

Draft
Subsequent Environmental Impact Report
for the
River Islands at Lathrop Project



**Volume Ia: Draft SEIR
(Chapter 1 - Section 4.7)**

State Clearinghouse No. 1993112027

October 16, 2002

EDAW

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Volume Ia: Draft SEIR
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- F River Islands at Lathrop Preliminary Interior Lake Water Budget
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- H River Islands at Lathrop Post-Project Water Quality Analysis
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1 INTRODUCTION

1 INTRODUCTION

This subsequent environmental impact report (SEIR) has been prepared by the City of Lathrop (City), as lead agency, for the River Islands at Lathrop Project (River Islands or proposed project). This chapter of the SEIR provides information on the following:

- ▶ proposed project requiring environmental analysis (synopsis);
- ▶ type, purpose, and intended use of the SEIR;
- ▶ scope of the SEIR;
- ▶ agency roles and responsibilities;
- ▶ standard terminology/acronyms; and
- ▶ incorporation by reference.

1.1 PROPOSED PROJECT REQUIRING ENVIRONMENTAL ANALYSIS

The project applicant (The Cambay Group/Califia, LLC) is requesting approval of various discretionary entitlements in support of a mixed-use residential/commercial development to be called River Islands at Lathrop (River Islands). The project site includes approximately 4,905 acres of agricultural land and open space located on Stewart Tract (an inland island bounded by Paradise Cut, the San Joaquin River, and Old River) and Paradise Cut (a flood control bypass connecting the San Joaquin River and Old River in the Sacramento-San Joaquin River Delta). The proposed project includes, among other uses, an employment center, a town center, dock facilities, residences, and golf courses. The project also includes various flood management elements; construction of back bays, channels, and other water features; biological habitat restoration/creation; and retention of natural lands. There are also several proposed offsite project elements located outside the 4,990 acres on Stewart Tract and Paradise Cut described above. These offsite elements include, among other things, an electrical transmission line, a natural gas pipeline, and a road extension to Interstate 205 (I-205). The project is divided into two phases; Phase 1 (the near-term project) has been designed and planned at a greater level of detail than Phase 2.

Stewart Tract was originally planned for urban development in 1991 with the adoption of the City of Lathrop General Plan (General Plan). The General Plan provides the vision or blueprint for development of the City; all subsequent land use approvals are required to be consistent with the goals, objectives, and policies embodied in the General Plan. In 1996, the City further refined the vision and implementing policies contained in the General Plan for urban development of Stewart Tract with the adoption of the West Lathrop Specific Plan (WLSP). The development envisioned in the WLSP for the project site was entertainment oriented and contained four theme parks, 5,000 hotel rooms, a regional retail mall, other associated entertainment-oriented uses, and 8,500 housing units. The project at that time was known as Califia/Gold Rush City.

The River Islands project differs in several respects from the theme park-centered Califia/Gold Rush City project and therefore includes proposed amendments to the General Plan and WLSP.

1.2 TYPE, PURPOSE, AND INTENDED USE OF THIS SEIR

According to the California Environmental Quality Act (CEQA), preparation of an environmental impact report (EIR) is required whenever a proposed project has the potential to result in a significant environmental impact. An EIR is an informational document used to inform the public agency decision makers and the general public of the significant environmental impacts of a project, identify possible ways to minimize the significant impacts, and describe reasonable alternatives to the project that can reduce environmental impacts. The public agency is required to consider the information presented in the EIR when determining whether to approve a project.

As discussed above, the City's adopted WLSP contains the detailed vision for development of Stewart Tract. The WLSP was analyzed in the West Lathrop Specific Plan EIR (Grunwald & Associates 1995) (SCH No. 93112027) (hereafter, the "WLSP EIR"); the specific plan was adopted and the EIR certified in February 1996. The City has determined that, in accordance with §15162 of the State CEQA Guidelines, the River Islands project differs sufficiently from the development scenario described in the WLSP EIR that a subsequent EIR (SEIR) needed to be prepared to evaluate the potential environmental impacts that may result from changes to the WLSP needed to reflect the River Islands project, as well as to consider significant new information.

Section 15162 of the State CEQA Guidelines describes the conditions under which an SEIR would be prepared. In summary, the guidelines indicate that a lead agency should prepare an SEIR if one or more of the following occurs for a project that has already been reviewed and approved under CEQA:

- ▶ Substantial changes, which would require major revision of the previous EIR, are proposed in the project.
- ▶ Substantial changes occur with respect to the circumstances under which the project is undertaken (and that would require major revisions of the previous EIR).
- ▶ New information of substantial importance, which was not known, and could not have been known with the exercise of reasonable diligence, at the time the previous EIR was certified shows one of the following: the project would have a new significant impact, a previously identified significant impact would be more severe, mitigation or alternatives determined to be infeasible in the previous EIR are in fact determined to be feasible, or mitigation or alternatives that are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant impacts.

The City has determined that an SEIR is required for the proposed project for three reasons:

- ▶ The proposed project has changed from an entertainment-oriented, theme park-centered development to a mixed-use residential/commercial development with no theme parks, no resort hotels, 2,500 more housing units than previously approved, and a 305-acre business park/employment center.

- ▶ The environmental conditions in effect when the WLSP EIR was certified in 1996 may have substantially changed with respect to certain issues, such as traffic, hydrology and water quality, flood protection, biological resources, and public services and utilities.
- ▶ Features associated with project development, such as back bays and modifications to Paradise Cut, require additional evaluation to determine whether new environmental impacts could occur.

This SEIR updates and supplements the WLSP EIR analysis with new information that has become available since the preparation of the WLSP EIR, and it compares and contrasts the significance of the impacts identified and analyzed in the WLSP EIR with impacts expected to be generated by the River Islands project.

Phase 1 of the River Islands project generally is designed at a greater level of detail than Phase 2. However, in almost all instances, sufficient detail has been provided for Phase 2 to enable an analysis of Phase 2 at a level of detail comparable to the Phase 1 project level analysis. Phase 1 has been designed and planned to a level of detail sufficient to support applications for General Plan amendments, specific plan amendments, rezoning and zoning ordinance text amendments, Urban Design Concept (UDC) approval, vesting tentative map approvals, and applicable development permits. If the SEIR is certified and the Phase 1 project approvals are approved, no further CEQA analysis is anticipated before construction of Phase 1. For this reason, the SEIR's analysis of Phase 1 contains a level of detail that meets the requirements of a project EIR as defined in §15161 of the State CEQA Guidelines.

Phase 2 of the proposed project is designed with less specificity than Phase 1. At this time, the applicant has applied for general plan amendments, specific plan amendments, rezoning and zoning ordinance text amendments, and a large lot tentative map. Various elements of Phase 2 are anticipated to be developed in sequence, generally running southeast to northwest across the project area, in response to future market conditions. Future tentative map, UDC, and development permit approvals will be processed with the City before development of specific project components comprising Phase 2. For many environmental issue areas, sufficient detail is available regarding Phase 2 development (e.g., acres of disturbance, number and type of housing units, population, utility demands, traffic generation, acres of parks and other land uses) to enable the SEIR's analysis of Phase 2 to be comparable to the Phase 1 analysis and sufficient to meet the requirements of a project EIR as defined in §15161 of the State CEQA Guidelines. The exception is wastewater treatment and recycled water storage and disposal under Phase 2. Although these utility demands are addressed in a manner consistent with the Lathrop Water, Wastewater, and Recycled Water Master Plan (Master Plan) (Nolte Associates 2001) and the associated EIR (EDAW 2001), the specific approach to meet these demands among those available within the Master Plan has not been determined. In the future, entitlements requested under Phase 2 must be examined via an initial study and in light of this SEIR to determine whether any additional CEQA compliance documentation must be prepared. If a later activity would result in impacts that are not examined in this SEIR or circumstances in the area sufficiently change, additional CEQA analysis will be conducted.

The River Islands SEIR relies on other pertinent EIRs where appropriate. Information from the WLSP EIR that is applicable to the River Islands project is incorporated into this SEIR. Certain aspects of the

water and wastewater systems proposed to serve the proposed project have been evaluated at a programmatic level in the EIR for the Master Plan. Therefore, this SEIR relies on the analysis of the Master Plan EIR, where appropriate.

1.3 SCOPE OF THIS SEIR

This SEIR includes an evaluation of 16 environmental issue areas in addition to the CEQA-mandated issues (e.g., cumulative impacts, growth-inducing impacts, significant unavoidable adverse impacts, alternatives). The 16 environmental issue areas are listed below:

- ▶ land use
- ▶ population, employment, and housing
- ▶ traffic
- ▶ air quality
- ▶ noise
- ▶ geology, soils, and mineral resources
- ▶ hydrology and water quality
- ▶ hazardous materials and public health
- ▶ public services
- ▶ public utilities
- ▶ recreation
- ▶ agricultural resources
- ▶ terrestrial biology
- ▶ fisheries
- ▶ cultural resources
- ▶ aesthetic resources

Under the CEQA statutes and the State CEQA Guidelines, a lead agency may limit an EIR’s discussion of environmental effects when they are not considered potentially significant (Pub. Res. Code §21002.1; Guidelines §15143). Information used to determine which impacts would be potentially significant was derived from a review of applicable planning and CEQA documentation, fieldwork, a review of the project, feedback from ongoing public and agency consultation, and comments received on the notice of preparation/initial study (NOP/IS) (see Appendix A of this SEIR). Following the issuance of the NOP, comments were received and reviewed to determine the final scope of the SEIR. As a result of the review of existing information and the scoping process, it was determined that all of the 16 issues areas listed above should be evaluated fully in this SEIR.

1.4 AGENCY ROLES AND RESPONSIBILITIES

1.4.1 LEAD AGENCY

The City of Lathrop is the lead agency for the proposed project. The City has the principal responsibility for approving and carrying out the project and for ensuring that the requirements of CEQA have been met. The following list identifies the entitlements requested from the City for the River Islands project. Unless otherwise specified, the entitlements pertain to the project in its entirety.

City of Lathrop Entitlements

- ▶ amendments to the Lathrop General Plan
- ▶ amendments to the WLSP and the Lathrop Zoning Code

- ▶ amendments to the development agreement issued for the Califia project
- ▶ Urban Design Concept
- ▶ Preliminary Development Plan (PDP)
- ▶ amendment to the Bicycle Master Plan
- ▶ Neighborhood Design Review
- ▶ Vesting Tentative Map (Phase 1)
- ▶ Large Lot Tentative Map (Phase 1 and Phase 2)
- ▶ Williamson Act cancellation

The City may rely on this SEIR for approval of other future entitlements and permits.

1.4.2 TRUSTEE AND RESPONSIBLE AGENCIES

A trustee agency is a state agency that has jurisdiction by law over natural resources that are held in trust for the people of the State of California. Trustee agencies that have jurisdiction over the resources potentially affected by the project include the California Department of Fish and Game (fish and wildlife) and the California State Lands Commission (navigable waters).

Responsible agencies are public agencies, other than the lead agency, that are anticipated to have discretionary approval responsibility for reviewing, carrying out, or approving elements of a project. Responsible agencies should participate in the lead agency's CEQA process, review the lead agency's CEQA document, and use the document when making a decision on project elements. Several agencies may have responsibility or jurisdiction over the implementation of elements of the proposed project. These agencies may include the following:

Federal Agencies

- ▶ Federal Emergency Management Agency
- ▶ Federal Highway Administration
- ▶ National Marine Fisheries Service
- ▶ Natural Resources Conservation Service
- ▶ U.S. Army Corps of Engineers - Sacramento District
- ▶ U.S. Coast Guard
- ▶ U.S. Department of Agriculture
- ▶ U.S. Environmental Protection Agency
- ▶ U.S. Fish and Wildlife Service

State Agencies

- ▶ California Air Resources Board
- ▶ California Department of Boating and Waterways
- ▶ California Department of Conservation - California Geological Survey
- ▶ California Department of Fish and Game
- ▶ California Department of Health Services

- ▶ California Department of Transportation - District 10
- ▶ California Department of Water Resources (State Reclamation Board)
- ▶ California Public Utilities Commission
- ▶ California State Lands Commission
- ▶ California State Water Resources Control Board and the Regional Water Quality Control Board - Central Valley Region 5
- ▶ Native American Heritage Commission

Regional/Local Agencies

- ▶ Banta Elementary School District
- ▶ Lathrop Irrigation District
- ▶ Lathrop-Manteca Fire Protection District
- ▶ Reclamation District Nos. 17, 2058, 2062, 2095, and 2107
- ▶ San Joaquin Council of Governments
- ▶ San Joaquin County
- ▶ San Joaquin Local Agency Formation Commission
- ▶ San Joaquin Valley Unified Air Pollution Control District
- ▶ Tracy Unified School District

The following list identifies permit and other approval actions likely to be required before implementation of individual elements of the proposed project. It should be noted that an environmental review under the National Environmental Policy Act (NEPA) may be undertaken to address necessary federal actions associated with the proposed project.

Federal Actions/Permits

Federal Emergency Management Agency

- ▶ floodplain map revision, letter of map revision (LOMR)

Federal Highway Administration

- ▶ approval of interchanges

National Marine Fisheries Service

- ▶ federal Endangered Species Act consultation and issuance of take authorization

U.S. Army Corps of Engineers (USACE)

- ▶ Section 404 Clean Water Act permit for discharge or fill of waters of the U.S.
- ▶ Section 10 Rivers and Harbors Act permit for work in navigable waters of the U.S.
- ▶ approval of modification of USACE levees

U.S. Coast Guard

- ▶ bridge permit

U.S. Fish and Wildlife Service

- ▶ federal Endangered Species Act consultation and issuance of take authorization

State Actions/Permits

California Department of Education

- ▶ approval of new school sites

California Department of Fish and Game

- ▶ potential California Endangered Species Act consultation and issuance of take authorization
- ▶ streambed alteration agreement (§1603)

California Department of Health Services

- ▶ permit for land application of recycled water

California Department of Transportation - District 10

- ▶ encroachment permit for construction of facilities that could affect a state highway or right-of-way

California Department of Water Resources (State Reclamation Board)

- ▶ encroachment permit to work on or adjacent to levees
- ▶ approval/authorization of new or restored levees

California Public Utilities Commission

- ▶ modification to a railroad right-of-way

California State Lands Commission

- ▶ lease agreement/permit for proposed bridge and utility crossings of the San Joaquin River

Regional Water Quality Control Board - Central Valley Region 5

- ▶ National Pollutant Discharge Elimination System construction stormwater permit (Notice of Intent to proceed under General Construction Permit)
- ▶ discharge permit for stormwater
- ▶ potential discharge permit for wastewater
- ▶ general order for dewatering
- ▶ Section 401 Clean Water Act certification or waste discharge requirements
- ▶ recycled water permit

State Water Resources Control Board

- ▶ change in point of diversion
- ▶ change in water use

Regional/Local Actions/Permits

Reclamation Districts Nos. 17, 2058, 2062, 2095, and 2107

- ▶ encroachment permit to work on or adjacent to levees

San Joaquin County

- ▶ roadway encroachment permit
- ▶ grading permit in Upper Paradise Cut Improvement Project Area

San Joaquin Local Agency Formation Commission (LAFCO)

- ▶ potential reconsideration of annexation of WLSP area to City of Lathrop ¹
- ▶ annexation of the project site into various service districts

San Joaquin Valley Unified Air Pollution Control District

- ▶ authority to construct
- ▶ health risk assessment

1.5 STANDARD TERMINOLOGY/ACRONYMS

This SEIR uses the following terminology and acronyms.

