any human remains are discovered or recognized in any location other than a dedicated cemetery, the City will be contacted and there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:	During construction	Project proponent and construction contractor	City of Sacramento

Mitigation Measure	Timing	Implementing Party	Monitoring Party
■ the San Joaquin County coroner has been informed and has determined that no investigation of the cause of death is required, or ■ if the remains are of Native American origin: ❑ the descendents of the deceased Native Americans have made a recommendation to the landowner or 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 PRC 5097.98, or ❑ the NAHC is unable to identify a descendant or the descendant fails to make a recommendation within 24 hours after being notified by the NAHC. According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the NAHC.			
GEOLOGY, SOILS, AND SEISMICITY			
Mitigation Measure GEO-3a: Implement Liquefaction Minimization Methods to Prevent Localized Liquefaction Zones The project applicant shall conduct geotechnical and geologic investigations during final design, including field excavation and laboratory testing, to provide site-specific geotechnical conclusions and recommendations for design and construction of the proposed facilities and levees. If liquefiable soils or soils susceptible to seismically induced settlement are determined to be present at any location, corrective actions shall be taken, including removal and replacement of soils, onsite densification, grouting, design of special foundations, or other similar measures, depending on the extent and depth of susceptible soils. All of these measures reduce pore water pressure during groundshaking by densifying the soil or improving its drainage capacity (Johansson 2000). The project applicant or its contractor will select one or more of these measures in consultation with a qualified engineer before activities begin.	Prior to approval of final levee design.	Project proponent	City of Stockton
Mitigation Measure GEO-4a: Comply with the Geotechnical Report Recommendations from the Kleinfelder 2004 geotechnical report pertaining to site clearing and preparation, organic removal, and site drainage shall be incorporated into the project design to minimize any negative effects associated with erosion and sedimentation.	Prior to grading permit	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
Mitigation Measure GEO-5a: Implement Corrective Actions Identified as Part of Geotechnical Report The project applicant shall implement special engineering techniques such as using reinforced steel in foundations, using drainage control devices, or overexcavating and backfilling with nonexpansive soil during construction activities to minimize the risk of structural loss, injury, or death. The proposed residences could also be supported on post-tensioned slab foundations designed to resist or span the expansive soil. Recommendations for post-tensioned slabs are presented in Section 8.5 of the Kleinfelder geotechnical report (2004). The project applicant or its contractor will select one or more of these measures in consultation with a qualified engineer and the City Engineer before activities begin.	Prior to and during construction	Project proponent and construction contractor	City of Stockton
HAZARDS AND HAZARDOUS MATERIALS			
Mitigation Measure HAZ-2a: Develop and Implement Plans to Reduce Exposure to Hazardous Conditions The applicant will implement measures to prevent the pollution of surface water and groundwater, and to promote the health and safety of workers and other people in the project vicinity. Specific measures will include an operations and maintenance plan, site-specific safety plan, and fire prevention plan, in addition to the SWPPP required for impacts on hydrology. These programs are required by law and will require approval by several responsible agencies, as described below. A notice of intent to comply with the state's general permit will be filed with the SWRCB and the SWPPP will be approved by the City of Stockton Municipal Utilities Department. Generally accepted best management practices (BMPs) shall be implemented under the SWPPP, including erosion and dust control measures, construction dewatering maintenance, and revegetation where appropriate. The site-specific safety plan and operations and maintenance plan will be approved by Cal-OSHA. The fire safety plan will be approved by the local fire department. The applicant will also develop and implement a hazardous materials management plan that addresses public health and safety issues by providing safety measures, including release prevention measures; employee training, notification, and evacuation procedures; and adequate emergency response protocols and cleanup procedures. The applicant will also comply with Cal-OSHA and federal standards for the storage and handling of fuels, flammable materials, and common construction-related hazardous materials, and for fire prevention. Cal-OSHA requirements are found in the California Labor Code, Division 5, Chapter 2.5. Federal standards are found in Occupational Safety and Health Administration Regulations, Standards (29 CFR).	Prior to construction	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
Mitigation Measure HAZ-2b: Follow City of Stockton Fire Department and Other Guidelines for Storage and Handling of Hazardous Materials The City shall require that contractors transport, store, and handle hazardous materials required for construction in a manner consistent with relevant regulations and guidelines, including those recommended and enforced by the City of Stockton Fire Department.	During construction	Construction contractor	City of Stockton
Mitigation Measure HAZ-2c: Immediately Contain Spills, Excavate Spill-Contaminated Soil, and Dispose of It at Approved Facility In the event of a spill of hazardous materials in an amount reportable to the City of Stockton Fire Department (as established by fire department guidelines), the contractor shall immediately control the source of the leak and contain the spill. If required by the fire department or other regulatory agencies, contaminated soils will be excavated and disposed of offsite at a facility approved to accept such soils.	Prior to and during construction	Construction contractor	City of Stockton
Mitigation Measure HAZ-2d: Screen Surface Soils in Project Area for Residuals from Agricultural Chemicals To reduce the potential for human exposure to potentially harmful pesticide and fertilizer residues in areas with potential for these residues as identified by the Phase I Site Assessment (Kleinfelder 2005), surface soils in the area shall be sampled or field-screened by a qualified hazardous materials consultant for residuals from agricultural chemicals (fertilizers and pesticides) during construction. The San Joaquin County Environmental Health Department shall review the results of soils sampling or screening and shall identify appropriate handling in accordance with the department's guidelines. If soil sampling or field screening indicates the presence of hazardous concentrations of agricultural chemicals, then the use of appropriate personal protective gear shall be required when working within or adjacent to agricultural lands during the 30 days following the application of agricultural chemicals.	During construction	Project proponent	City of Stockton
Mitigation Measure HAZ-2e: Adopt Utility Avoidance Measures Recommended by Underground Service Alert Evaluation During the design phase of the proposed project, before breaking ground, the project proponent will solicit an evaluation of the project site by Underground Service Alert (USA), which provides a free "Call Before You Dig" service to all excavators (contractors, homeowners, etc.), in central and northern California. A call to USA will automatically notify all USA members who may have underground facilities at the work site. In response, the members will mark or stake the horizontal path of the underground facilities, provide information about them, or give clearance to dig. This measure will ensure that construction workers, the public, and the environmental are protected from potential injury and hazards associated with the 110-kV power line that may be located underground on the site, as well as any other unidentified underground lines.	Prior to grading permit	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