1.5.1 STANDARD TERMINOLOGY

“No impact” means no change from existing conditions (no mitigation is needed).

“Less-than-significant impact” means no substantial adverse change in the physical environment (no mitigation is needed).

“Potentially significant impact” means an impact that might cause a substantial adverse change in the environment (mitigation is recommended because potentially significant impacts are treated as significant).

“Significant impact” means an impact that would cause a substantial adverse change in the physical environment (mitigation is recommended).

“Significant and unavoidable impact” means an impact that would cause a substantial adverse change in the physical environment and that cannot be avoided, even with the implementation of mitigation.

¹ LAFCO approved the annexation of the WLSP area, including the River Islands site, to the City in October 1996. A lawsuit challenging LAFCO’s reliance on the certified final EIR for the WLSP as a responsible agency under CEQA was dismissed but is still pending on appeal. Should LAFCO be required to take further action regarding the annexation as a result of the appeal, this SEIR would also be available for its use.

“Master Plan” refers to the 2001 Lathrop Water, Wastewater, and Recycled Water Master Plan (consists of the Water Systems Master Plan, Wastewater Collection System Master Plan, Wastewater Treatment and Disposal Master Plan, and Recycled Water Master Plan).

“Offsite facilities” refers to project elements located outside the 4,905-acre project site. These consist primarily of roads and utility lines outside Stewart Tract and Paradise Cut.

“Project site” refers to the areas on Stewart Tract and Paradise Cut where project activities would occur as well as the bridges over the San Joaquin River.

“Proposed project” refers to the River Islands at Lathrop project.

“Remaining Stewart Tract” refers to the area in Stewart Tract outside the project site.

“UDC” refers to the River Islands Urban Design Concept.

“West Lathrop Specific Plan,” or “WLSP,” refers to the master planned residential and resort specific plan approved by the City in 1996, and subsequent amendments (e.g., passage of Measure D), that covers Stewart Tract and the adjacent Mossdale Village.

1.5.2 ACRONYMS AND ABBREVIATIONS

The following acronyms and abbreviations are used in this SEIR:

AB	assembly bill
ACE	Altamont Commuter Express
AEP	Annual Exceedence Probability
AFY	acre-feet per year
ARB	California Air Resources Board
AST	aboveground storage tank
BMP	best management practice
BOD	biochemical oxygen demand
BESD	Banta Elementary School District
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Cal-EPA	California Environmental Protection Agency
CALFED	CALFED Bay-Delta Program
Cal/OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CCIC	Central California Information Center
CCR	California Code of Regulations
CDC	California Department of Conservation
CDE	California Department of Education

CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cf	cubic feet
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geological Survey
CHRIS	California Historical Resources Information System
City	City of Lathrop
CIWMB	California Integrated Waste Management Board
CNDDDB	California Natural Diversity Database
CNEL	community equivalent noise level
CNPS	California Native Plant Society
CO	carbon monoxide
CPRR	Central Pacific Railroad
CPUC	California Public Utilities Commission
CR	Regional Commercial
C-REC	Recreation Commercial
CRHR	California Register of Historical Resources
CTR	California Toxics Rule
CVP	Central Valley Project
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
D-	decision
dB	decibel
dBA	A-weighted decibel
DBW	California Department of Boating and Waterways
D/DBW	Disinfection/Disinfection Byproduct
DEIR	draft environmental impact report
Delta	Sacramento-San Joaquin River Delta
DHCD	California Department of Housing and Community Development
DHS	California Department of Health Services
DO	dissolved oxygen
DOC	dissolved organic carbon
DRB	Design Review Board
DPR	California Department of Parks and Recreation
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EC	electrical conductivity
EFH	Essential Fish Habitat
EIR	environmental impact report
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency

ESA	federal Endangered Species Act
ESA	Environmental Site Assessment
ESU	Evolutionarily Significant Unit
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FPP	Farmland Protection Program
FPPA	Farmland Protection Policy Act
FS	Factor of Safety
FSZ	Farmland Security Zone
FTA	Federal Transit Administration
FTE	Full-Time Equivalent
g	gravity
General Plan	City of Lathrop General Plan
gpd	gallons per day
gpm	gallons per minute
GPS	Global Positioning System
HAP	Hazardous Air Pollutant
HCP	Habitat Conservation Plan
HMP	habitat management plan
HOR	Head of Old River
Hz	Hertz
I-	interstate
JPA	Joint Powers Authority
IS	initial study
kV	kilovolt
kWh/day	kilowatt hours per day
LAFCO	Local Agency Formation Commission
L_{dn}	day-night average noise level
L_{eq}	energy-equivalent noise level
LESA	Land Evaluation and Site Assessment
LID	Lathrop Irrigation District
L_{max}	maximum noise level: the maximum instantaneous noise level during a specific period
LMFPD	Lathrop-Manteca Fire Protection District
L_{min}	minimum noise level: the minimum instantaneous noise level during a specific period
LOMR	letter of map revision
LOS	level of service
MAF	million acre-feet
Master Plan	Lathrop Water, Wastewater, and Recycled Water Master Plan
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level
MG	million gallons
mgd	million gallons per day
mg/l	milligrams per liter

MID	Modesto Irrigation District
mph	miles per hour
MPN	Most Probable Number
MSCS	CALFED Multi-Species Conservation Strategy
MSDS	Material Safety Data Sheets
msl	mean sea level
MU	Mixed Use
MUSD	Manteca Unified School District
MVA	megavolt-ampere
MWQI	Municipal Water Quality Investigations
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NCCPA	Natural Community Conservation Planning Act
NEPA	National Environmental Policy Act
NEHRP	National Earthquake Hazards Reduction Program
NEHRPA	National Earthquake Hazards Reduction Program Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NGVD	National Geodetic Vertical Datum
NMFS	National Marine Fisheries Service
NO	nitric oxide
NOAA	National Oceanic and Atmospheric Administration
NOP	notice of preparation
NO _x	oxides of nitrogen
NO ₂	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resources Conservation Service
NSF	National Sanitation Foundation
NTR	National Toxics Rule
NTU	Nephelometric Turbidity Unit
NWP	nationwide permit
O ₃	ozone
PCB	polychlorinated biphenyl
PCC Area	Paradise Cut Conservation Area
PCIP Area	Upper Paradise Cut Improvement Project Area
PDP	Preliminary Development Plan
PG&E	Pacific Gas and Electric Company
PM	particulate matter
PM ₁₀	particulate matter less than or equal to 10 microns in diameter
PM _{2.5}	particulate matter less than or equal to 2.5 microns in diameter
POC	point of connection
POTW	Publicly Owned Treatment Works
ppm	parts per million
ppt	parts per thousand

psig	pounds per square inch gauge
RCO	Resource Conservation/Open Space
RD	reclamation district
REC	recognized environmental concern
REC-RES	Recreation Residential
RFC	Research and Forecasting Center
RID Area	River Islands Development Area
River Islands	River Islands at Lathrop
RWQCB	Regional Water Quality Control Board
SB	senate bill
SCSWSP	South County Surface Water Supply Project
SDWA	Safe Drinking Water Act
SEIR	subsequent environmental impact report
SFPD	School Facilities Planning Division
SHPO	State Historic Preservation Officer
SJCEHD	San Joaquin County Environmental Health Department
SJCOG	San Joaquin Council of Governments
SJMSCP	San Joaquin County Multi-Species Habitat Conservation and Open Space Plan
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMARA	Surface Mining and Reclamation Act
SO ₂	sulfur dioxide
SPRR	Southern Pacific Railroad
SR	state route
SRA	shaded riverine aquatic
SSJID	South San Joaquin Irrigation District
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminant
TDM	Transportation Demand Management
TDS	total dissolved solids
THMs	trihalomethanes
TMDL	total maximum daily load
TOC	total organic carbon
TUSD	Tracy Unified School District
UBC	Uniform Building Code
UDC	Urban Design Concept
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USC	U.S. Code
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture

USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
UTM	Universal Transverse Mercator
VELB	valley elderberry longhorn beetle
WLSP	West Lathrop Specific Plan as amended by Measure D
WPRR	Western Pacific Railroad
WQCF	Water Quality Control Facility
WQCP	Water Quality Control Plan
WRP	water recycling plant
WWTP	wastewater treatment plant
°C	degrees Celsius
°F	degrees Fahrenheit
µg/l	micrograms per liter
µg/m ³	micrograms per cubic meter
µmhos/cm	micromhos per centimeter

1.6 INCORPORATION BY REFERENCE

In accordance with §15150 of the State CEQA Guidelines, this EIR incorporates the following documents by reference:

- ▶ City of Lathrop. 1991 (December). Comprehensive General Plan & Environmental Impact Report for the City of Lathrop, California. As amended through June 18, 2002, Lathrop, California. Prepared by Grunwald & Associates. Sacramento, California.
- ▶ City of Lathrop. 1996 (February). West Lathrop Specific Plan. As amended by Measure D in 2000. Lathrop, California. Prepared by PBR.
- ▶ Grunwald & Associates. 1995 (November). Final Environmental Impact Report: West Lathrop Specific Plan. Sacramento, California. Prepared for City of Lathrop, Lathrop, California.
- ▶ EDAW, Inc. 2001 (June). Final Environmental Impact Report for the Lathrop Water, Wastewater, and Recycled Water Master Plan. Sacramento, California. Prepared for City of Lathrop, Lathrop, California.
- ▶ Nolte Associates, Inc. 2001 (February). Water System Master Plan, Wastewater Treatment and Disposal Master Plan, Wastewater Collection System Master Plan, and Recycled Water Master Plan. From Volume 1, Master Plan Studies, of the City of Lathrop Master Plan Documents. Prepared for City of Lathrop, Lathrop, California.

These documents are referenced and elements are discussed and summarized throughout this SEIR. Copies of each of these documents are available for review at the City of Lathrop Community Development Department/Planning Division, 16775 Howland Road, Suite One, Lathrop, California 95330 (209/858-2860, extension 327).

2 SUMMARY

2 SUMMARY

2.1 INTRODUCTION

This summary is provided in accordance with the California Environmental Quality Act Guidelines (State CEQA Guidelines) §15123. As stated in §15123(a), “an EIR shall contain a brief summary of the proposed action and its consequences. The language of the summary should be as clear and simple as reasonably practical.” As required by the guidelines, this chapter includes (1) a summary description of the proposed project, (2) a synopsis of environmental impacts and recommended mitigation measures (Table 2-1), (3) identification of the alternatives evaluated and of the environmentally superior alternative, and (4) a discussion of the areas of controversy associated with the project.

2.2 SUMMARY DESCRIPTION OF THE PROPOSED PROJECT

2.2.1 PROJECT BACKGROUND

STEWART TRACT PLANNING HISTORY

Stewart Tract was first approved for urban development in the City of Lathrop General Plan, adopted in 1991. The City further refined the vision for urban development of Stewart Tract in the West Lathrop Specific Plan (WLSP) (adopted by the City of Lathrop in 1996 and as amended by Measure D) and evaluated the impacts of this development in the WLSP EIR, certified in February 1996. The WLSP also addressed proposed future development of an area north of the San Joaquin River called the Mossdale Village area.

The WLSP EIR included an environmental analysis for, among other things, construction of a theme park development as the first use of the Stewart Tract area and a development agreement between the project proponent and the City that outlined the rights, obligations, and performance standards that the City and the project proponent needed to meet to comply with the WLSP.

The San Joaquin County Local Agency Formation Commission (LAFCO) approved annexation of the entire WLSP area, with the exception of the Pishos property (an area in southeast Stewart Tract), in 1996.

Annexation of the Pishos property was approved by LAFCO in 2000 and was the subject of a lawsuit brought forth by the Sierra Club and others. The San Joaquin Superior Court overturned this annexation in 2001, and that ruling was appealed. However, the appeal was dropped in 2002. Therefore, the Pishos property is not annexed to the City of Lathrop and is no longer in the City's Sphere of Influence. The River Islands project proposes several flood management activities in and along Paradise Cut within a portion of the Pishos property.

PREVIOUS DEVELOPMENT PLANS FOR STEWART TRACT

After the WLSP was approved in 1996, economic conditions changed such that development of a major theme park-centered attraction at this location was no longer economically feasible. In recognition of these altered conditions, a citizen's group gathered signatures and asked the city council to place Measure D on the ballot, which was approved by the voters in November 2000. Measure D eliminated the “theme park first” phasing requirement of the WLSP and development agreement and allowed additional land use options in the planning area.

PREVIOUS ENVIRONMENTAL DOCUMENTS AND THEIR RELATIONSHIP TO THIS SEIR

The WLSP and associated EIR addressed three areas: the portion of Stewart Tract proposed for the Califia/Gold Rush City project and located west of the UPRR (former SPRR) tracks; a portion of Stewart Tract located east of the UPRR tracks and zoned primarily Urban Reserve; and the Mosssdale Village project area, north of the San Joaquin River. The currently proposed River Islands project is located on the Califia/Gold Rush City site and does not envision the theme park and resort elements and focuses instead on a mixed-use residential, employment, and commercial development. Because of these and other changes in the proposed project, the applicant is requesting amendments to the Lathrop General Plan and WLSP to accommodate the River Islands project.

2.2.2 PROJECT GOALS AND OBJECTIVES

The general goal of the proposed project is completion of a mixed-use residential, employment, and commercial development that would provide a variety of housing, employment, and recreational opportunities in Lathrop. The specific objectives of the proposed project are as follows:

- ▶ Provide to Lathrop (and the surrounding region) long-term community benefits, including generation of substantial permanent employment opportunities.
- ▶ Reinforce and enhance the City's positive image.
- ▶ Contribute a new variety of mixed-use/commercial land uses that could become a citywide and regional focal point.
- ▶ Create a community that is consistent with many of the original goals of the Lathrop General Plan and WLSP but that also could generate a job base more quickly than the theme park orientation would allow.
- ▶ Develop a well-integrated and harmonious pattern of resident-oriented and visitor-oriented land uses in West Lathrop that provides local jobs, homes, and revenue-generating uses that complement other Lathrop development.
- ▶ Arrange phases of development to allow ongoing agricultural operations in the plan area to continue as long as feasible while allowing initial phases to act as catalysts for subsequent development.

- ▶ Create signature landscaped parkways and waterways that define an attractive image for West Lathrop.
- ▶ Incorporate water in its many forms throughout the project area, such as for boat travel and visual amenity and to reinforce the area's Delta setting.
- ▶ Retain and enhance existing habitat in the project site wherever feasible, phasing the provision of habitat preservation areas with overall development phases.
- ▶ Provide a wide range of housing types that could accommodate most income levels.
- ▶ Provide a variety of recreational opportunities that focus on outdoor uses.

2.2.3 PROJECT CHARACTERISTICS

The proposed project would be developed as a mixed-use residential/commercial development on 4,990 acres on Stewart Tract and Paradise Cut. It would be developed in three key units:

- ▶ River Islands Development Area,
- ▶ Paradise Cut Conservation Area, and
- ▶ Upper Paradise Cut Improvement Project Area.

The project includes, among other uses, an employment center, a town center, dock facilities, residences, and golf courses. It also includes various flood management elements; construction of back bays, channels, and other water features; biological habitat restoration/creation; and retention of natural lands. Proposed offsite project elements include an electrical transmission line, a natural gas pipeline, and a road extension to Interstate 205.

The project would be developed in two phases, with buildout planned for 2025.

The project applicant is proposing a variety of land uses on the project site, including a Town Center, an Employment Center, residential areas, lakes and water features, schools, and parks and trails. Specific elements of the proposed project would include an approximately 305-acre employment center; a roughly 45-acre town center; various single-boat and multiboat docks; approximately 2,060 acres of residential development; two golf courses; more than 260 acres of parkland; more than 600 acres of lakes, waterways, and canals; more than 600 acres of open space; and necessary public facilities and infrastructure to support the project.

The proposed project is intended to provide a mix of housing types in all phases of the development. Residential districts would support housing, parks, water features, and schools, as well as limited commercial and employment development. Up to 11,000 residences are proposed, ranging from single-family-detached homes to condominiums, townhouses, apartments, and active adult (senior-oriented) housing. The proposed residential areas, all located in the River Islands Development Area, have been divided into seven districts. The project's eighth district is the Employment Center district. At buildout, the proposed project is expected to generate 31,680 residents and generate 16,751 jobs.

The proposed Town Center district would be the commercial and community center of River Islands. It would include a mix of retail, office, residential, education, and civic uses (e.g., city offices, performing arts center, churches); dock facilities; parks; and other public spaces.

The East Village district would occupy approximately 590 acres, surrounding the Town Center. The district is bisected by Canal Street, which includes a canal associated with the project's internal lake system that runs east to west through the River Islands Development Area. The East Village district is planned to have 2,300 residences.

The Old River Road district would contain 700 residences. These homes would be located along Old River, on the edge of the River Islands Development Area. Most of the homes that are part of the Old River Road community would be built on a "high-ground corridor," a large earthen structure (several hundred feet wide at the top) built along the edge of the river.

The Lake Harbor district is located on two islands constructed in the project's central lake and occupies approximately 275 acres, of which roughly 120 acres is comprised of the central lake. This area is proposed to include 500 single-family residences.

The West Village district occupies approximately 720 acres. Like the East Village district, it is bisected by Canal Street and the associated canal that crosses much of the project site. Most of the other features of the West Village neighborhood are located along the water's edge of Paradise Cut. They include an office/retail center, the Paradise Cut school, and two parks.

The Woodlands district occupies approximately 965 acres. The district would include 2,600 residences, with 2,571 single-family residences and 49 multifamily residences. An 18-hole golf course would meander through the development and would include ponds, a clubhouse, and other features typically associated with a golf course. The Olympic School/Central Lake School and associated community park also would be located here.

The Lakeside district occupies approximately 470 acres. This "active adult" community would include 1,400 single-family residences restricted to senior citizens. An 18-hole golf course also would meander through this development.

The Employment Center district would occupy approximately 450 acres. Roughly 35% of this area would be used for roads, parks, a fire station, the cross levee and other infrastructure and also encompasses a portion of the central lake and other open space features. Approximately 305 acres would be available for primary Employment Center uses.

The water elements incorporated into the proposed project are made up of an internal system that includes a 280-acre man-made lake, canals, and other waterways in the River Islands Development Area and an external system that consists of various elements outside the Stewart Tract levee system: the San Joaquin River, Old River, and Paradise Cut. The external system also would include the back bays. Nearly 600 docks in the internal water system would accommodate up to 604 boats. Nearly 760 docks

would accommodate up to 921 boats along the exterior water system: 200 in Paradise Cut, 356 in back bays, and 365 along the San Joaquin River and Old River.

The channel in Paradise Cut along the edge of the project's levee would be widened and deepened to allow small boats to access the single-boat and multiboat docks proposed along Paradise Cut.

The project applicant has proposed to implement a nontraditional school program on the project site.

The entire River Islands project site is in the 100-year floodplain. To provide flood protection for the River Islands Development Area (i.e., all new urban development associated with the proposed project), various measures have been incorporated into the project design, including:

- ▶ increasing the flow volume and capacity of Paradise Cut,
- ▶ constructing and strengthening levees and creating high-ground corridors, and
- ▶ constructing back bays on the San Joaquin River and Old River.

Natural lands planned as part of the proposed project would provide a variety of uses, including flood control, recreation, and habitat for sensitive species. Habitat restoration/enhancement would also be conducted in many of the natural land areas. The primary natural land areas associated with the project are Paradise Cut, the riverbanks and back bays, and the cross levee paralleling the western Union Pacific Railroad right-of-way.

2.2.4 APPROVALS, ENTITLEMENTS, AND PERMITS REQUIRED

The following entitlements are required from the City for the project. Unless otherwise specified, the entitlements pertain to the project in its entirety.

- ▶ amendments to the Lathrop General Plan,
- ▶ amendments to the WLSP and the Lathrop Zoning Code,
- ▶ amendments to the development agreement issued for the Califia project,
- ▶ Urban Design Concept,
- ▶ Preliminary Development Plan (PDP),
- ▶ amendment to the Bicycle Master Plan,
- ▶ Neighborhood Design Review,
- ▶ Vesting Tentative Map (Phase 1),
- ▶ Large Lot Tentative Map (Phase 1 and Phase 2), and
- ▶ Williamson Act cancellation.

The City may rely on this SEIR for approval of other future entitlements and permits.

The following permit and other approval actions are likely to be required before implementation of individual elements of the proposed project. An environmental review under the National Environmental Policy Act (NEPA) also may be undertaken to address necessary federal actions associated with the proposed project.

FEDERAL ACTIONS/PERMITS

Federal Emergency Management Agency

- ▶ floodplain map revision, letter of map revision (LOMR)

Federal Highway Administration

- ▶ approval of interchanges

National Marine Fisheries Service

- ▶ federal Endangered Species Act consultation and issuance of take authorization

U.S. Army Corps of Engineers (USACE)

- ▶ Section 404 Clean Water Act permit for discharge or fill of waters of the U.S.
- ▶ Section 10 Rivers and Harbors Act permit for work in navigable waters of the U.S.
- ▶ approval of modification of USACE levees

U.S. Coast Guard

- ▶ bridge permit

U.S. Fish and Wildlife Service

- ▶ federal Endangered Species Act consultation and issuance of take authorization

STATE ACTIONS/PERMITS

California Department of Education

- ▶ approval of new school sites

California Department of Fish and Game

- ▶ potential California Endangered Species Act consultation and issuance of take authorization
- ▶ streambed alteration agreement (§1603)

California Department of Health Services

- ▶ permit for land application of recycled water

California Department of Transportation - District 10

- ▶ encroachment permit for construction of facilities that could affect a state highway or right-of-way

California Department of Water Resources (State Reclamation Board)

- ▶ encroachment permit to work on or adjacent to levees
- ▶ approval/authorization of new or restored levees

California Public Utilities Commission

- ▶ modification to a railroad right-of-way

California State Lands Commission

- ▶ lease agreement/permit for proposed bridge and utility crossings of the San Joaquin River

Regional Water Quality Control Board - Central Valley Region 5

- ▶ National Pollutant Discharge Elimination System construction stormwater permit (Notice of Intent to proceed under General Construction Permit)
- ▶ discharge permit for stormwater
- ▶ potential discharge permit for wastewater
- ▶ general order for dewatering
- ▶ Section 401 Clean Water Act certification or waste discharge requirements
- ▶ recycled water permit

State Water Resources Control Board

- ▶ change in point of diversion
- ▶ change in water use

REGIONAL/LOCAL ACTIONS/PERMITS

Reclamation Districts Nos. 17, 2058, 2062, 2095, and 2107

- ▶ encroachment permit to work on or adjacent to levees

San Joaquin County

- ▶ roadway encroachment permit
- ▶ grading permit in Upper Paradise Cut Improvement Project Area

San Joaquin Local Agency Formation Commission (LAFCO)

- ▶ potential reconsideration of annexation of WLSF area to City of Lathrop
- ▶ annexation of the project site into various service districts

San Joaquin Valley Unified Air Pollution Control District

- ▶ authority to construct
- ▶ health risk assessment

2.3 ENVIRONMENTAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

Table 2-1, presented at the end of this chapter, provides a summary of the project-specific and cumulative environmental impacts of the proposed project, the level of significance of the impact before mitigation, recommended mitigation measures, and the level of significance of the impact after implementation of the mitigation measures.

The project would result in project-level significant and unavoidable adverse impacts in four areas: traffic, air quality, noise, and agricultural resources. In addition, the project would contribute to cumulative significant and unavoidable adverse impacts in nine areas: traffic; air quality; noise; geology, soils, and mineral resources; public services; public utilities; agricultural resources; fisheries; and odor; it also would potentially contribute to significant cumulative surface water quality impacts.

2.4 SUMMARY OF ALTERNATIVES

This SEIR evaluates the following alternatives to the proposed project:

- ▶ No Project (No Development) Alternative,
- ▶ No Project (WLSP) Alternative, and
- ▶ Environmental Constraints (50% Development) Alternative.

Both the No Project (No Development) and the Environmental Constraints (50% Development) Alternatives are environmentally superior to the project. The No Project Alternative does not attain any project objectives. The Environmental Constraints Alternative partially attains some of the project objectives. While it reduces some of the significant impacts of the proposed project, it does not reduce any significant impacts to less-than-significant levels. It is not known if this alternative is economically feasible, given the high costs of infrastructure needed for the project.

2.5 AREAS OF CONTROVERSY

A Notice of Preparation (NOP) was issued for the project by the City of Lathrop on December 7, 2001. The purpose of the NOP was to solicit comments from public agencies and interested members of the public on issues germane to the proposed project that should be considered in the EIR. Additionally, a public scoping meeting on the project was held on December 20, 2001. Because of the relative magnitude of the project, a number of issues were raised that require consideration in this SEIR.

Additionally, several issues of potential controversy or requiring extensive consideration were raised. Reclamation districts for areas surrounding the project raised concerns that their properties could be subject to additional flooding hazards. The California Department of Food and Agriculture (CDFA) expressed disagreement with the findings of the original West Lathrop Specific Plan EIR with respect to the inability to mitigate for the loss of agriculture on the site. CDFA requested the consideration of mitigation or partial mitigation for this impact. This request was mirrored by San Joaquin County. Other issues raised pertain to potential adverse affects to fisheries and wildlife, traffic, water quality degradation in the San Joaquin River, schools, and water availability.

It should also be noted that the WLSP EIR was litigated in the past. It is anticipated that the project will also generate extensive public interest.

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
4.2 LAND USE			
<p>4.2-a: Conflict with the Lathrop General Plan and West Lathrop Specific Plan. The proposed project would not be consistent with the General Plan and the WLSP, which envision the Califa/Gold Rush City project, an entertainment-oriented, theme park-centered development. The proposed project is a mixed-use residential/commercial development, which is inconsistent with the land use objectives and designations identified for the project site in the General Plan and the WLSP. However, this land use inconsistency does not, by itself, conflict with any City of Lathrop environmental plans, goals, or regulations adopted for the purposes of avoiding or mitigating an environmental effect.</p>	LTS	No mitigation measures are necessary.	LTS
4.3 POPULATION, EMPLOYMENT, AND HOUSING			
<p>4.3-a: Population Growth and Housing Demand During Construction. The proposed project would generate a temporary increase in employment in the City of approximately 300 construction jobs during the peak construction period. Existing construction personnel in the region are considered sufficient to meet demand associated with the proposed project; therefore, this temporary increase in employment is not expected to generate any substantial new population growth in the area or generate the need for substantial additional housing for construction workers.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.3-b: Population Growth. The proposed project would develop new homes, which would result in direct increases in population. The estimated increases in population exceed planned growth anticipated in the General Plan, the WLSP, and the Master Plan. However, inconsistencies solely between planned and anticipated population growth would not cause direct environmental effects. Impacts associated with development needed to accommodate increased population growth are evaluated in appropriate sections of this SEIR.</p>	LTS	No mitigation measures are necessary.	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.3-c: Housing Demand from Project Development. Development of the proposed project would increase the number of housing units and jobs. At buildout of Phase 1, the jobs-housing balance index for the project would be 0.62, and at full buildout the index would be 0.76, indicating that the proposed development would be job-rich and therefore could generate demand for new housing in the region for onsite employees. However, because of the existing and projected regional jobs-housing imbalance that is jobs-poor, the jobs generated by the proposed project are expected to be filled in large part by the existing labor pool in the region. The project is therefore not expected to induce substantial new housing demand.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.3-d: Housing Displacement. Existing residents in the RID Area would be displaced by the proposed project. However, there are only a small number of existing residences in this agricultural area, and most are already owned by the project applicant.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.3-e: Housing Policies. The General Plan contains various policies and implementation guidelines related to the provision of affordable housing, housing for the elderly and handicapped, and non-single family housing (e.g., apartments). The project is considered consistent with housing policies in the General Plan.</p>	NI	No mitigation measures are necessary.	NI
<p>4.4 TRAFFIC</p>			
<p>Note: The traffic analysis uses the term “baseline” to describe existing conditions and “base case” to describe cumulative conditions modeled through the San Joaquin Council of Governments traffic model.</p>			
<p>4.4-a: Degradation of Levels of Service at Signalized and Unsignalized Intersections (Existing Baseline Plus Project). Phase 1 traffic would degrade the Louise Avenue/Manthey Road intersection to LOS F. With Buildout traffic, the following intersections would degrade to LOS F: Louise Avenue/I-5 ramp, MacArthur Drive/Arbor Avenue, and the Paradise Road/Arbor Avenue. With Phase 1 or</p>	S	The City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees to provide that the Phase 1 improvements listed below are completed by the time the River Islands project Phase 1 is competed and that the Buildout improvements listed below are completed by the time the River Islands project Buildout is competed or as needed based upon	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>Buildout traffic, the stop sign-controlled Manthey Road/Louise Avenue intersection would be adversely affected. The reason this intersection is affected under existing baseline plus Phase 1 or Buildout conditions and not the base case (cumulative development) is that under any of the base case conditions, this intersection would be eliminated and replaced with the River Islands Parkway/Golden Valley Parkway intersection.</p>		<p>the Stewart Tract Traffic Monitoring Program.</p> <p>For Phase 1, the following improvements shall be provided: <u>Louise Avenue/I-5 Ramps</u>, provide most Phase 2 PSR improvements to the Louise Avenue interchange. <u>River Islands Parkway (currently Louise Avenue)/Manthey Road</u>, signalize, and move the intersection at least an additional 150 feet to the west.</p> <p>For Buildout, the following improvements shall be provided: <u>Louise Avenue/I-5 Ramps</u>, provide most Phase 2 PSR improvements to the Louise Avenue interchange.</p> <p><u>River Islands Parkway (currently Louise Avenue)/Manthey Road</u>, provide exclusive left turn lanes on the north and southbound Manthey Road intersection approaches, provide a third westbound through lane and westbound departure lane on Louise Avenue, which would merge to the proposed two westbound lanes to the west of the intersection.</p> <p><u>Arbor Avenue/Paradise Road</u>, signalize, provide an exclusive right turn lane on the southbound Paradise Road intersection approach, provide an exclusive left turn lane on the Arbor Avenue eastbound intersection approach.</p> <p><u>Arbor Avenue/MacArthur Drive</u>, signalize, provide an exclusive left turn lane on the westbound Arbor Avenue intersection approach, provide an exclusive right turn lane on the northbound MacArthur Drive intersection approach.</p>	
<p>4.4-b: Vehicle Backups Extending from One Intersection through an Adjacent Intersection (Existing Baseline Plus Project). With Phase 1 traffic, vehicle backups would extend from one intersection</p>	<p>S</p>	<p>The City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees to provide the improvements listed below. For Phase 1, the following</p>	<p>LTS</p>