Mitigation Measure HAZ-8a: Develop an Emergency Evacuation Plan or Include the Project in the City's Emergency Response Plan To reduce the risk of loss, injury, or death due to inundation, an emergency response plan will be created in coordination with all appropriate regulatory agencies, or the proposed project will be included in the City's emergency response plan. The emergency response plan shall, at a minimum, identify all secure evacuation routes and emergency response agencies, maintain emergency notification procedures, notify residents ahead of time about emergency procedures, and designate lead and supporting agencies before, during, and after an emergency. This will include coordination with the City and County's offices of Emergency Services and implementation of the Standardized Emergency Management System (SEMS) and protocols in the County's Multi Hazard Emergency Plan (San Joaquin County Office of Emergency Services 2001). Implementation of these measures will help ensure that the loss of life and property is minimized in the event of a levee failure.	Prior to grading and/or permit	Project proponent	City of Stockton
HYDROLOGY AND WATER QUALITY			
Mitigation Measure HYD-1a: Implement Provisions for Work in Surface Waters Where year-round flows are present, the contractor shall implement measures to protect surface water quality, such as flow diversions, impoundments (e.g., coffer dams), silt curtains, or other methods to avoid the direct exposure of surface water to sediment or other contaminants created as part of construction activity. As a performance standard, the measures shall maintain Basin Plan standards for turbidity, listed below. ■ Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU. ■ Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20%. ■ Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs. ■ Where natural turbidity is greater than 100 NTUs, increases shall not exceed 1%. ■ Where the project has potential to result in elevated turbidity, monitoring shall be performed at least twice daily at locations 500 feet upstream and downstream to determine whether the standards outlined above have been met. In the event that they are not being met, the turbidity-generating activities shall cease until turbidity is within the identified limits, and construction methods or turbidity control measures shall be modified to ensure that turbidity limits continue to be met.	During construction	Project proponent and construction contractor	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
Mitigation Measure HYD-1b: Develop and Implement a Frac-Out Contingency Plan for Jack-and-Bore Activities For tunneling activities that use drilling lubricants (e.g., construction of pipelines using jack-and-bore methods), contractors shall prepare and implement a frac-out contingency plan that is intended to minimize the potential for a frac-out associated with tunneling activities, provide for the timely detection of frac-outs, and ensure an organized, timely, and "minimum-impact" response in the event of a frac-out and release of drilling lubricant (i.e., bentonite). The contingency plan will require, at a minimum, the following measures. ■ A full-time monitor will attend all drilling to look for observable frac-out conditions or lowered pressure readings on drilling equipment. ■ If a frac-out is identified, all work will stop, including the recycling of drilling lubricant. In the event of a frac-out into water, the pressure of water above the tunnel will keep excess mud from escaping through the fracture. The location and extent of the frac-out will be determined, and the frac-out will be monitored for 4 hours to determine whether the drilling lubricant congeals (bentonite will usually harden, effectively sealing the frac-out location). ■ If the drilling lubricant congeals, no other actions will be taken that potentially suspend sediments in the water column. ■ Surface releases of bentonite will be allowed to harden and then will be removed. The contingency plan will identify additional measures to be taken to contain or remove the drilling lubricant if it does not congeal.	During construction	Construction contractor	City of West Sacramento
Mitigation Measure HYD-3a: Implement Measures to Maintain Water Quality During Dredging Prior to engaging in any construction-related or maintenance dredging or dredge disposal, the contractor(s) shall apply for and obtain necessary permits from the Central Valley RWQCB. As part of the permit, the contractors shall: 1. Perform sampling and analysis of the dredge materials, and dredge disposal sites, to determine baseline sediment quality and the potential for water quality impacts associated with dredging and dredge disposal. Laboratory analysis shall include priority pollutants, Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), ammonia, pH, and aquatic toxicity bioassays. 2. Implement measures to control the release of sediment to waterbodies during dredging by installing a sheet-pile cofferdam or another method that will control turbidity to the specifications listed below. This will ensure that construction activities result in minimal increases in turbidity or suspended solids, and will limit the potential for impacts on dissolved oxygen (DO), turbidity, and contaminants outside of the immediate construction area.	Prior to dredging	Construction contractor	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
3. Monitor turbidity and suspended solids during the installation and removal of the cofferdam at distances of 250 feet upstream and downstream of the project site based on tidal phase and direction of river flow. In addition, during the first week of construction following cofferdam installation, turbidity shall be monitored in a similar fashion to ensure the effectiveness of the cofferdam. Measurements will be taken three times per day during construction period. Basin Plan standards for turbidity state that project activities will not cause an increase in ambient river turbidity by more than 20% above background turbidity (Central Valley Regional Water Quality Control Board 1998). If turbidity violates the Basin Plan standard described above, operations will stop and the Central Valley RWQCB will be notified. Investigation of the cause of the significant turbidity increase will be conducted and corrections made in construction operations where applicable. If necessary, the frequency and duration of monitoring may be revised in coordination with the Central Valley RWQCB as part of the NPDES permit process. This mitigation measure is subject to alteration through negotiations of the requested permits from the Corps, DFG, and Central Valley RWQCB. 4. Develop a plan for dredge disposal that ensures that dredge materials or associated decant water do not lead to violations of water quality standards at the disposal site. Measures shall include retention of water and sediment for holding and/or treatment, removal and placement of water and/or sediment to an approved receiving location, and on-site treatment of water and/or soils with treatment technologies such as filtration and neutralization. As a performance standard, dredging and dredge disposal activities shall not exceed relevant water quality standards, including the California Toxics Rule, Basin Plan Water Quality Objectives, aquatic toxicity thresholds, and Title 22 drinking water standards, and avoid cumulative loading of 303(d)-listed impairments.			