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>through an adjacent intersection during both peak hours for Louise Avenue approaching I-5 ramps and Louise Avenue approaching the Manthey Road intersection. With Buildout traffic, vehicle backups would extend from one intersection through an adjacent intersection during at least one of the peak hours for Louise Avenue approaching I-5 ramps, MacArthur Drive approaching I-205 ramps, and Louise Avenue approaching the Manthey Road intersection. For Phase 1 and Buildout, right-turn and through traffic on Louise Avenue approaching the Manthey Road intersection is affected under existing baseline conditions and not the base case because under any of the base case conditions, this intersection would be eliminated and replaced with the River Islands Parkway/Golden Valley Parkway intersection.</p>	<p>S</p>	<p>improvements shall be provided: <u>Louise Avenue/I-5 Ramps</u>, implement Mitigation Measure 4.4-a, <u>River Islands Parkway (currently Louise Avenue)/Manthey Road</u>, implement Mitigation Measures 4.4-a. For Buildout, the following improvements shall be provided: <u>Louise Avenue/I-5 Ramps</u>, implement Mitigation Measure 4.4-a; <u>Louise Avenue/Manthey Road</u>, implement Mitigation Measure 4.4-a; <u>MacArthur Drive/I-205 Ramps</u>, provide a second northbound through lane along MacArthur Drive between the east and westbound ramp intersections; and <u>MacArthur Drive/I-205 Ramps</u>, provide a second northbound through lane along MacArthur Drive between the east and westbound ramp intersections and provide north and southbound left turn lanes along MacArthur Drive running the full length between the east and westbound ramp intersections</p>	<p>SU (short term)</p>
<p>4.4-c: Degradation of Freeway Operations (Existing Baseline Plus Project). With Phase 1a traffic, freeway operations on I-205 west of MacArthur Drive would be degraded from LOS D to LOS E during the AM peak hour. With Phase 1 traffic, operations would continue to perform at or would be degraded to an unacceptable level of service along three freeway segments during one of the peak hour: I-205 between I-5 and MacArthur Drive with the project contributing more than a 1% traffic increase; between Paradise Road and MacArthur Drive and west of MacArthur Drive; and west of MacArthur Drive. With Buildout traffic, freeway operations either would continue to perform at an unacceptable level of service, with the project contributing more than 1% of the traffic increase, or would degrade to an unacceptable level of service at six freeway segments during one of the peak hours: I-205, I-5 to Paradise Road, Paradise Road to MacArthur Drive, and west of MacArthur Drive.</p>	<p>S</p>	<p>For Phases 1a, Phase 1 and Buildout, the City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees for its fair share contribution for I-205 freeway improvements. However, because the needed I-205 improvements are not scheduled to be completed by Caltrans until 2007, and because the development of these improvements is outside the scope of the project (i.e., it is a regional improvement), the River Islands Phase 1a development would result in significant and unavoidable (short term) traffic impacts to the identified I-205 segment until said improvements are completed.</p>	<p>SU (short term)</p>

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.4-d: Degradation of Freeway Ramp/Freeway Mainline Merge/Diverge Operation (Existing Baseline Plus Project). With Phase 1a, traffic volumes would increase more than 1% at one ramp merge location and one ramp diverge location already operating at unacceptable levels of service during one of the peak hours: I-5 on-ramp merge from Manthey Road and I-205 off-ramp diverge to MacArthur Drive. With Phase 1, project traffic would produce significant impacts at one ramp merge and two ramp diverge locations during one of the peak hours: I-205 off-ramp diverge to MacArthur Drive would degrade to LOS F, the on-ramp merge from MacArthur Drive would degrade to LOS F, and the off-ramp diverge to MacArthur Drive would continue to operate at LOS E, with more than a 1% increase in traffic attributable to the project. At Buildout, project traffic would produce significant impacts at two ramp merge and two ramp diverge locations during one of the peak hours by either degrading operation from an acceptable to an unacceptable level of service or by providing more than a 1% traffic increase at a location already operating at an unacceptable level of service: I-205 off-ramp/on-ramp merge/diverge at MacArthur Drive</p>	<p align="center">S</p>	<p>To eliminate the degradation of freeway ramp-freeway mainline merge/diverge operation, the City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees to provide that the improvements listed below.</p> <p>For Phase 1a, the following improvements shall be provided: To fully mitigate operation of the following two merge/diverge areas to preproject condition would require the following improvements: Increase the length of the MacArthur Drive eastbound off-ramp deceleration lane from I-205 adjacent to the freeway by at least 10 feet (or to a minimum length required by Caltrans); increase the length of the Manthey Road southbound on-ramp acceleration lane to I-5 adjacent to the freeway by at least 10 feet (or to a minimum length required by Caltrans). * Regarding I-5, Caltrans has indicated an unwillingness to approve geometric improvements at the Manthey Road/I-5 interchange. In addition, the impact on the Manthey Road/I-5 interchange is temporary, since the project proposes to disconnect southbound access from the project to this interchange after Phase 1a. Finally, the anticipated traffic at this location is less than the 800 trips per hour maximum impact established by Caltrans for this interchange, and no other project that would utilize this capacity is progressing toward approval in a time frame that would be affected by the interim use of this capacity by the Project's Phase 1a development. Therefore, the City of Lathrop shall ensure that access from the project to Manthey Road is discontinued when the River Islands Parkway bridge is completed over the San Joaquin River and that no more than 800 residential units ever have access to Manthey Road. For Phase 1a, implementation of Mitigation Measure 4.4-d for the I-205 off-ramp deceleration lane at MacArthur Drive would reduce the potential traffic impact of degradation of freeway ramp-freeway mainline merge/diverge operation on I-205 at that</p>	<p align="center">SU</p>

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>location to less-than-significant levels by returning the density of passenger cars per mile per lane to the same as existing conditions.</p> <p>However, although implementation of Mitigation Measure 4.4-d would reduce degradation of freeway ramp-freeway mainline merge/diverge operation on I-5, it is doubtful if Caltrans would approve of these measures. Therefore, there would be a temporary impact (until the River Islands Parkway bridge is constructed) that is not reduced to less-than-significant levels. For Phase 1a, this impact is considered significant and unavoidable.</p> <p>For Phase 1, the following improvements shall be provided: I-205/MacArthur Drive Interchange On- and Off-Ramp Merge/Diverge, increase the lengths of off-ramp deceleration lanes and on-ramp acceleration lane.</p> <p>Acceptable levels of service for the Westbound Off-Ramp diverge and the Westbound On-Ramp merge could only be achieved with the planned widening of the I-205 freeway from 4 up to 6 lanes. This improvement is scheduled to be completed by Caltrans in 2007. However, because construction of this improvement by the proposed project is outside the scope of the project (i.e. it is a regional improvement), the River Islands full buildout would result in significant unavoidable traffic impacts to the identified I-205 merge/diverge areas.</p> <p>For Phase 1, although implementation of Mitigation Measure 4.4-d will ultimately reduce degradation of freeway ramp-freeway mainline merge/diverge operation on I-205, actual freeway improvements may not be implemented by Caltrans rapidly enough to reduce the impact to less-than-significant</p>	

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.4-e: Degradation of Weaving Movements on I-5 to/from Mossdale Road/Manthey Road Hook Ramps (Existing Baseline Plus Project). There are no significant weaving impacts on I-5 to/from Mossdale Road and Manthey Road hook ramp interchanges for Phase 1a, Phase 1 and Buildout. The reason is that the River Islands project would only access these interchanges during Phase 1a. Under Phase 1 and Buildout conditions, the project would not be expected to add any measurable increase in base case traffic to the Mossdale Road/Manthey Road Hook Ramps since there would only be an emergency vehicle roadway connection between the project and Manthey Road. As a result, these two interchanges would be operating under all scenarios either at an acceptable level of service and would not have a measurable increase in traffic or the interchanges would already be operating at an unacceptable level of service during at least one of the peak hours and would continue to operate at an unacceptable level of service during at</p>	<p>LTS</p>	<p>levels. Therefore, this impact is considered significant and unavoidable.</p> <p>For Buildout, the following improvements shall be provided: I-205/MacArthur Drive Interchange On- and Off-Ramp Merge/Diverge, increase the lengths of and off-ramp deceleration lanes and on-ramp acceleration lanes.</p> <p>Acceptable levels of service for the Westbound Off-Ramp diverge and the Westbound On-Ramp merge could only be achieved with the planned widening of the I-205 freeway from 4 up to 6 lanes. Because this improvement is not scheduled to be completed by Caltrans until 2007, and because the development of this improvement by the proposed project is outside the scope of the project (i.e. it is a regional improvement), the River Islands full buildout would result in significant unavoidable traffic impacts to the identified I-205 merge/diverge areas.</p>	<p>LTS</p>

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>least one of the peak hours, with the project contributing less than 1% of the traffic increase.</p> <p>4.4-f: Degradation of Rural Two-Lane Roadway Operation – (Existing Baseline Plus Project). Phase 1 traffic would create no significant impacts to rural two-lane roads. Buildout traffic would result in unacceptable (LOS D) operation along the three two-lane rural roadways connecting the River Islands development to the I-205 / MacArthur Drive interchange (Paradise Road, Arbor Avenue, MacArthur Drive).</p>	S	<p>The City of Lathrop shall ensure that the project applicant pays its Applicable Transportation Impact Fees to provide the improvements listed below. For Buildout, the following improvements shall be provided: Paradise Road (River Islands Development to Arbor Avenue) and Arbor Avenue (Paradise Road to MacArthur Drive), provide 4 travel lanes (each 12 feet wide), 8-foot paved shoulders, left turn lanes on the approaches to all intersections and continuous two-way left turn lanes at all major driveways. MacArthur Drive (Arbor Avenue to I-205), Provide 4 travel lanes (each 12 feet wide) and 8-foot paved shoulders.</p>	LTS
<p>4.4-g: Degradation of Stewart Road Operation (Existing Baseline Plus Project). For Phase 1a, the project applicant's proposed widening of Stewart Road (just west of Manthey Road) to contain two 12-foot travel lanes and 3-foot paved shoulders would not meet minimum rural collector road standards of two 12-foot travel lanes and 8-foot-wide shoulders for roadways accommodating more than 3,000 vehicles per day. The applicant is also not proposing to relocate the Union Pacific at-grade crossing gate and signal standards, which would be within 10 feet of the roadways edge of travel way and would not conform to standards for horizontal clearance to obstructions along rural collector roads with design speeds less than 45 miles per hour. In addition, the two sharp 90-degree curves in Stewart Road near Manthey Road do not meet City of Lathrop curve radii minimum requirements. Finally, the sharp 90-degree curve on Stewart Road just west of Manthey Road does not meet minimum stopping sight distance criteria for a 25-mile per hour design speed. For Phase 1 and for Buildout, the project would not use Stewart Road, so there is no impact.</p>	S	<p>For Phase 1a, the City of Lathrop shall ensure that the project applicant construct Stewart Road in its existing alignment to the criteria listed in Mitigation Measure 4.4-g before the roadway is used by any project construction traffic.</p> <p>Implementation of Mitigation Measure 4.4-g for either the existing or the proposed alignment of Stewart Road would reduce the impact of construction traffic on Stewart Road to less-than-significant levels.</p> <p>As alternative mitigation, the project proponents are proposing to have construction traffic enter the site via Manthey Road, and the Paradise Cut levee road via an existing private crossing of the UPRR tracks (formerly SPRR). Due to the inadequate width of the levee to allow two opposing lanes of traffic, the levee would be used to allow west bound construction traffic onto the site, and a new temporary road would be constructed at the base of the levee to allow east bound construction traffic to exit the</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.4-h: Degradation of Manthey Road San Joaquin River Bridge Operation (Existing Baseline Plus Project). Project Phase 1a would increase existing traffic using the 500-foot-long Manthey Road San Joaquin River Bridge from about 550 to about 1,800 two-way vehicles per day. This total would include northbound heavy truck traffic associated with sand and gravel mining operation to the east of the I-5 freeway. The bridge's two 12-foot travel lanes and no shoulder area would potentially meet standards for existing bridges along rural collector roads (which indicate the need for a 24-foot minimum clear roadway width with 1,500 to 2,000 vehicles per day). However, it should be noted that these criteria pertain to bridges 100 feet or less in length; there are no published AASHTO criteria for rural collector bridges longer than 100 feet. For Phase 1 and for Buildout, the project is anticipated to have minimal impact upon Manthey Road, and so the impact is considered less than significant. This Phase 1a issue represents a potentially significant impact.</p>	PS	<p>The levee would be widened at the existing rail crossing and the two directions of travel would be returned to the same grade to cross the railroad tracks side by side. The existing private at-grade railroad crossing would be used only for construction traffic during daylight hours. Use of this private railroad crossing is subject to review and approval by UPRR and the PUC.</p> <p>Implementation of Mitigation Measure 4.4-g for the alternate construction access to the site would reduce the potential impact of construction traffic on Stewart Road to less-than-significant levels by providing the required improvements to meet the AASHTO rural collector road standard.</p>	LTS
		<p>For Phase 1a, there is no feasible cost effective measure that could widen the Manthey Road travel lanes on its bridge crossing the San Joaquin River. Prior to a determination that the traffic on Manthey Road has reached 150 vehicles per hour through the Stewart Tract Traffic Monitoring Programs, one of the alternative measures noted below shall be constructed:</p> <ol style="list-style-type: none"> 1. Post (and regularly enforce) a 15- to 20-mile per hour speed limit on the bridge –or– 2. Stripe and sign the bridge for one-way northbound traffic flow. This would allow all non-project sand and gravel trucks as well as project construction trucks to reach the Louise Avenue interchange for freeway access. However, a secondary impact of this measure would require all inbound traffic to the project as well as local Marina/residential and sand/gravel operations to use the Mossdale Road/Manthey Road hook ramps. This would increase weaving movements to/from the Mossdale Road/Manthey Road hook ramps –or– 	