Mitigation Measure HYD-4a: Design and Construct Marina Facilities to Avoid Flooding Impacts Marina facilities shall be designed and constructed to withstand periodic flooding of the surrounding sloughs and to avoid increasing base flood elevations along the various sloughs. As a performance standard, these facilities shall be constructed such that they would not be damaged or increase flooding during 100-year flood conditions, they would not increase exposure to 100-year flooding (such as increased flood surface elevations and/or landside flooding), or otherwise compromise the integrity and/or ability to maintain the flood control system. A qualified civil engineer would need to be contacted to evaluate flood issues associated with development of the water-side of the levee and, if necessary, identify specific mitigation measures, such as increasing the height of structures (pilings and buildings) to ensure compliance with flood control standards, in addition to implementing any applicable measures for levee protection that may be recommended by the Levee Assessment Seepage Geotechnical and Geomorphic Study conducted for the project area levees, including specific design measures.	Prior to Approval of permits for marina facilities	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
Mitigation Measure HYD-5a: Prepare and Implement a Drainage Master Plan As part of the infrastructure plan, the developer shall prepare and implement a drainage master plan. This plan shall address the following topics. ■ A calculation of pre-development runoff conditions and post-development runoff scenarios using appropriate engineering methods. This analysis will evaluate potential changes to runoff through specific design criteria, and account for increased surface runoff. ■ An assessment of existing drainage facilities within the project area, and an inventory of necessary upgrades, replacements, redesigns, and/or rehabilitation, including the sizing of on-site stormwater detention features and pump stations. ■ A description of the proposed maintenance program for the onsite drainage system. ■ Standards for drainage systems to be installed on a project/parcel-specific basis. ■ Proposed design measures to ensure structures are not located within 100-year floodplain areas. Drainage systems shall be designed in accordance with the City's and other applicable flood control design criteria. As a performance standard, measures to be implemented from those reports shall provide for no net increase in peak stormwater discharge from the island relative to current conditions, ensure that 100-year flooding and its potential impacts are maintained at or below current levels, and that people and structures are not exposed to additional flood risk. The project will implement measures provided in the drainage master plan. Prior to approving specific development projects, the City will require the contractor to demonstrate their project is consistent with the recommendations and conclusions of the drainage master plan and will implement the measures identified in the plan. If the plan does not adequately address the drainage impacts of the specific development, the City will require the contractor to prepare additional analysis and incorporate measures consistent with the scope and performance standards associated with the plan to ensure that drainage and flooding impacts are avoided. As provided in the drainage master plan, stormwater infrastructure will be constructed in the project site area prior to onset of other developments, to collect runoff during and following construction, and to contain flows that could exceed the existing capacity of the drainage system.	Prior to approval of infrastructure plan	Project proponent	City of Stockton
Mitigation Measure HYD-6a: Implement Measures to Maintain Water Quality after Construction The following procedures are from the California Storm Water Best Management Practice Handbooks. Infiltration systems will be designed into the project in order to reduce runoff and restore natural flows to groundwater. These infiltration systems shall be natural or bioengineered systems such as biofilters, vegetative swales, or other appropriate systems. Measures may	Prior to grading permit	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
include, but not be limited to, the following: ■ Retention/detention systems will be installed either under the wood decks or at roof downspouts in order to retain water, which will be released at a later time once pollutants have settled out. ■ Biofilters will be implemented in grass or vegetated swales as part of the project design. This will allow sediments and particulates to filter and degrade biologically. Biofilters are most effective when flows are slow with a shallow depth. Slow flow provides an opportunity for the vegetation to filter sediments and particulates. ■ Structural source controls, such as covers, impermeable surfaces, secondary containment facilities, runoff diversion berms, and diversions to wastewater treatment plants, will be included in the project design. ■ Parking spaces will be designed of pervious materials, such as turf block or unit pavers on sand, crushed aggregate, or concrete under tires only, to reduce runoff. ■ In order to reduce erosion and retain water onsite, organic amendments will be incorporated into disturbed sites after construction and the soil will be covered after revegetation. ■ Designated trash storage areas will be covered to protect bins from rainfall. The measures shall be selected to attenuate the increase in flows from the project site and improve water quality in site runoff to the maximum extent possible, and shall represent the best available technology that is economically achievable. All measures shall be compliant with the City's SWQCCP and shall be subject to the review and approval of the City.			
Mitigation Measure HYD-6b: Develop Management Plan for Onsite Water Features The applicant shall develop and implement a plan for management of the onsite water features to ensure that water quality standards and beneficial uses of these water bodies are met. This plan may address, but not be limited to, the following issues: ■ Manipulation of the hydroperiod to allow for appropriate plant growth. ■ Other vegetation and sediment management activities, such as periodic vegetation and sediment removal every 5–10 years. ■ Control of water residence time and periodic flushing of the water features. ■ Source control of contaminants reaching the water bodies. ■ Measures to reduce the potential for vectors (e.g., mosquitoes). ■ Measures to ensure that groundwater does not become contaminated. ■ Other measures as necessary.	Prior to grading permit	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
The measures identified in the management plan shall conform to a performance standard that meets relevant public health standards and water quality objectives given the beneficial uses of the water body. Implementation of the management plan shall become a requirement of the approval of the project.			
Mitigation Measure HYD-9a: Implement Measures to Maintain Surface and Groundwater Quality Associated with Recycled Water Use The City will ensure that distribution and use of recycled water is conducted in accordance with all applicable rules and regulations governing implementation of a recycled water program. This will include the provision of inspection contractors by the City to enforce the standards and implement a cross-connection control program. The City shall review and approve all of the design, construction, operations, and maintenance documents associated with the recycled water distribution system and use areas, as well as use area control measures. The owners, developers, and/or successors-in-interest shall establish a maintenance entity acceptable to the City to provide funding for the operation, maintenance, and replacement costs of the non-potable water system. Recycled water use will meet all the requirements of the applicable state laws, including the following, as compiled in the June 2001 edition of *California Health Laws Related to Recycled Water—"The Purple Book"* (California Department of Health Services 2001). ■ Health and Safety Code, Division 104, Part 12, Chapter 5, Article 2 (Cross-Connection Control by Water Users), Sections 116800–116820; ■ CCR, Title 22, Division 4, Chapter 3 (Water Recycling Criteria), Sections 60303–60310; and ■ CCR, Title 17, Division 1, Chapter 5, Group 4 (Sanitation [Environmental]/Drinking Water Supplies), Sections 7583–7586 and 7601–7605. In addition, recycled water application will be limited to the agronomic rate, such that applications would not exceed the evapotranspiration rate of the crops under irrigation (i.e., all applied reclaimed water would be taken up by the irrigated plants with no excess runoff). Therefore, the potential for incidental surface runoff or deep percolation to groundwater is considered minimal.	Prior to grading permit	Project proponent	City of Stockton
Mitigation Measure HYD-11a: Require that the Project have Sufficient Interim Water Supplies To ensure that water supply is adequate to support the project, as a condition of project approval, the City shall require that the project does not increase water demand unless and until sufficient water supply exists to serve the increment of demand generated by a particular phase of project development. Sufficient water supply shall be provided by either (1) the DWSP, or (2) an alternative source of water to supply the project. The alternative source of water, if	Prior to issuance of Building Permits	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
implemented, shall be demonstrated to not result in adverse effects such as groundwater overdraft or impacts on other water rights holders. Potential alternative sources of water could include new supply sources (i.e., surface or groundwater supplies) or demand offsets (e.g., installation of low-flow fixtures in existing development, water recycling, etc.). COSMUD must verify that the water supply capacity and infrastructure are in place before the City may issue building permits for construction of each phase of the project.			