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.4-i: Construction Traffic (Existing Baseline Plus Project). For Phase 1a, the project applicant estimates there could be up to 300 construction workers accessing the project site on any given weekday. All but 75 workers are expected to access the site before 6:30 AM and all but 75 would exit the site before 4:30 PM. No construction truck traffic is expected before 8:00 AM or after 4:00 PM. Should these projections and commute times be followed, operational impacts would remain at a less-than-significant level. However, if these times are not followed, operational problems could arise. Also, construction traffic, in particular truck traffic, could degrade pavement condition along all roadways used for access. In addition, construction truck traffic (not staying within their lanes) would cause safety concerns on the sharp 90-degree curves of Stewart Road (during Phase 1a). For Phase 1 and Buildout, the access to the site via River Islands Parkway is adequate to support construction traffic.</p>	<p>S</p>	<p>3. Stripe and sign a single travel lane on the Manthey Road bridge crossing the San Joaquin River and have alternating signal controlled northbound and southbound traffic flow.</p> <p>Implementation of Mitigation Measure 4.4-h alternatives 1 and 2 would reduce the potential impact on the Manthey Road San Joaquin River Bridge to less-than-significant levels, although alternative 2 would result in a potentially significant secondary impact. Mitigation Measure 3 would reduce the potential impact on the Manthey Road San Joaquin River Bridge to less-than-significant levels by imposing safety features or by limiting the traffic on the bridge to meet criteria for rural collector bridges.</p>	<p>LTS</p>
<p>4.4-i: Construction Traffic (Existing Baseline Plus Project). For Phase 1a, the project applicant estimates there could be up to 300 construction workers accessing the project site on any given weekday. All but 75 workers are expected to access the site before 6:30 AM and all but 75 would exit the site before 4:30 PM. No construction truck traffic is expected before 8:00 AM or after 4:00 PM. Should these projections and commute times be followed, operational impacts would remain at a less-than-significant level. However, if these times are not followed, operational problems could arise. Also, construction traffic, in particular truck traffic, could degrade pavement condition along all roadways used for access. In addition, construction truck traffic (not staying within their lanes) would cause safety concerns on the sharp 90-degree curves of Stewart Road (during Phase 1a). For Phase 1 and Buildout, the access to the site via River Islands Parkway is adequate to support construction traffic.</p>	<p>S</p>	<p>For Phase 1a, the City of Lathrop shall ensure that the project applicant agrees to the conditions described in section 4.4 of this SEIR regulating construction traffic.</p> <p>As alternative mitigation to the impact along Stewart Road, the project proponents are proposing to have construction traffic enter the site via Manthey Road and the Paradise Cut levee road via an existing private crossing of the UPRR tracks (formerly SPRR). Due to the inadequate width of the levee to allow two opposing lanes of traffic, the levee would be used to allow west bound construction traffic onto the site, and a new temporary road would be constructed at the base of the levee to allow east bound construction traffic to exit the site. The levee would be widened at the existing rail crossing and the two directions of travel would be returned to the same grade to cross the railroad tracks side by side. The existing private at-grade railroad crossing would be used only for construction traffic during daylight hours. Use of this private railroad crossing would be subject to review and approval by UPRR and the PUC. This segregation of construction traffic would completely mitigate the</p>	<p>LTS</p>

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.4-j: Degradation of Levels of Service at Signalized and Unsignalized Intersections (Base Case Plus Project). Phase 1a (2007) traffic would create no significant intersection impacts. With Phase 1(2015) traffic, the following intersections would degrade to LOS F (or would not degrade an LOS level but would operate at LOS F and contribute more than a 1% traffic increase to the intersection): Louise Avenue/I-5 ramps and MacArthur Drive/Arbor Avenue. Buildout (2025) traffic would create the following impacts: Louise Avenue/I-5 northbound ramps would continue to operate at LOS F, with the project contributing more than 1% of the traffic increase to the intersection; Louise Avenue/I-5 southbound ramps would operate at LOS E; MacArthur Drive/I-205 ramp would operate at LOS F; and River Islands Parkway/Golden Valley Parkway intersection would operate at LOS E.</p>	<p>S</p>	<p>effects of construction traffic along Stewart Road.</p> <p>Implementation of Mitigation Measure 4.4-i for either the construction access restrictions noted or provision of the alternate construction access to the site would reduce the potential impact of construction traffic to less-than-significant levels by limiting construction traffic on Stewart Road and on Paradise Road.</p>	<p>LTS</p>
		<p>The City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees to provide that the Phase 1 improvements listed below. For Phase 1 (2015), the improvements described in mitigation measures 4.4-j shall be provided:</p> <p>SECONDARY IMPACTS: The development of the loop ramp at the Louise Avenue/I-5 interchange required by the above mitigation would require right-of-way purchase in the southeast quadrant of the interchange, and relocation of the existing Louise Avenue/I-5 northbound off-ramp in order to accommodate the loop ramp. This, in turn, would require the relocation or elimination of an existing gas station in the southeast quadrant. The potential general environmental effects of moving the off-ramp is programmatically evaluated in sections 4.14 and 4.16 of this SEIR (Terrestrial Biology and Cultural Resources, respectively). This improvement will also be subject to future project-level CEQA review once specific design drawings for the improvement have been prepared.</p> <p>Implementation of Mitigation Measure 4.4-j would reduce potential traffic impacts associated with degradation of LOS at signalized and unsignalized intersections to less-than-significant levels by returning them to an LOS of D or better.</p>	

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>SECONDARY IMPACTS: The development of the loop ramps at the Louise Avenue/I-5 interchange required by the above mitigation would require right-of-way purchase in the northwest and southeast quadrants of the interchange, and relocation of the existing Louise Avenue/I-5 northbound and southbound off-ramps in order to accommodate the loop ramps. This, in turn, would require the relocation or elimination of an existing statutory business in the northwest quadrant of the Louise Avenue/I-5 interchange and relocation or elimination of an existing gas station in the southeast quadrant. The potential general environmental effects of moving the off-ramps is programatically evaluated in sections 4.14 and 4.16 of this SEIR (Terrestrial Biology and Cultural Resources, respectively). These improvements will also be subject to future project-level CEQA review once specific design drawings for the improvements have been prepared.</p>	
<p>4.4-k: Vehicle Backups Extending from One Intersection through an Adjacent Intersection (Base Case Plus Project). Phase 1a (2007) traffic would create no significant vehicle backup impacts. With Phase 1 (2015) traffic, vehicle backups would extend from one intersection through an adjacent intersection during the PM peak hour for Louise Avenue approaching I-5 northbound ramps and MacArthur Drive approaching I-205 ramps. With Buildout (2025) traffic, vehicle backups would extend from one intersection through an adjacent intersection during at least one of the peak hours for Louise Avenue traffic approaching I-5 northbound ramps, Paradise Road southbound through traffic approaching I-205 ramps, and MacArthur Drive northbound left-turn traffic approaching I-205 ramps.</p>	S	<p>The City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees to provide the improvements listed below. See mitigation measures 4.4-k for a description of Phase 1 and Buildout improvements for Louise Avenue/I-5 and MacArthur Drive/I-205 that would be provided.</p>	LTS
<p>4.4-l: Degradation of Freeway Operations (Base Case Plus Project). With Phase 1a (2007) traffic, freeway operations on I-205, both and , west of MacArthur Drive would continue to operate at LOS</p>	S	<p>The City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees for its fair share contribution for I-5, SR 120 and I-205 freeway improvements.</p>	SU

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>E or F during one of the peak hours, with the project increasing traffic more than 1%. With Phase 1 (2015) traffic, operations at four freeway segments would continue to perform at or would be degraded to unacceptable levels of service, with the project contributing more than 1% of the traffic increase to all four segments, during one of the peak hours: I-5 north of Louise Avenue and I-205 west of MacArthur Drive. With Buildout (2025) traffic, the project contributes more than a 1% traffic increase at each of the following freeway segments during at least one of the peak hours: I-5 north of Louise Avenue and south of I-205 and between Louise Avenue and SR 120 and between SR 120 and I-205; I-205 between Paradise Road and MacArthur Drive and west of MacArthur Drive; and SR 120 east of I-5.</p>	<p>S</p>	<p>However, because the needed improvements are not currently scheduled by Caltrans to be completed by the time the demand is anticipated (2007, 2015 & 2025), and because the development of these improvements by the proposed project is outside the scope of the project (i.e., it is a regional improvement), the River Islands Phase 1a, Phase 1 and Buildout development would result in significant unavoidable (short and long term) traffic impacts to the identified freeway segments until said improvements are completed.</p> <p>Phase 1a (2007), Phase 1 (2015), Buildout (2025) improvements that are needed are identified in Mitigation Measure 4.4-l.</p>	<p>SU</p>
<p>4.4-m: Degradation of Freeway Ramp/Freeway Mainline Merge/Diverge Operation (Base Case Plus Project). Phase 1a (2007) project traffic would increase volumes more than 1% at two ramp merge and two ramp diverge locations already operating at unacceptable levels of service during one of the peak hours: I-5 on-ramp merge from Manthey Road and from Mossdale Road; and off-ramp diverge to Mossdale Road and MacArthur Drive. With Phase 1 (2015), project traffic would contribute more than a 1% traffic increase at these five locations, significantly degrading base case freeway operation at the following freeway ramp merge and diverge areas during one of the peak hours: I-5 off-ramp diverge to Louise Avenue, which would continue to operate at LOS E; the I-5 on-ramp merge from Louise Avenue, which would degrade from LOS E operations to LOS F; and I-205 on- and off-ramp merge/diverge from MacArthur Drive, which would continue to operate at LOS F. With Buildout (2025), project traffic would significantly degrade base case freeway on-ramp merge and off-ramp diverge operations during one or both of the peak hours: I-5 on- and off-ramp merge/diverge to Louise Avenue, I-5 on- and off-ramp merge/diverge to Manthey Road, I-205 on-ramp merge from Paradise Road, I-205 off-ramp diverge to Paradise Road, I-205</p>	<p>S</p>	<p>The City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees to provide the improvements listed below.</p> <p>Phase 1a (2007) improvements that are needed to fully mitigate operation of the following four merge/diverge areas to bring Base Case+ Project operation to the same levels as Base Case conditions (should no additional freeway lanes be provided along I-5 or I-205 as part of needed Base Case improvements) would require the improvements listed in Mitigation Measure 4.4-m.</p> <p>For Phase 1a (2007), implementation of Mitigation Measure 4.4-m will ultimately reduce degradation of freeway ramp-freeway mainline merge/diverge operation on I-205 to a less than significant level. However, although implementation of Mitigation Measure 4.4-m would reduce degradation of freeway ramp-freeway mainline merge/diverge operation on I-5, it is doubtful if Caltrans would approve of these measures. Therefore, there would be a temporary impact (until the River</p>	<p>SU</p>

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
on- and off-ramp merge/diverge to MacArthur Drive.		<p>Islands Parkway bridge is constructed) that is not reduced to less-than-significant levels. Therefore, this impact is considered significant and unavoidable.</p> <p>For Phase 1 (2015) and Buildout (2025), although implementation of Mitigation Measure 4.4-m will ultimately reduce degradation of freeway ramp-freeway mainline merge/diverge improvements, actual freeway improvements may not be implemented by Caltrans rapidly enough to reduce the impact to less-than-significant levels. Therefore, this impact is considered significant and unavoidable.</p>	
<p>4.4-n: Degradation of Weaving Movements on I-5 to/from Mossdale Road/Manthey Road Hook Ramps(Base Case Plus Project). There are no significant weaving impacts anticipated at the I-5 to/from Mossdale Road and Manthey Road hook ramp interchanges. The River Islands project would access these interchanges only during Phase 1a (2007). Under Phase 1 (2015) and Buildout (2025) conditions, the project would not be expected to add any measurable increase in base case traffic to the Mossdale Road/Manthey Road Hook Ramps since there would only be an emergency vehicle roadway connection between the project and Manthey Road. As a result, these two interchanges would be operating under all scenarios either at an acceptable level of service and would not have a measurable increase in traffic or the interchanges would already be operating at an unacceptable level of service during at least one of the peak hours and would continue to operate at an unacceptable level of service during at least one of the peak hours, with the project contributing less than 1% of the traffic increase.</p> <p>4.4-o: Degradation of Rural Two-Lane Roadway Operation (Base Case Plus Project). Phase 1a (2007) traffic would create no significant impacts to rural two-lane roads. With Phase 1 (2015) traffic, the</p>	LTS	<p>No mitigation measures are necessary.</p>	LTS
	S	<p>The City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees to provide improvements listed below</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>proposed project would degrade rural two-lane roadway operation to an unacceptable LOS D at the following locations in AM and PM peak hour: Paradise Road, Paradise Cut to Arbor Avenue, Arbor Avenue, Paradise Road to MacArthur Drive. With Buildout (2025) traffic, the proposed project would degrade rural two-lane roadway operation at the following locations: Paradise Road, Paradise Cut to Arbor Avenue (in AM peak hour, degrade to unacceptable LOS D operation. In PM peak hour, degrade to unacceptable LOS E operation) Paradise Road, Arbor Avenue to I-205 (in AM and PM peak hour, degrade to unacceptable LOS E operation); Arbor Avenue, Paradise Road to MacArthur Drive (in AM and PM peak hour, greater than 1% traffic increase with Base Case unacceptable LOS D operation; plus degrade to LOS E operation); MacArthur Drive, Arbor Avenue to I-205 (in PM, peak hour, degrade to unacceptable LOS E operation); Golden Valley Parkway, Paradise Road/Arbor Avenue intersection to the east end of the project site (in the AM and PM Peak Hours, degrade to unacceptable LOS E operation).</p>	S	<p>See Mitigation Measure 4.4-o for a description of improvements for Phase 1 (2015) and Buildout (2025) impacts.</p>	LTS
<p>4.4-p: Degradation of Stewart Road Operation (Base Case Plus Project). For Phase 1a (2007), the project applicant's proposed widening of Stewart Road (just west of Manthey Road) to contain two 12-foot travel lanes and 3-foot paved shoulders would not meet minimum rural collector roadway standards of two 12-foot travel lanes and 8-foot-wide shoulders for roadways accommodating more than 3,000 vehicles per day. The applicant is also not proposing to relocate the Union Pacific at-grade crossing gate and signal standards, which would be within 10 feet of the roadways edge of travel way and would not conform to standards for horizontal clearance to obstructions along rural collector roads with design speeds less than 45 miles per hour. In addition, the two sharp 90-degree curves in Stewart Road near Manthey Road do not meet City of Lathrop curve radii minimum requirements. Finally, the sharp 90-degree curve on Stewart Road just west of Manthey Road does not meet minimum stopping sight distance criteria</p>	S	<p>For Phase 1a (2007), the City of Lathrop shall ensure that the project applicant construct Stewart Road in its existing alignment to the following criteria before the roadway is used by any project construction traffic. See Mitigation Measure 4.4-p for a description of the improvements for Stewart Road. The mitigation measures noted above would improve Stewart Road to a greater extent than proposed by the project applicant. In addition, the mitigation measures noted above shall also be provided if Stewart Road is realigned.</p> <p>Implementation of Mitigation Measure 4.4-p for either the existing or the proposed alignment of Stewart Road would reduce the impact of construction traffic on Stewart Road to less-than-significant levels.</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>for a 25-mile per hour design speed. For Phase 1 (2015) and for Buildout (2025), the project would not use Stewart Road, so there is no impact.</p>		<p>As alternative mitigation, the project proponents are proposing to have construction traffic enter the site via Manthey Road and the Paradise Cut levee road via an existing private crossing of the UPRR tracks (formerly SPRR). Due to the inadequate width of the levee to allow two opposing lanes of traffic, the levee would be used to allow west bound construction traffic onto the site, and a new temporary road would be constructed at the base of the levee to allow east bound construction traffic to exit the site. The levee would be widened at the existing rail crossing and the two directions of travel would be returned to the same grade to cross the railroad tracks side by side. The existing private at-grade railroad crossing would be used only for construction traffic during daylight hours. Use of this private railroad crossing would be subject to review and approval by UPRR and the PUC.</p>	
<p>4.4-q: Degradation of Manthey Road San Joaquin River Bridge Operation (Base Case Plus Project). Project Phase 1a (2007) traffic would increase year 2007 Base Case traffic using the 500-foot-long Manthey Road San Joaquin River Bridge from about 600 to more than 2,000 vehicles per day. This total would include northbound heavy truck traffic associated with the sand and gravel mining operation to the east of the I-5 freeway as well as construction trucks associated with River Islands. The bridge's two 12-foot travel lanes and no shoulder area would potentially not meet standards for existing bridges along rural collector roads (which indicate the need for a 28-foot minimum clear roadway width). It should be noted, however, that these criteria pertain to bridges 100 feet or less in length: there are no published criteria for rural collector bridges longer than 100 feet. For Phase 1 (2015) and for Buildout (2025), the project is anticipated to have minimally use Manthey Road, and the impact would be less than significant.</p>	PS	<p>For Phase 1a (2007), there is no feasible cost effective measure that could widen the Manthey Road travel lanes on its bridge crossing the San Joaquin River. Prior to a determination that the traffic on Manthey Road has reached 150 vehicles per hour through the Stewart Tract Traffic Monitoring Programs, one of the alternative measures noted below shall be constructed:</p> <ol style="list-style-type: none"> 1. Post (and regularly enforce) a 15- to 20-mile-per-hour speed limit on the bridge –or– 2. Stripe and sign the bridge for one-way northbound traffic flow. This would allow all non-project sand and gravel trucks as well as project construction trucks to reach the Louise Avenue interchange for freeway access. However, a secondary impact of this measure would require all inbound traffic to the project as well as local Marina/residential and sand/gravel operations to use the Mossdale Road/Manthey Road hook ramps. This would increase weaving movements 	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.4-r: Proposed Internal Circulation Plan (Base Case Plus Project). The proposed Buildout project internal circulation plan would function adequately with acceptable levels of service at all major signalized internal intersections. With regional development and resultant congested peak period freeway operation, it is likely that some subregional through traffic would be using the River Islands roadway system during these periods. This through traffic would use only arterial roadways through the site (River Islands Parkway and Paradise Road). Projections indicate this additional traffic could be accommodated at acceptable levels.</p> <p>However, a review of the proposed Phase 1 internal circulation plan showed that some parts of the plan could result in significant impacts.</p> <p>Regarding Buildout, there is no tentative map for development of the entire project; only Phase 1. However, the UDC for project buildout presents enough detail in order to analyze all major intersections outside Phase 1. The proposed project internal circulation plan at buildout would function adequately with acceptable levels of service at all major</p>	<p>S</p>	<p>to the Mossdale Road/Manthey Road hook ramps –or– Stripe and sign a single travel lane on the Manthey Road bridge crossing the San Joaquin River and have alternating signal controlled northbound and southbound traffic flow.</p> <p>Implementation of Mitigation Measure 4.4-q alternatives 1 and 2 would reduce the potential impact on the Manthey Road San Joaquin River Bridge to less-than-significant levels, although alternative 2 would result in a potentially significant secondary impact. Mitigation Measure 3 would reduce the potential impact on the Manthey Road San Joaquin River Bridge to less-than-significant levels by imposing safety features or by limiting the traffic on the bridge to meet criteria for rural collector bridges.</p> <p>For Phase 1 (2015), the City of Lathrop shall ensure that the project applicant revise the Phase I tentative map to incorporate the following changes and provide requested information.</p> <ul style="list-style-type: none"> ▶ Increase right-of-way of Broad Street by at least 24 feet to allow ultimate provision of four through travel lanes. ▶ Increase the right-of-way of North River Islands Parkway and South River Islands parkway by 12 feet on the approaches to major intersections to allow ultimate provision of dual left turn lanes, if and when needed. ▶ Consider eliminating angled parking along Water Street. ▶ Widen all local streets to 36 feet at curves (if parking is to be allowed on both sides of the street) –or– to maintain the proposed 34-foot curb-to-curb width, eliminate on-street parking along the inside of each curve. ▶ Design all local street curves to meet City of Lathrop standards. ▶ Redesign the tentative map to provide at least 400 feet between certain intersections. 	<p>LTS</p>

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>signalized internal intersections. However, with regional development and resultant congested peak period freeway operation, it is likely that some subregional through traffic would be using the River Islands roadway system during these periods. Use of project collector roadways by through traffic could potentially result in significant safety concerns.</p> <p>In addition, comments pertaining to Phase I significant impacts regarding less-than-adequate spacing between intersections, inadequate sight lines, widths of local streets at curves, inadequate rights-of-way for four-lane parkways at major intersections, operation of two-lane roundabouts, Canal Street intersection control and concerns of the Lathrop-Manteca Fire District regarding the maximum length of cul-de-sacs would also pertain to those sections of River Islands remaining to be completed by buildout.</p>		<ul style="list-style-type: none"> ▶ Provide a signalized intersection at the North River Islands Parkway/D27 Street-A14 Street intersection. ▶ Redesign A10 Street/K8 Street, K8 Street/K1 Street and both K1 Street/K2 Street intersections to have 90-degree intersection approach legs –or– consider keeping the existing plan and change to one-way couplet operation. ▶ Consider eliminating east-west through traffic flow on either north or south Canal Street by allowing right turns in and out only at each intersection with a north-south street. Stop sign or signal control could then be utilized, if needed, only at the Canal Street intersection allowing east-west through flow. This would eliminate the potential for two closely spaced intersections that may both require traffic control on all north-south collector roadways (such as Broad Street) that intersect both north and south Canal Street. ▶ Provide at least AASHTO (2001) minimum sight lines at all intersections. This may require prohibition of on-street parking or redesign of the tentative map to eliminate less-than-adequate sight lines at certain intersections. <p>The applicant shall submit detailed information (for a three- to five-year historical period) regarding the safe operation of two-lane roundabouts for exactly the same design as is being proposed at three locations along South River Islands Parkway. Volume levels at the surveyed sites should also be about the same as those being projected for buildout conditions within River Islands. Based upon the data presented, if the applicant can make a convincing argument in favor of safe operation of two-lane roundabouts (for autos, pedestrians and bike riders), the City should consider their installation. Even with approval of the roundabouts, it is still recommended that right-of-way be preserved in order to provide a signalized intersection, if ever required.</p>	

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.4-s: Onsite Pedestrian Circulation (Base Case Plus Project). The project's Phase 1a, Phase 1 and Buildout pedestrian circulation plan proposes sidewalks along both sides of all internal streets, with the exception of all single loaded stub streets (where a sidewalk on one side would be provided), and all alleys (where no sidewalks would be provided). Pedestrian/bicycle trails would also be provided along some levees and adjacent to some portions of internal waterways. The overall pedestrian circulation plan appears adequate with one possible exception. The 8- to 10-foot-wide trails are widths typically provided for bike riders only. In locations with moderate to high pedestrian volumes, there could be conflicts between pedestrians and bike riders.</p>	PS	<p>Redesign the tentative map to provide secondary or emergency vehicle access to all cul-de-sacs as required by the Lathrop-Manteca Fire District.</p> <p>For Buildout (2025), the City shall require full onsite circulation environmental analysis for all subsequent tentative maps.</p> <p>For Phase 1 (2015), the City of Lathrop shall ensure that the project applicant revise the Phase 1 tentative map to incorporate the following changes: Reserve right-of-way for a separate pedestrian trail at all locations along loop trails that are not within close proximity to sidewalks. For Buildout (2025), the City of Lathrop shall require full onsite pedestrian circulation environmental analysis for all subsequent tentative maps.</p>	LTS
<p>4.4-t: Onsite Bicycle Circulation (Base Case Plus Project). The project's proposed Phase 1a, Phase 1 and Buildout bicycle circulation plan proposes a mix of multi-use trails (Class I pedestrian/bikeways) and bicycle lanes (Class II bikeways). All four- and six-lane parkways and all two-lane major collector streets would have Class II signed and striped bike lanes. The Loop and Paseo trail system previously listed under pedestrian circulation would also serve bike riders as well as pedestrians. Thus, bike riders would also have off-street or signed and striped on-street facilities providing access to all parks, schools, commercial areas and employment centers within the development.</p>	PS	<p>For Phase 1 (2015), the City of Lathrop shall ensure that the project applicant revise the Phase 1 tentative map to include mitigation measures 4.4-r and 4.4-s in addition to the following measure: Provide informational signing along all bicycle routes indicating bicycle riders must obey all traffic laws, including giving the right-of-way to pedestrians and stopping at all stop signs and red signals. For Buildout (2025), the City shall also require full onsite bicycle circulation environmental analysis for all subsequent tentative maps.</p>	LTS
<p>4.4-u: Provisions for Public Transit (Year2007, 2015 & 2025 Base Case + Project). Regarding Phase 1a (2007), Phase 1(2015) and Buildout (2025), the project applicant has contacted the San Joaquin Regional Transit District (SJRTD) and has committed to work with</p>	LTS	<p>No mitigation measures are necessary.</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>them to provide an internal circulation plan within the residential and commercial areas that would facilitate and encourage use of public transit. This would include providing areas for likely bus stops (to transit agency criteria) as well as bus stop shelters. The project's TDM program would also encourage employees to use local transit service. Bus transit service would be provided by SJRTD to the ACE commuter train station as well as to Stockton, Tracy and the other sections of Lathrop. While the project site is adjacent to the San Joaquin River and would contain several marinas, there are no definitive plans for public boat service. However, it would be assumed that some residents would use their private boats for local travel within the River Islands project as well as for regional recreation travel.</p>			
<p>4.4-v: Construction Traffic (Base Case Plus Project). For Phase 1a, the project applicant estimates there could be up to 300 construction workers accessing the project site on any given weekday. All but 75 workers are expected to access the site before 6:30 AM and all but 75 would exit the site before 4:30 PM. No construction truck traffic is expected before 8:00 AM or after 4:00 PM. Should these projections and commute times be followed, operational impacts would remain at a less-than-significant level. However, if these times are not followed, operational problems could arise. Also, construction traffic, in particular truck traffic, could degrade pavement condition along all roadways used for access. In addition, construction truck traffic (not staying within their lanes) would cause safety concerns on the sharp 90-degree curves of Stewart Road (during Phase 1a). For Phase 1 and Buildout, the access to the site via River Islands Parkway is adequate to support construction traffic.</p>	S	<p>For Phase 1a, the City of Lathrop shall ensure that the project applicant agrees to the following conditions regulating construction traffic.</p> <ul style="list-style-type: none"> ▶ All degradation of pavement condition along Stewart Road and Manthey Road due to River Islands construction traffic will be fully repaired to the satisfaction of the City of Lathrop. City staff and the project applicant shall jointly monitor the condition of each roadway every six months. ▶ No project construction traffic shall be allowed to use Paradise Road. ▶ No construction delivery truck traffic shall be allowed on the local roadway network before 8:00 AM or after 4:30 PM. ▶ No construction worker traffic shall be allowed on the local roadway network between 6:30 and 8:00 AM and between 4:30 and 6:00 PM. <p>As alternative mitigation to the impact along Stewart Road, the project proponents are proposing to have construction traffic enter the site via Manthey Road and the Paradise Cut levee road</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>via an existing private crossing of the UPRR tracks (formerly SPRR). Due to the inadequate width of the levee to allow two opposing lanes of traffic, the levee would be used to allow west bound construction traffic onto the site, and a new temporary road would be constructed at the base of the levee to allow east bound construction traffic to exit the site. The levee would be widened at the existing rail crossing and the two directions of travel would be returned to the same grade to cross the railroad tracks side by side. The existing private at-grade railroad crossing would be used only for construction traffic during daylight hours. Use of this private railroad crossing would be subject to review and approval by UPRR and the PUC. This segregation of construction traffic would completely mitigate the effects of construction traffic along Stewart Road.</p>	
4.5 AIR QUALITY			LTS
<p>4.5-a: Increases in Regional Criteria Pollutants during Construction. Construction activities associated with the proposed project would result in the generation of nitrogen oxides (NO_x), reactive organic gases (ROG), and particulates (PM₁₀) emissions in addition to the potential airborne entrainment of asbestos associated with demolition of existing structures.</p>	S	<p>The SJVAPCD emphasizes implementation of effective and comprehensive control measures rather than requiring a detailed quantification of construction emissions. The SJVAPCD requires that all feasible control measures (dependent on the size of the construction area and the nature of the construction operations) shall be incorporated and implemented.</p> <p>Based on available information, it appears that the application of standard construction mitigation measures for the control of fugitive dust (i.e., the application of water or soil stabilizers) are effective methods of reducing dust-related impacts on agricultural crops.</p> <p>In accordance with SJVAPCD guidelines (SJVAPCD 1998), the following mitigation, which includes SJVAPCD Basic, Enhanced, and Additional Control Measures, shall be</p>	

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>incorporated and implemented. In addition to the mitigation measures identified below, construction of the proposed project is required to comply with applicable SJVAPCD rules and regulations, including the requirement of a California Occupational Safety and Health Administration-qualified asbestos survey before demolition.</p> <ul style="list-style-type: none"> ▶ All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, or vegetative ground cover. ▶ All onsite unpaved construction roads and offsite unpaved construction access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant. ▶ All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking. ▶ During demolition of buildings all exterior surfaces of the building shall be wetted. ▶ When materials are transported offsite, all material shall be covered, effectively wetted to limit visible dust emissions, or at least 6 inches of freeboard space from the top of the container shall be maintained. ▶ All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.) ▶ Following the addition of materials to, or the removal of 	