Mitigation Measure HYD-13a: Implement Recommendations of Levee Assessment Seepage Geotechnical Study The project applicant conducted a Levee Assessment Study to determine the integrity of the levees within and immediately adjacent to the project area and to determine the possibilities of flooding due to a failure in the levee. This study evaluates the levees with respect to FEMA levee standards (44 CFR 65.10), including requirements related to freeboard, embankment protection, embankment and foundation stability, settlement, interior drainage, and other criteria. The study is included in this document as Appendix J. Based on the results of the study, levee protection measures for the project area shall be designed and implemented to: ■ Maintain, or as necessary, improve the stability of eroding or unstable banks and levee slopes. ■ Maintain, or as necessary, improve access for levee and bank protection maintenance activities. ■ Maintain or improve flood conveyance capacity and reliability. ■ Limit the damage vulnerability of new structures, riparian vegetation, and other improvements (e.g., trails, overlooks, etc.) along the river corridor caused by major floods, and more common high stage river flows. ■ Design riverfront development to minimize or avoid impacts to the flood control system and flood conveyance facilities. ■ Ensure flood protection levees surrounding the entire project site meet current FEMA standards for levee certification, and that the local flood control jurisdiction has the ability to fully maintain and repair all flood protection infrastructure. The level of protection for urban areas should be a 100-year or greater flood protection standard, and include hydraulic capacity with appropriate freeboard as well as levee reliability criteria based on local geotechnical conditions and bank erosion potential. The Reclamation District shall inspect levee condition on an ongoing (i.e., annual) basis for compliance with FEMA standards, and further maintenance shall be conducted as needed to ensure levee integrity and adequate flood protection.	Prior to approval of levee designs	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
LAND USE			
Mitigation Measure AG-4a: Incorporate Short-Term Buffers into Project Phasing For areas of the project site under Williamson Act contract, short-term buffers shall be put in place surrounding those parcels to prevent land use conflicts between agricultural lands still under Williamson Act contract and lands developed with nonagricultural uses. Project design shall identify how the lands within the buffers will be incorporated into the project at the time the Williamson Act contracts expire and development can occur. The short-term buffers can become future parks or trails, or can be incorporated into the development footprint of the lands under Williamson Act contract at the time the buffers were implemented. Buffers shall be located on lands no longer under Williamson Act contract at the time and shall consist of lands used for land uses compatible with adjacent farming operations. Examples of compatible uses include roadways, open space, trails, or parking lots. Examples of incompatible uses include residential uses, schools, and parks designed for active recreation.	Prior to Final Map	Project proponent and construction contractor	City of Stockton
Mitigation Measure BIO-4a: Compensate for Loss of Agriculture Habitat Lands Proponents undertaking new development projects pursuant to the SJMSCP will pay the applicable development fee or provide in-lieu land dedication for the conversion of agriculture habitat lands to non-open-space use at a compensation ratio of 1:1 (1 acre preserved for every 1 acre converted to non-open-space use.	Prior to grading permit	Project proponent	City of Stockton
NOISE			
Mitigation Measure N-1a: Employ Noise-Reducing Construction Practices The construction contractor shall employ noise-reducing construction practices, including: ■ limiting hours of construction to between 7 a.m. and 10 p.m.; ■ locating equipment as far as practical from noise-sensitive uses; ■ using sound control devices such as mufflers on equipment; ■ using equipment that is quieter than standard equipment; ■ selecting haul routes that affect the fewest people; ■ using noise-reducing enclosures around noise-generating equipment; and ■ constructing barriers between noise sources and sensitive land uses or taking advantage of existing barrier features (e.g., terrain, structures) to block sound transmission.	During construction	Project proponent and construction contractor	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
If the construction engineer is unable to mitigate construction-related noise to the City of Stockton's nighttime standard of 45 dBA, L_{eq} between the hours of 10 p.m. and 7 a.m. (Table 3.11-8b), the construction contractor shall cease construction activities and employ additional mitigation measures sufficient to meet the noise levels above or offer to temporarily relocate residents (e.g., providing hotel vouchers).			
Mitigation Measure N-1b: Prepare a Noise Control Plan The construction contractor shall prepare a detailed noise control plan based on the construction methods proposed. This plan will identify specific measurements that will be taken to ensure compliance with the City of Stockton's nighttime standard of 45 dBA, L_{eq} between the hours of 10 p.m. and 7 a.m. (Table 3.11-8b). The plan shall be reviewed and approved by City staff before any noise-generating construction activity begins.	Prior to construction	Construction contractor	City of Stockton
Mitigation Measure N-1c: Disseminate Essential Information to Residences and Implement a Complaint/Response Tracking Program The construction contractor shall notify any residences within 500 feet of the construction areas of the construction schedule in writing before construction. The contractor will designate a noise disturbance coordinator who will be responsible for responding to complaints regarding construction noise. The coordinator will determine the cause of any complaint and ensure that reasonable measures are implemented to correct the problem. A contact telephone number for the coordinator will be conspicuously posted on construction site fences and included in the written notification of the construction schedule sent to nearby residents.	Prior to construction	Construction contractor	City of Stockton
Mitigation Measure N-2a: Employ Noise Control Practices To reduce operational noise impacts from traffic activity, the project applicant shall implement noise control practices to meet City standards (Table 3.11-8). Treatments may include using noise-reducing pavement, constructing soundwalls, constructing berms between noise sources and noise-sensitive receivers, and reducing posted speed limits on major arterial roadways including Aksland Drive and Hammer Lane. The applicant shall retain a qualified acoustical consultant to design the noise control practices to ensure that the City's standards are met.	Prior to and during construction	Project proponent	City of Stockton
Mitigation Measure N-3a: Design New Residential Units to Comply with the Requirements of California Noise Insulation Standards The project applicant shall retain a qualified acoustical consultant to design treatments for the residential units such that interior noise levels comply with the requirements of the California Noise Insulation Standards (Title 25, Chapter 1) so that interior noise levels do not exceed 45 L_{dn}. The design shall meet the City interior noise standard indicated in Table 3.11-8. Treatments may include installing acoustically rated windows and avoiding sound transmission paths through vents or other openings in the building shell. If it is required that windows be closed, forced fresh air ventilation shall be required. The acoustical consultant shall prepare a report detailing the acoustical treatments to be applied to the building for compliance with the interior	Prior to building permit	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
noise standards. The report shall be reviewed and approved by the City before issuance of the building permit.			