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>materials from, the surfaces of outdoor storage piles, piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.</p> <ul style="list-style-type: none"> ▶ Onsite vehicle speeds on unpaved roads shall be limited to 15 mph. ▶ Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from adjacent project areas with a slope greater than 1 percent. ▶ Wheel washers shall be installed for all exiting trucks and equipment, or wheels shall be washed to remove accumulated dirt prior to leaving the site. ▶ Excavation and grading activities shall be suspended when winds exceed 20 mph. ▶ The overall area subject to excavation and grading at any one time shall be limited to the fullest extent possible. ▶ Onsite equipment shall be maintained and properly tuned in accordance with manufacturers' specifications. ▶ When not in use, onsite equipment shall not be left idling. 	
<p>4.5-b: Increases in Odorous Emissions. Odors associated with agricultural processes would result in less-than-significant impacts given the City's Right-to-Farm Ordinance and required buffers between agriculture and development. The City's industrial and wastewater facilities have not received odor complaints from nearby residents.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.5-c: Increases in Stationary Source Toxic Air Contaminants (TAC). Development associated with the proposed project would include sensitive receptors (e.g., residences, schools) and facilities that might emit TACs (e.g., manufacturing in the Employment Center). Onsite and offsite facilities that may emit TACs would be required to comply with established emission standards through the SJVAPCD permit process.</p>	LTS	No mitigation measures are necessary.	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.5-d: Increases in Mobile Source Toxic Air Contaminants. Diesel PM emissions from diesel-fueled delivery trucks associated with development of commercial- and industrial-related land uses may exceed health risk standards at nearby sensitive receptors.</p>	PS	<p>Implementation of the proposed project would result in a potentially significant increase in mobile source TACs, associated primarily with diesel trucks generated by commercial and industrial-related land uses. Mobile source TACs are a relatively new concern for the ARB, so specific guidelines and practices regarding assessing impacts and providing mitigation are not available. It is also unclear what effects new ARB diesel engine emission standards and diesel particulate matter regulations would have on the level of impact and the necessity for, or type of, mitigation. Therefore, the specific conditions of mobile source TAC impacts cannot be determined at this time. The only available mitigation of completely separating emission sources (diesel vehicles) from all sensitive receptors is not feasible. Therefore, no mitigation is available for Impact 4.5-d to reduce the impact to a less-than-significant level. Thus, implementing the proposed project would result in a significant and unavoidable adverse impact with respect to mobile source TACs.</p>	SU
<p>4.5-e: Increases in Local Mobile Source CO Concentrations. Implementation of the proposed project would result in the generation of CO at nearby intersections from increased vehicular traffic on the local transportation network. However, the proposed project would not contribute to CO concentrations that exceed CAAQS of 9.0 ppm for 8 hours or 20 ppm for 1 hour. Therefore</p>	LTS	<p>No mitigation measures are necessary.</p>	LTS
<p>4.5-f: Increases in Long-Term Regional Emissions. Implementation of the proposed project would result in long-term regional emissions, primarily associated with mobile sources, that would exceed the SJVAPCD's recommended significance threshold of 10 tons per year for ROG and NOx.</p>	S	<p>The project applicant shall implement the following mitigation measures, where applicable and feasible, as recommended in the SJVAPCD Guide for Assessing and Mitigating Air Quality Impacts (SJVAPCD 1998). It should be noted that many of these measures are already included in the proposed project design; however, they are repeated here to allow a complete listing of the SJVAPCD guidelines.</p>	SU

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<ul style="list-style-type: none"> ▶ Provide transit enhancing infrastructure that includes transit shelters, benches, street lightening, route signs and displays, and/or bus turnouts/bulbs. ▶ Provide park and ride lots and/or satellite telecommuting centers. ▶ Provide pedestrian enhancing infrastructure that includes sidewalks and pedestrian paths, direct pedestrian connections, street trees to shade sidewalks, pedestrian safety designs/infrastructure, street furniture and artwork, street lightening, and/or pedestrian signalization and signs. ▶ Provide bicycle enhancing infrastructure that includes bikeways/paths connecting to a bikeway system, secure bicycle parking, and/or employee lockers and showers. ▶ Use solar, low-emissions, central, or tankless water heaters (residential and commercial), increase wall and attic insulation beyond Title 24 requirements (residential and commercial), orient buildings to take advantage of solar heating and natural cooling and use passive solar designs (residential, commercial, and industrial), replace wood-burning stoves and fireplaces with gas-fired fireplaces or inserts. 	
4.5-g: Consistency with Air Quality Plans. Predicted increases in regional emissions would be consistent with the emissions inventories used for air quality planning purposes.	LTS	No mitigation measures are necessary.	LTS
4.6 NOISE			
4.6-a: Increases in Short-Term Construction-Generated Noise. Depending on the activities being performed, as well as the duration and hours during which activities occur, construction-generated noise	S	Per the City of Lathrop Noise Ordinance, construction activities in, or within 500 feet of a residential zone (i.e., an area containing occupied residences) shall be prohibited between 10	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>levels at nearby residences could violate City of Lathrop Noise Ordinance standards. Activities occurring during the more noise-sensitive evening and nighttime hours could result in increased levels of annoyance and sleep disruption to occupants of nearby residences.</p>		<p>p.m. and 7 a.m. Sunday through Thursday and between 11 p.m. and 9 a.m. on Fridays, Saturdays, and legal holidays.</p> <p>In addition, all construction vehicles or equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and acoustical shields or shrouds, in accordance with manufacturers' recommendations. Construction equipment and truck routes shall be arranged to minimize travel adjacent to occupied residences. Stationary construction equipment and staging areas shall be located as far as possible from sensitive receptors, and temporary acoustic barriers may be installed around stationary equipment if necessary.</p>	
<p>4.6-b: Stationary Source Noise Generated by Onsite Land Uses. Increases in stationary source noise associated with the proposed project land uses could potentially exceed the City's maximum allowable noise standards.</p>	S	<p>As individual facilities, subdivisions, and other project elements are permitted by the City, the City will evaluate the element for compliance with the City's Noise Ordinance and noise policies in the General Plan. Where individual project elements do not clearly comply with interior noise standards included in these guidelines, mitigation measures shall be required to reduce projected interior and exterior noise levels to within acceptable levels.</p> <p>Mitigation measures include, but are not limited to, the following:</p> <ul style="list-style-type: none"> ▶ Dual-pane, noise-rated windows, mechanical air systems, exterior wall insulation, and other noise-reducing building materials shall be used. ▶ Mechanical equipment (e.g., air conditioning and ventilation systems) and area source operations (e.g., loading docks, parking lots, recreational use areas) shall be located at the furthest distance from and/or be shielded from nearby existing and future noise-sensitive land uses. 	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>In addition, the following measures will apply to noise-generating activities associated with the golf course.</p> <ul style="list-style-type: none"> ▶ Onsite landscape maintenance equipment shall be equipped with properly operating exhaust mufflers and engine shrouds, in accordance with manufacturers' specifications. ▶ For maintenance areas located within 500 feet of noise-sensitive land uses, the operation of onsite landscape maintenance equipment shall be limited to the least noise-sensitive periods of the day, between the hours of 7 a.m. and 7 p.m. ▶ Areas of the golf course that would require frequent turf maintenance (e.g., fairways, tees) shall be located at a minimum distance of 100 feet from the property line of nearby existing residences. 	
4.6-c: Increases in Existing Traffic Noise Levels. Implementation of the proposed project would not result in a noticeable increase in ambient noise levels (i.e., 3 dBA or greater) at nearby existing noise-sensitive land uses as a result of increases in traffic noise levels.	LTS	No mitigation measures are necessary.	LTS
4.6-d: Compatibility of the Proposed Land Uses with Projected onsite Noise Levels. Predicted noise levels at some noise-sensitive receptors associated with the proposed project would exceed the City's "normally acceptable" land use compatibility noise standards.	S	As individual facilities, subdivisions, and other project elements are permitted by the City, the City will evaluate the element for compliance with the City's Noise Ordinance and noise policies in the General Plan. Where individual project elements do not clearly comply with interior noise standards included in these guidelines, mitigation measures such as use of dual-pane windows, mechanical air systems, exterior wall insulation, and other noise-reducing building materials and methods shall be required as appropriate to reduce interior noise exposure to the "normally acceptable" levels identified by the City. Where individual project elements do not clearly comply with exterior noise standards included in the City guidelines, mitigation	LTS for some impacts; SU for others

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>measures such as use of sound walls, vegetative screening, buildings for screening, and setbacks between noise sources and receptors, shall be implemented as appropriate to minimize exterior noise levels. Where there is a question regarding premitigation or postmitigation noise levels in a particular area, site-specific noise studies may be conducted to determine compliance/noncompliance with City guidelines.</p> <p>Title 24 of the California Code of Regulations requires the preparation of an acoustical analysis for multifamily residences that demonstrates how interior noise levels will achieve a 45-dBA CNEL/L_{dn}, where the exterior noise levels exceed 60-dBA CNEL/L_{dn}. As a result, a Title 24 analysis shall be prepared as part of the final design of any proposed multifamily residential dwellings. To the extent necessary, noise control measures shall be designed according to the type of building construction and specified sound rating for each building element to achieve an interior noise level of 45-dBA CNEL/L_{dn}.</p>	
4.7 GEOLOGY, SOILS, AND MINERAL RESOURCES			
4.7-a: Construction-Related Erosion. Construction activities during project implementation would involve extensive excavations, fills, and movement and stockpiling of earth, which could expose soils to erosion and the loss of topsoil.	LTS	No mitigation measures are necessary.	LTS
4.7-b: Seismic Hazards (Ground Shaking). Ground shaking on the project site could expose people or structures to substantial risk of loss, injury, or death.	S	Project facilities shall be designed for maximum horizontal ground surface accelerations of at least 0.23 g.	LTS
4.7-c: Seismic Hazards (Liquefaction). Earthquake-induced liquefaction at the project site could result in substantial risk of structural damage and could expose residents, workers, and visitors on the project site to substantial risk of bodily injury.	S	A design-level geotechnical study shall be completed for each project development (e.g., housing subdivision, Employment Center subdivision, school, levee segment) before a grading permit is issued, focusing on the liquefaction potential in the area	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		and identifying appropriate means to minimize/avoid damage from liquefaction.	
4.7-d: Seismic Hazards (Ground Lurching and Soil Settlement). Ground lurching and settlement induced by dynamic densification during a seismic event at the project site could result in risk of structural damage and could expose residents, workers, and visitors on the project site to risk of bodily injury. However, these risks are considered minor because of onsite soil conditions.	LTS	No mitigation measures are necessary.	LTS
4.7-e: Seismic Hazards (Lateral Spreading and Landslide). Seismically induced lateral spreading and landslide could result in levee failures at the project site, exposing residents, workers, and visitors to the risk of flooding, structural damage, and body injury.	S	A design-level geotechnical study shall be completed for each project development (e.g., housing subdivision, Employment Center subdivision, school, levee segment) before a grading permit is issued. The geotechnical studies for levees and levee improvements shall include additional site explorations and a laboratory testing program to more accurately determine subsurface stratigraphy and soil strength characteristics for slope stability analyses. Final levee designs shall be analyzed for various stability conditions using the strength parameters developed from the additional exploration and testing. Levee designs shall address issues such as long-term slope stability for static and seismic conditions, lateral spreading, and potential effects of seepage on levee stability.	LST
4.7-f: Shrink-Swell Potential. The shrinking and swelling of soils could result in damage to structures, underground utilities, and other facilities on the project site during the operation of the proposed development.	S	A design-level geotechnical study shall be completed for each project development (e.g., housing subdivision, Employment Center subdivision, school, levee segment) before a grading permit is issued. The study shall specifically address whether expansive soils are present in the development area and include measures to address these soils where they occur.	LTS
4.7-g: Corrosive Soils. The moderate corrosiveness of onsite soils could cause damage to buried concrete slabs and foundations and buried metal pipes during the operation of the River Islands project.	S	A design-level geotechnical study shall be completed for each project development (e.g., housing subdivision, Employment Center subdivision, school, levee segment) before a grading	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.7-h: Mineral Resources. The development of permanent structures on land classified MRZ-2 would result in the loss of access to potentially significant sand deposits classified by the CDMG. However, the loss of mineable surface area (5 acres) is small relative to the available MRZ-2 lands in the area (roughly 1,100 acres).</p>	LTS	<p>The study shall specifically address corrosion potential and include measures to address corrosive soils where damage to underground facilities may occur.</p> <p>No mitigation measures are necessary.</p>	LTS
<p>4.8 HYDROLOGY AND WATER QUALITY</p>			
<p>4.8-a: RID Area Construction Sediment and Water Quality Contamination. Drainage and water quality impacts could result from construction activities in the RID Area.</p>	PS	<p>General construction activities within the RID Area could impair existing water bodies. Two key plans will be prepared and implemented: a Stormwater Pollution Prevention Plan (SWPPP) (including an erosion control and construction plan) and an environmental monitoring and mitigation compliance and reporting program. Development and implementation of both plans would be coordinated. The City shall ensure the following measures are completed:</p> <ul style="list-style-type: none"> ▶ Prepare and implement a SWPPP prior to any construction activities that meets the requirements for the California General Permit for construction projects regulated under the NPDES and includes specific BMPs to avoid and minimize impacts on water quality during construction activities. The goals of the SWPPP will generally be to protect water quality; establish procedures to minimize accelerated soil erosion; minimize accelerated sedimentation into the internal drainage system, the San Joaquin River, Old River, and Paradise Cut; minimize non-stormwater runoff; and ensure long-term reestablishment of preconstruction site conditions where practical. 	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>Also addressed in the SWPPP will be identification construction sites, activities, and schedules; temporary storage and borrow areas; construction materials handling and disposal; dewatering and treatment and disposal of groundwater removed from excavations; discharges; equipment washing; inspection and maintenance measures; final stabilization and clean up; and appropriate use of seeding, mulching, erosion control blankets, and other erosion control measures.</p> <p>The project proponent would also obtain all necessary permits and meet all requirements specified by local, state, or federal agencies in whole or in part responsible for water quality protection, including, but not limited to:</p> <p>Spills from construction equipment could release contaminants to waterways. To avoid contamination, the project applicant shall comply with the measures mentioned above, at a minimum, and implement additional best management practices as defined in section 4.8.</p>	
<p>4.8-b: Interior Lake Water Quality. Project operations in the RID Area could adversely affect water quality in the interior lake. Because water from the interior lake would come into contact with groundwater and would be pumped into Paradise Cut, these waters also could be adversely affected. However, multiple best management practices (BMPs) are proposed that would protect and manage water quality in the interior lake.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.8-c: Earth Moving in or Adjacent to Water Bodies. Earth moving associated with levee breaching and back bay development along the surrounding waterways could result in streambed and riverbank disturbance, sediment input, and contaminant input, thereby affecting water quality.</p>	S	Levee breaching and earth moving adjacent to the San Joaquin River, Old River, and Paradise Cut could increase short-term turbidity and release small quantities of construction-related contaminants within the local disturbance area. To reduce turbidity impacts, the project proponent shall, to the extent	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>possible:</p> <ul style="list-style-type: none"> ▶ Perform breaching operations and all other in-river work, or work immediately adjacent to the rivers, during low tide and during low flows. ▶ Work in Paradise Cut only when flood waters from the San Joaquin River are not present in the Cut and there is no immediate threat of flood waters overtopping the Paradise Weir. ▶ Perform all interior dredging, grading, and construction of in-water facilities (e.g. dock installation) in the back bays and the widened Paradise Cut channel before breaching levees to the adjacent water body. Soils which will be inundated after breaching will be stabilized to the extent possible to minimize erosion and sediment backwash as these constructed water bodies initially fill. ▶ Adhere to all local, state, and federal regulations regarding turbidity reduction measures applicable to this activity, including developing and implementing a SWPPP. ▶ Adhere to applicable requirements in Mitigation Measure 4.8-a. 	
<p>4.8-d: In-Water Project Features. Constructing bridges and docks on the San Joaquin River, Old River, and/or Paradise Cut could cause sedimentation and water quality impacts.</p>	S	<p>Implementation of Mitigation Measures 4.8-a and 4.8-c would reduce potential sedimentation/water quality impacts associated with constructing bridges and docks on the San Joaquin River, Old River, and/or Paradise Cut to less-than-significant levels.</p>	LTS
<p>4.8-e: Utility Crossings. The proposed directional boring of a natural gas line under the San Joaquin River could result in short-term degradation of water quality from accidental seepage of drilling slurry into the river.</p>	PS	<p>Based on the assumption that a frac-out may occur during directional drilling under the San Joaquin River, the following detection, containment, and prevention procedures will be implemented by the project applicant to mitigate the potential effects of a frac-out:</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<ul style="list-style-type: none"> ▶ Provide an environmental monitor during all boring operations. ▶ Before a drilling operation begins, a reconnaissance survey will be made by the drill crew chief and environmental monitor to identify conditions that may indicate a greater likelihood for frac-outs, and site features that may be affected should a frac-out occur (e.g. San Joaquin River, levees, irrigation canals). ▶ If substrates in the bore area are considered particularly sensitive to frac-outs, boring measures will be implemented that reduce the potential for a frac-out (e.g., using extra low pressures and nontoxic leak sealants). ▶ In the event that a frac-out is detected, drilling operations will cease immediately and the environmental monitor will be notified. ▶ The environmental monitor will immediately notify by telephone the appropriate office of the CDFG, RWQCB, and other appropriate permitting agencies of any frac-out that may affect areas under their jurisdictions. ▶ The contractor will also follow relevant measures contained in Mitigation Measures 4.8-a and 4.8-c as appropriate to avoid sediment entering the San Joaquin River at bore hole entrance and exit points. 	
<p>4.8-f: Diversion Effects on Old River Hydrology. Under the proposed project less water would be pumped from Old River into the RID Area, and diversions would be shifted to a period when demand from agricultural users is less.</p>	B	No mitigation measures are necessary.	B
<p>4.8-g: Diversion Effects on Old River Water Quality. Under the proposed project less water would be pumped from Old River and diversions would be shifted primarily to October and November when local agricultural water demands and water quality concerns are</p>	B	No mitigation measures are necessary.	B