Mitigation Measure N-4a: Employ Noise-Reducing Practices into Project Design The project applicant shall ensure that noise-reducing practices are implemented into the design of the proposed project. Practices may include: ■ locating noise-generating activities as far as possible from noise sensitive land uses; ■ constructing barriers, shields, or other types of enclosures to block the line of sight between noise-generating activities and noise-sensitive land uses; ■ limiting hours of operation to reduce noise conflicts between noise-generating activities and noise-sensitive land uses; and ■ prohibiting noise-generating activities between 10 p.m. and 7 a.m. The project applicant shall retain a qualified acoustical consultant to design project components to ensure that project components meet City standards (Table 3.11-8). The acoustical consultant shall prepare a report detailing the acoustical treatments to be applied to the building for compliance with City standards. The report shall be reviewed and approved by the City before issuance of the building permit. In addition, language shall be incorporated into conditions of approval for use permits for components of the proposed project stipulating that City noise standards and requirements shall be met.	Prior to building permit	Project proponent	City of Stockton
PUBLIC SERVICE AND UTILITIES			
Mitigation Measure PSU-9a: Conduct an Investigation of Utility Line Locations and Maintain Utility Services A detailed study identifying locations of utilities along the proposed project alignment shall be conducted during the design phase of the project. For areas with the potential for adverse impacts on utility services, the following measures shall be implemented: ■ Utility excavation or encroachment permits shall be required from the appropriate agencies. These permits include measures to minimize utility disruption. The City and its contractors shall comply with permit conditions. Such conditions shall be included in construction contract specifications. ■ Utility locations shall be verified through a field survey (potholing) and use of the Underground Service Alert services. ■ Detailed specifications shall be prepared as part of the design plans to include procedures for the excavation, support, and fill of areas around utility cables and pipelines. All affected utility services shall be notified of the City's construction plans and schedule. Arrangements shall be made with these entities regarding protection, relocation, or temporary	Prior to grading permit	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
disconnection of services. ■ Residents and businesses in the project area shall be notified of planned utility service disruption 2 to 4 days in advance, in conformance with county and state standards. ■ Disconnected cables and lines shall be reconnected promptly. ■ The City shall observe DHS standards, which require: ❑ a 10-foot horizontal separation between parallel sewer and water mains; and ❑ a 1-foot vertical separation between perpendicular water and sewer line crossings. In the event that separation requirements cannot be maintained, the City shall obtain a DHS variance through provisions of water encasement or other means deemed suitable by the department.			
Mitigation Measure HYD-5a: Prepare and Implement a Drainage Master Plan As part of the infrastructure plan, the developer shall prepare and implement a drainage master plan. This plan shall address the following topics. ■ A calculation of pre-development runoff conditions and post-development runoff scenarios using appropriate engineering methods. This analysis will evaluate potential changes to runoff through specific design criteria, and account for increased surface runoff. ■ An assessment of existing drainage facilities within the project area, and an inventory of necessary upgrades, replacements, redesigns, and/or rehabilitation, including the sizing of on-site stormwater detention features and pump stations. ■ A description of the proposed maintenance program for the onsite drainage system. ■ Standards for drainage systems to be installed on a project/parcel-specific basis. ■ Proposed design measures to ensure structures are not located within 100-year floodplain areas. Drainage systems shall be designed in accordance with the City's and other applicable flood control design criteria. As a performance standard, measures to be implemented from those reports shall provide for no net increase in peak stormwater discharge from the island relative to current conditions, ensure that 100-year flooding and its potential impacts are maintained at or below current levels, and that people and structures are not exposed to additional flood risk. The project will implement measures provided in the drainage master plan. Prior to approving specific development projects, the City will require the contractor to demonstrate their project is consistent with the recommendations and conclusions of the drainage master plan and will implement the measures identified in the plan. If the plan does not adequately address the drainage impacts of the specific development, the City will require the	Prior to approval of infrastructure plan		

Mitigation Measure	Timing	Implementing Party	Monitoring Party
contractor to prepare additional analysis and incorporate measures consistent with the scope and performance standards associated with the plan to ensure that drainage and flooding impacts are avoided. As provided in the drainage master plan, stormwater infrastructure will be constructed in the project site area prior to onset of other developments, to collect runoff during and following construction, and to contain flows that could exceed the existing capacity of the drainage system.			
TRAFFIC AND TRANSPORTATION			
Mitigation Measure TRA-1a: Convert Eastbound Right-Turn Lane to Shared Through/Right-Turn Lane at Eight Mile Road/Trinity Parkway Intersection The mitigation measure is to convert the eastbound right-turn lane to a shared through/right-turn lane.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-2a: Add Capacity at Eight Mile Road/Interstate 5 Northbound Ramps Intersection The mitigation measure is the construction of a two-lane northbound to westbound loop off-ramp, reduction of the westbound approach to three lanes to allow the loop ramp to merge onto Eight Mile Road, and provision of a single-lane northbound to eastbound off-ramp with an eastbound receiving lane. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-2b: Complete Phasing Analysis The applicant shall work with the City to complete a phasing analysis to ensure that project construction occurs commensurate with the major roadway infrastructure improvements, per proposed General Plan Policy TC-1.10. This policy states that all new development shall be required to pay its fair share of the construction and operating costs of needed transportation and transit facilities and services. It further states that the timing of the improvements will be prior to or concurrent with the new development or appropriate development phase. The phasing analysis will consider the project and other pending developments that contribute to the need to widen I-5, construct the new I-5/Otto Drive interchange, and improve the I-5 interchanges at Eight Mile Road and Hammer Lane. Other roadway improvements may be added to the analysis. The phasing analysis will be subject to the review and approval of the Public Works Director.	Prior to Final Map	Project proponent	City of Stockton
Mitigation Measure TRA-3a: Add Eastbound and Westbound Through Lanes and Westbound Left-Turn Lane at Eight Mile Road/Davis Road Intersection This mitigation measure is to construct an additional eastbound through lane and an additional westbound through lane at the Eight Mile Road/Davis Road intersection. In the westbound direction, one left-turn lane is currently provided. For this mitigation, an additional westbound left-turn lane would be constructed. Receiving lanes on the east, west, and south legs of the	Pay fee prior to building permit	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
intersection, in addition to the existing receiving lanes, would also be required as a part of this mitigation measure. This improvement is consistent with the Eight Mile Road Specific Plan, which calls for the eventual provision of eight lanes on Eight Mile Road. The project applicant should pay its fair-share contribution toward these improvements.			
Mitigation Measure TRA-5a: Add Third Southbound Left-Turn Lane at Hammer Lane/Loop Road Intersection	Pay fee prior to building permit	Project proponent	City of Stockton
The mitigation measure is to add a third southbound left-turn lane to the intersection of Hammer Lane and Loop Road.			
Mitigation Measure TRA-5b: Construct Otto Drive from Loop Road to I-5, Construct Otto Drive/I-5 Interchange, and Extend Trinity Parkway South from Hammer Lane to March Lane	Pay fee prior to building permit	Project proponent	City of Stockton
As an alternative to reduce the impact to a less-than-significant level at the Hammer Lane/Loop Road intersection, but to reduce the impact to a less-than-significant level at the intersections of Hammer Lane/Mariners Drive, Hammer Lane/I-5 southbound ramps, and Hammer Lane/I-5 northbound ramps intersections, the following improvements would need to be provided: ■ Build the I-5 interchange at Otto Drive ■ Extend Otto Drive from Loop Road to I-5 ■ Extend Trinity Parkway to March Lane ■ Integrate additional mitigation measures at each intersection The new interchange at I-5 and Otto Drive and the extensions of Otto Drive from Loop Road to Hammer Lane and Trinity Parkway to March Lane would create secondary impacts at the Otto Drive/Trinity Parkway intersection. The mitigation measure for this intersection is to widen the northbound approach to three through lanes and add separate right-turn lanes to the northbound, southbound, and eastbound approaches. The project applicant should pay its fair-share contribution toward these improvements.			
Mitigation Measure TRA-6a: Add Southbound Left-Turn Lane and Eastbound Through Lane at Hammer Lane/Mariners Drive	Pay fee prior to building permit	Project proponent	City of Stockton
This mitigation measure is to restripe the southbound approach to provide a left-turn lane and a shared left-turn/through/right-turn lane, and to add an eastbound through lane. The project applicant should pay its fair-share contribution toward these improvements.			

Mitigation Measure	Timing	Implementing Party	Monitoring Party
Mitigation Measure TRA-7a: Add Eastbound Through Lane to Hammer Lane/Interstate 5 Southbound Ramps Intersection The mitigation measure is to provide an additional eastbound through lane at the Hammer Lane/I-5 southbound ramps intersection. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-8a: Add Eastbound Through Lane to Hammer Lane/Interstate 5 Northbound Ramps Intersection The mitigation measure is to provide an additional eastbound through lane at the Hammer Lane/I-5 northbound ramps intersection. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-9a: Provide an Exclusive Westbound Right-Turn Lane The mitigation measure is to provide an exclusive westbound right-turn lane.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-10a: Provide Additional Northbound Left-Turn Lane and Exclusive Northbound Right-Turn Lane, Exclusive Southbound Right-Turn Lane, and Exclusive Westbound Right-Turn Lane at Hammer Lane/Pershing Avenue Intersection As part of the Hammer Lane Precise Plan, both the eastbound and westbound directions would include three through lanes, two left-turn lanes, and a separate westbound right-turn lane. In addition to these improvements, a second northbound left-turn lane and exclusive northbound, southbound, and westbound right-turn lanes would be required to provide acceptable operations.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-11a: Add Northbound Through Lane at Hammer Lane/Lower Sacramento Road This mitigation measure is to add a northbound through lane at the Hammer Lane/Lower Sacramento Road intersection.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-12a: Expand Hammer Lane to Eight Lanes from West of Mariners Drive to East of Interstate 5 The mitigation measure is to expand Hammer Lane to eight lanes from west of Mariners Drive to east of I-5. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-13a: Widen Interstate 5 to Provide Four Mixed-Flow Travel Lanes in Each Direction The mitigation measure is to widen I-5 to provide four mixed-flow travel lanes in each direction south of Hammer Lane to the Monte Diablo undercrossing. Freeway operations would be better under Project conditions with mitigation versus under without-project conditions (i.e., no mitigation). Therefore, the Project impact could be considered less than significant with the	Pay fee prior to building permit	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
implementation of the mitigation measure. However, portions of I-5 would still operate at an unacceptable LOS E. The widening of I-5 from the Monte Diablo undercrossing to Eight Mile Road is included in the SJCOG 2025 Regional Transportation Plan (RTP) as a Tier 1 project sponsored by Caltrans. Additionally, the I-5 North Stockton PSR specifies planned improvements to widen I-5 from Eight Mile Road to Country Club Drive to eight lanes. However, the RTP notes that full project funding has not yet been identified and full funding has not been identified for the PSR improvements. Therefore, the impact is considered significant and unavoidable. Once identified and approved, the Project applicant will pay its fair-share contribution toward these improvements.			
Mitigation Measure TRA-14a: Add Eastbound Through Lane at Eight Mile Road/Mokelumne Circle Intersection The mitigation measure is to add a third eastbound through lane at the Eight Mile Road/Mokelumne Circle intersection. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-16a: Add Northbound Left-Turn Lane at Trinity Parkway/Cosumnes Drive Intersection The mitigation measure is to add a northbound left-turn lane at the Trinity Parkway/Cosumnes Drive intersection. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-17a: Provide Westbound Shared Left-Turn/Right-Turn Lane and Right-Turn Lane and Add Southbound Left-Turn Lane at Trinity Parkway/McAuliffe Road Intersection The mitigation measure is to provide a shared left-turn/right-turn lane and a right-turn lane on the westbound approach and to add a southbound left-turn lane at the intersection of Trinity Parkway and McAuliffe Road. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-18a: Add Eastbound and Westbound Through Lanes, Exclusive Eastbound Right-Turn Lane, and Exclusive Southbound Right-Turn Lane, and Modify Signals at Otto Drive/Trinity Parkway Intersection The mitigation measure for this intersection is to add eastbound and westbound through lanes, an exclusive eastbound right-turn lane, and an exclusive southbound right-turn lane, and to modify the signals. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
Mitigation Measure TRA-19a: Add Capacity to Otto Drive/Interstate 5 Southbound Ramps Intersection	Pay fee prior to building permit	Project proponent	City of Stockton
The mitigation measure is to add a westbound left-turn lane and to convert an eastbound through lane to a shared through/right-turn lane and convert the eastbound right-turn lane to a free right-turn lane. The project sponsor will pay its fair-share contribution toward these improvements.			
Mitigation Measure TRA-20a: Add Capacity to Otto Drive/Interstate 5 Northbound Ramps Intersection	Pay fee prior to building permit	Project proponent	City of Stockton
The mitigation measure is to add an exclusive westbound right-turn lane. The project sponsor should pay its fair-share contribution toward this improvement.			
Mitigation Measure TRA-21a: Add an Exclusive Westbound Right-Turn Lane to Hammer Lane/Mariners Drive Intersection	Pay fee prior to building permit	Project proponent	City of Stockton
The mitigation measure is to add an exclusive westbound right-turn lane to the intersection of Hammer Lane and Mariners Drive. The project sponsor should pay its fair-share contribution toward this improvement.			
Mitigation Measure TRA-22a: Add an Eastbound Through Lane to Hammer Lane/Interstate 5 Southbound Ramps Intersection	Pay fee prior to building permit	Project proponent	City of Stockton
The mitigation measure is to add an eastbound through lane to the Hammer Lane/I-5 southbound ramps intersection. The project sponsor should pay its fair-share contribution toward this improvement.			
Mitigation Measure TRA-23a: Add a Northbound Left-Turn Lane and an Eastbound Through Lane to Hammer Lane/Interstate 5 Northbound Ramps Intersection	Pay fee prior to building permit	Project proponent	City of Stockton
The mitigation measure is to add a northbound left-turn lane (for a total of three) and an eastbound through lane to the Hammer Lane/I-5 northbound ramps intersection. The project sponsor should pay its fair-share contribution toward these improvements.			
Mitigation Measure TRA-24a: Add an Exclusive Eastbound Right-Turn Lane, Northbound Left-Turn Lane and Westbound Through Lane to Hammer Lane/Kelley Drive Intersection	Pay fee prior to building permit	Project proponent	City of Stockton
The mitigation measure is to add an exclusive eastbound right-turn lane, a northbound left-turn lane, and a westbound through lane to the Hammer Lane/Kelley Drive intersection.			
Mitigation Measure TRA-25a: Add Exclusive Northbound Right-Turn Lane to Hammer Lane/Meadow Avenue/Don Avenue Intersection	Pay fee prior to building permit	Project proponent	City of Stockton
This mitigation measure is to add an exclusive northbound right-turn lane to the intersection of Hammer Lane/Meadow Avenue/Don Avenue. The project applicant should pay its fair-share contribution toward these improvements.			

Mitigation Measure	Timing	Implementing Party	Monitoring Party
Mitigation Measure TRA-26a: Add Exclusive Northbound Right-Turn Lane, Add Exclusive Eastbound Right-Turn Lane, Add Northbound Left-Turn Lane and Add Westbound Through Lane at Hammer Lane/Pershing Avenue Intersection	Pay fee prior to building permit	Project proponent	City of Stockton
The mitigation measure is to add an exclusive northbound right-turn lane, an exclusive eastbound right-turn lane, a northbound left-turn lane and a westbound through lane at the Hammer Lane/Pershing Avenue Intersection.			
Mitigation Measure TRA-27a: Add a Southbound Left-Turn Lane at Hammer Lane/Thornton Road Intersection	Pay fee prior to building permit	Project proponent	City of Stockton
This mitigation measure is to add a southbound left-turn lane. The project applicant should pay its fair-share contribution toward these improvements.			
Mitigation Measure TRA-28a: Add an Exclusive Westbound Right-Turn Lane at Hammer Lane/Lower Sacramento Road Intersection	Pay fee prior to building permit	Project proponent	City of Stockton
This mitigation measure is to add an exclusive westbound right-turn lane at the Hammer Lane/Lower Sacramento Road intersection. The project applicant should pay its fair-share contribution toward these improvements.			
Mitigation Measure TRA-29a: Widen Trinity Parkway Bridge over Bear Creek to Six Lanes	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation of this impact would require widening of the Trinity Parkway Bridge over Bear Creek to six lanes.			
Mitigation Measure TRA-30a: Widen Hammer Lane to Six Lanes West of Mariners Drive and Eight Lanes from Mariners Drive to East of Interstate 5	Pay fee prior to building permit	Project proponent	City of Stockton
The mitigation measure is to provide six lanes on Hammer Lane west of Mariners Drive and eight lanes from Mariners Drive to east of I-5. With this mitigation, Hammer Lane west of I-5 would operate at LOS D and Hammer Lane east of I-5 would operate at LOS E. The project applicant should pay its fair-share contribution toward these improvements.			
Mitigation Measure TRA-31a: Add Capacity to Northbound and Southbound I-5 South of Hammer Lane, and from Hammer Lane to Otto Drive	Pay fee prior to building permit	Project proponent	City of Stockton
In addition to implementing the improvements under Mitigation Measure TRA-13a, this measure proposes to also widen I-5 between Hammer Lane and Otto Drive to four mixed-flow lanes in each direction. The project sponsor shall pay its fair-share contribution toward these improvements.			

Mitigation Measure	Timing	Implementing Party	Monitoring Party
Mitigation Measure TRA-32a: Add a Fourth Eastbound Through Lane to Eight Mile Road/Mokelumne Circle Intersection The mitigation measure is to add a fourth eastbound through lane to the Eight Mile Road/Mokelumne Circle intersection. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-33a: Convert a Westbound Through Lane to Left-Turn Lane at Eight Mile Road/Trinity Parkway Intersection The mitigation measure is to convert a westbound through lane to a left-turn lane at the Eight Mile Road/Trinity Parkway intersection. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-34a: Add Two Westbound Through Lanes and a Free Eastbound Right-Turn Lane to Eight Mile Road/Interstate 5 Southbound Ramps Intersection The mitigation measure is to add two westbound through lanes and a free eastbound right-turn lane. The Project applicant will pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-35a: Add Two Northbound and Two Southbound Through Lanes, a Northbound Left-Turn Lane, a Northbound Right-Turn Lane, a Southbound Left-Turn Lane and an Exclusive Westbound Right-Turn Lane to Eight Mile Road/Thornton Road Intersection The mitigation measure is to add two northbound and two southbound through lanes, a northbound left-turn lane, a northbound right-turn lane, a southbound left-turn lane, and an exclusive westbound right-turn lane. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-36a: Add a Left-Turn Lane at Trinity Parkway/Cosumnes Drive Intersection The mitigation measure is to add a northbound left-turn lane at the intersection of Trinity Parkway and Cosumnes Drive. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-37a: Add an Eastbound and a Westbound Through Lane and Modify Signals at Otto Drive/Trinity Parkway Intersection The mitigation measure is to add an eastbound through lane and a westbound through lane and to modify the signals at the intersection of Otto Drive and Trinity Parkway. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
Mitigation Measure TRA-39a: Add an Eastbound Left-Turn Lane to the Otto Drive/Interstate 5 Northbound Ramps Intersection The mitigation measure is to add an eastbound left-turn lane to the Otto Drive/I-5 northbound intersection. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-40a: Modify the Southbound Approach to Two Left-Turn Lanes and a Shared Through/Right-Turn Lane and Convert Northbound Through Lane to a Shared Through/Right-Turn Lane at the Hammer Lane/Mariners Drive Intersection The mitigation measure is to modify the southbound approach to two left-turn lanes and a shared through/right-turn lane and to convert the northbound through lane to a shared through/right-turn lane at the intersection of Hammer Lane and Mariners Drive. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-43a: Add a Northbound Left-Turn Lane and Westbound Through Lane at the Hammer Lane/Kelley Drive Intersection The mitigation measure is to add a northbound left-turn lane and a westbound through lane at the intersection of Hammer Lane and Kelley Drive. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-44a: Add Exclusive Northbound Right-Turn Lane at Hammer Lane/Meadow Avenue/Don Avenue Intersection The mitigation measure is to add an exclusive northbound right-turn lane to the Hammer Lane/Meadow Avenue/Don Avenue intersection. The project applicant should pay its fair-share contribution toward these improvements.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-45a: Add a Northbound Left-Turn Lane, an Exclusive Eastbound Right-Turn Lane, and an Exclusive Southbound Right-Turn Lane to the Hammer Lane/Pershing Avenue Intersection The mitigation measure is to add a northbound left-turn lane, an exclusive eastbound right-turn lane, and an exclusive southbound right-turn lane to the Hammer Lane/Pershing Avenue intersection.	Pay fee prior to building permit	Project proponent	City of Stockton
Mitigation Measure TRA-49a: Provide Traffic-Calming Devices on Public Residential Streets Where Block Lengths Are More Than 600 Feet Internal access and circulation of individual neighborhoods shall be reviewed and modifications made as needed to ensure consistency with the City's guidelines. Traffic-calming devices will be provided on public residential streets where block lengths are more than 600 feet. A traffic-calming plan will be prepared to City of Stockton specifications by a qualified traffic engineer	Prior to Final Map	Project proponent	City of Stockton

Mitigation Measure	Timing	Implementing Party	Monitoring Party
for each individual neighborhood prior to recordation of the tentative map for any of the parcels in the neighborhood.			
Mitigation Measure TRA-50a: Add Signage and Crosswalks	Prior to Final Map	Project proponent	City of Stockton
Warning signs will be provided at unsignalized driveways on Loop Road to alert drivers of bicyclists and pedestrians. High-visibility crosswalks will be provided between neighborhoods and school and recreational uses. Crosswalks will be incorporated into intersection designs. A traffic control plan for signage and crosswalks shall be prepared to City of Stockton specifications by a qualified traffic engineer for each individual neighborhood, school, or major development (defined as one or more parcels of significant size as determined by the City Engineer) prior to recordation of the tentative map for any of the parcels in the neighborhood or major development. This plan may be combined with the traffic-calming plan of TRA-49a.			
Mitigation Measure TRA-51a: Provide Onsite Transit Facilities, Including Transit Stops with Supporting Amenities	Prior to Final Map	Project proponent	City of Stockton
The project applicant shall work with the SJRTD to provide onsite transit facilities, including transit stops with supporting amenities (shelters, benches, etc.). Evidence satisfactory to the City Engineer of an agreement with SJRTD regarding the location of on-site transit facilities shall be provided prior to recordation of the tentative map for any of the parcels in a neighborhood or major development (defined as one or more parcels of significant size as determined by the City Engineer).			
Mitigation Measure TRA-52a: Provide Adequate Parking Supply as Required by City of Stockton Zoning Code	Prior to approval of site plan	Project proponent	City of Stockton
The project applicant shall provide adequate parking as required by the Stockton Zoning Code before approval of the site plan for each use within the project area.			
OTHER CEQA			
Mitigation Measure CE-4a: Reduce Stationary Source Emissions of Greenhouse Gases	Design phase and during construction	Project proponent	City of Stockton
The project proponent shall implement the following measures to reduce GHG emissions: ■ Residences will be constructed with energy efficient appliances and home systems such as Energy Star appliances, energy efficient (i.e., Low E2) windows, tightly sealed ducts, fluorescent or energy efficient light bulbs with motion sensors where practicable, backyard outlets for electrical mower and other yard equipment operations, R-6 duct insulation, radiant roof barrier sheathing, 14 Seasonal Energy Efficiency Ratio air conditioning and ventilation systems, air conditioning with Thermostatic Expansion Valve metering devices that help regulate flow of liquid refrigerant, 0.95 Annual Fuel Utilization Efficiency furnaces, and gas dryer stubs.			

Mitigation Measure	Timing	Implementing Party	Monitoring Party
■ Where practicable, homebuyers will be provided with a near-zero-emission option, which would include tankless water heaters (0.82 energy factor) and roof-integrated solar electric systems. ■ Where practicable, buildings and outdoor structures will include green-building materials, such as low-emission concrete, recycled aggregate, recycled reinforcing, or waffle pods to be used in foundations; recycled plastics to be used in community structures such as fencing or playground equipment; wood flooring materials treated with low emission varnishes and floor board substrates to be made from low emission particleboard; compact fluorescent light bulbs in all buildings; and use of recycled building materials such as recycled aluminum for window frames or post-consumer plastic for piping. ■ Information packets will be provided to new homeowners on ways to conserve energy and reduce individual GHG emissions, such as cleaning and replacing filters on furnaces and air conditioners, periodic home energy audits, and vehicle maintenance. ■ The mandatory measures developed by the ARB under AB 32 that are applicable to stationary sources within the project and that help further reduce GHG emissions will be incorporated.			
Mitigation Measure CE-4b: Reduce Mobile Source Emissions of Greenhouse Gases The project proponent shall implement the following measures to help reduce mobile sources of GHG emissions: ■ Residences shall be pre-wired for high-speed internet service to help facilitate telecommuting. ■ The Master Development Plan shall include 220-volt garage outlets or other stations to provide residences with the opportunity to charge electric or plug-in hybrid vehicles. ■ The Master Development Plan should include circulation and transit-oriented designs that are bicycle and pedestrian-friendly. Design elements may include facilities to support car sharing services, access to well-maintained bike and pedestrian paths, and local child-care facilities. ■ During construction, mass-grading plans should be designed to minimize grading and the need for offsite fill material. Likewise, construction vehicles should not be left idling.	Design phase and during construction	Project proponent	City of Stockton