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>reduced.</p> <p>4.8-h: Water Discharges to the Delta (Hydrology). Less water would be discharged into Paradise Cut under the proposed project than under existing conditions; potentially altering the hydrology of the Paradise Cut channel. However, the proposed widening of the Paradise Cut channel would compensate for any changes by allowing greater tidal circulation.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.8-i: Water Discharges to the Delta (Water Quality). The quality of the water discharged into Paradise Cut from the internal project lake would generally be improved under the proposed project relative to existing conditions. However, some individual water quality parameters would be in higher concentrations in post project discharges. All post project contaminant concentrations that would be increased fall within regulatory water quality standards.</p>	LTS/B	No mitigation measures are necessary.	LTS/B
<p>4.8-j: Maintenance Dredging of Back Bays. Maintenance dredging of back bays may release sediments and increase turbidity, adversely affecting water quality in the San Joaquin and Old Rivers.</p>	S	<p>To reduce turbidity impacts, the project proponent shall, to the extent possible:</p> <ul style="list-style-type: none"> ▶ Perform dredging during low tide and during low flows. ▶ Use suction dredging to minimize sediment releases. ▶ Adhere to all local, state, and federal regulations regarding turbidity reduction measures and dredged material disposal applicable to this activity, including developing and implementing a SWPPP. ▶ Adhere to Mitigation Measure 4.8-a. 	LTS
<p>4.8-k: Increased Boat Traffic. Development in the RID Area and associated installation of docks on the San Joaquin River, Old River, and Paradise Cut would increase boat traffic in these waterways. Increased erosion from boat wakes and fuel spills from the use and storage of these boats may adversely affect water quality in the surrounding waterways.</p>	S	<p>The project applicant would limit boat speeds by establishing “no-wake zones” with maximum 5-mph speeds in all back bays and in locations where docks are installed along the San Joaquin River, Old River, and Paradise Cut. In addition, the project applicant shall implement the following mitigation measures to further decrease wave action on levees surrounding the project</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.8-i: Flood Protection for the RID Area. The RID Area is currently completely within the 1-in-100-AEP floodplain, but would be removed from the floodplain by increasing Paradise Cut flow volumes and capacity, strengthening levees, creating high-ground corridors, and constructing back bays.</p>	B	<p>area and minimize fuel spills and associated boat-related discharges:</p> <p>No mitigation measures are necessary.</p>	B
<p>4.8-m: Surrounding Flood Stage Elevations. Providing 1-in-200-AEP level flood protection to the RID Area could result in increases to flood stage elevations in the surrounding area during severe flood events. However, increases would be minor and highly infrequent.</p>	LTS	<p>No mitigation measures are necessary.</p>	LTS
<p>4.8-n: Nonflood Hydrology in Surrounding Waterways. Although the project results in minor changes to hydrologic conditions in the surrounding waterways, nonflood hydrology is not substantially affected.</p>	LTS	<p>No mitigation measures are necessary.</p>	LTS
<p>4.8-o: Groundwater Quality During Construction. During project construction, excavation activities could intersect shallow groundwater and result in sediments or contaminants entering the groundwater.</p>	PS	<p>The SWPPP developed and implemented as part of Mitigation Measure 4.8-a must specifically include measures to prevent/minimize sediment and contaminant releases into groundwater during excavations and methods to clean up releases if they do occur. These may include using temporary berms or dikes to isolate portions of central lake construction activities; using vacuum trucks to capture contaminant releases; and maintaining floating booms, absorbent pads, and other containment and cleanup materials onsite to allow an immediate response to contaminant releases if they occur.</p>	LTS
<p>4.8-p: Groundwater Quality and Supply During Project Operation. During project operation groundwater quality could be adversely affected through contaminants entering the Central Lake or the Paradise Cut Canal. Use of municipal water originating from City</p>	LTS	<p>No mitigation measures are necessary.</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
wells could affect groundwater supplies and quality if overdraft conditions or increases in total dissolved solids (TDS) occurred. However, available information indicates that adverse effects on groundwater quality and supply would not occur.			
4.8-q: Water Supplies to Other Users. Project operations could directly or indirectly affect water supplies to other water users. However, in most instances the proposed project would have a beneficial effect on available water supplies.	LTS	No mitigation measures are necessary.	LTS
4.9 HAZARDOUS MATERIALS AND PUBLIC HEALTH			
4.9-a: Hazardous Materials. During all phases, the project would involve the storage, use, and transport of hazardous materials at the project site during construction activities. In addition, because the project proposes commercial uses, it is likely that some facilities (e.g., dry cleaners and gas stations) could use hazardous materials during operation. However, use of hazardous materials at the site would be in compliance with local, state, and federal regulations. Therefore, impacts related to creation of significant hazards to the public through routine transport, storage, use, disposal, and risk of upset would not occur.	LTS	No mitigation measures are necessary.	LTS
4.9-b: Exposure of Construction Workers, Residents, and Others to Hazardous Materials. Past agricultural and farming operations in the RID Area could have resulted in contamination of soil and/or groundwater in some locations. Demolition, excavation, and construction activities in the RID Area could result in the exposure of construction workers to hazardous materials, including asbestos, petroleum hydrocarbons, pesticides, herbicides, and fertilizers. In addition, if contaminated sites in the RID Area are not cleaned before occupation or use of the site, then residents and others could be exposed to hazardous materials.	S	Before demolition of any structures associated with past and current farming operations (e.g., buildings, ASTs, USTs), the project applicant shall investigate the extent to which soil and/or groundwater has been contaminated from these operations. This investigation would include, as necessary, analysis of soil and/or groundwater samples taken at or near the potential contamination sites. If the results indicate that contamination exists at levels above regulatory action standards, then the SJCEHD shall be notified and the site shall be remediated in accordance with recommendations made by SJCEHD; RWQCB; DTSC; or other appropriate federal, state, or local regulatory agencies.	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.9-c: Potential Public Health Impacts Associated with Recycled Water. The proposed project includes the use of recycled water to irrigate nonresidential landscaping in the project site. The recycled water would comply with state requirements for unrestricted use. Because recycled water would comply with state health requirements and because irrigation of residential (private) landscaping is not proposed, conflicts related to public health are not anticipated.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.10 PUBLIC SERVICES</p>			
<p>4.10-a: Obstruction of Roadways during Construction. Implementation of the proposed project could obstruct roadways in the vicinity during construction, which could obstruct or slow emergency vehicles attempting to access the area.</p>	S	Per City requirements, the applicant/contractor shall prepare and implement traffic control plans for construction activities that may affect road rights-of-way. The traffic control plans must follow California Department of Transportation standards and be signed by a professional engineer.	LTS
<p>4.10-b: Increased Demand for Fire Protection Facilities and Services. Development of the proposed project would result in an increase in demand for fire protection facilities and services. If planned fire stations are not constructed, existing fire protection facilities could not adequately serve the project site.</p>	S	The City shall not authorize the occupancy of any structures in Phase 1a of the proposed project until the proposed interim fire station is in service. As development proceeds through Phase 1 and Phase 2 of the proposed project, the City shall authorize occupancy of new structures only if confirmation of 3- to 4-minute emergency response times to these structures can be provided using LMFPD methodologies. At some currently undetermined point during Phase 1, the new permanent fire station (tentatively planned in the Employment Center) would need to be constructed and brought into service to meet the response time requirement. Similarly, at some point during Phase 2, one or more additional fire stations would need to be constructed to meet the response time requirements. The LMFPD would build and equip necessary interim and permanent fire stations, as needed, on land dedicated by the project applicant. The applicant shall pay to the City all applicable fire service fees and assessments required to pay for its share of fire district facilities and services required to serve the River Islands	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>project.</p> <p>Construction of structures greater than 50 feet in height or four stories will not be permitted by the City until the LMFPD possesses appropriate equipment (e.g., aerial trucks) to provide fire suppression and emergency services to the upper stories of these buildings. The applicant shall pay to the City all applicable fire service fees and assessments required to pay for its fair share of this equipment.</p>	
<p>4.10-c: Increased Demand for Water-Related Emergency Services and Facilities. Because of the heavy integration of water features into the design of the proposed project, demand for water-related emergency services and facilities would increase as a result of project implementation. The LMFPD would require new equipment to address this demand.</p>	S	<p>The project applicant and the LMFPD have developed a tentative agreement regarding the type, cost, schedule, and purchase conditions for a fire/rescue boat to be operated by the LMFPD to address water-related emergency services. The City shall not authorize the occupancy of any project structures adjacent to the San Joaquin River, Old River, Paradise Cut, or the internal project lake until this agreement has been finalized.</p>	LTS
<p>4.10-d: Increased Demand for Fire Flow. The proposed project would include the development of residential, commercial, school, and other uses that would require adequate available water flow for fire suppression. Lack of adequate fire flow would substantially impede the ability of the LMFPD to provide effective fire suppression service at the project site.</p>	S	<p>The City shall not authorize the occupancy of any structures until the applicant has confirmed provision of adequate minimum fire flows as required by the LMFPD and the California Fire Code.</p>	LTS
<p>4.10-e: Increased Demand for Police Protection Facilities and Services. The development of the proposed project would increase the demand for police protection facilities and services and result in the need for additional staff members and equipment to maintain an adequate level of service.</p>	S	<p>The project applicant shall pay to the City the startup costs incurred in the hiring and training for each of the new police officer positions needed to serve the project (four for Phase 1a, an additional 13 officers for Phase 1, and 27 more officers for Phase 2 [total of 44], assuming the existing 1.4-officer-to-1,000-resident ratio). This fee shall be incurred once per position (i.e., it shall not be used to train turnover staff). In addition, the following equipment costs shall be paid for by the applicant:</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<ul style="list-style-type: none"> ▶ standard safety equipment for each officer, including sidearm; belt, holster, etc.; body armor; mobile radio, etc.; and ▶ a fully equipped patrol vehicle for every two officers, including radio, siren, roof lighting, Opticom mobile strobe, mobile computer terminal, and vehicle video recorder. <p>The payment of the above startup fees and equipment costs shall be phased to coincide with the need for new officers generated by project development. Each time sufficient dwelling units are developed to generate 714 residents, the fee equivalent for one officer shall be paid to the City (based on a 1.4-officer-to-1,000-resident ratio). The resident threshold may be adjusted if City policy results in a different officer-to-resident ratio. Resident generation rates to be used for this calculation are:</p> <ul style="list-style-type: none"> ▶ single family 3.2 persons per dwelling unit ▶ multifamily 2.5 persons per dwelling unit ▶ active adult 1.5 persons per dwelling unit <p>As police officers and support staff members are hired to meet demand associated with the proposed project, the planned Government Center, or similar or interim facilities, would be completed before Police Department staff exceed available space in the 7th Street building.</p> <p>The project applicant shall also ensure the use of 3M Addressable Opticom Traffic Control Pre-emption devices and detectors/reflectors (or equivalent based on Police Department standards) in all traffic lights for which the project is responsible and the City has jurisdiction.</p>	

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.10-f: Increased Demand for Animal Control Facilities and Services. Increases in human populations as a result of project development would result in a corresponding increase in demand for animal control facilities and services. New facilities and staff members would be required to maintain the existing level of service in the City.</p>	S	<p>The project applicant and City of Lathrop shall negotiate an animal control services agreement element. The agreement shall be designed to ensure that resources are available for animal control facilities and staff to expand to meet demand associated with the proposed project. Credit may be given to the project applicant if a portion of the River Islands Animal Campus is dedicated to use by the City's Animal Control Division.</p>	LTS
<p>4.10-g: Increased Demand for Public School Facilities and Services. Implementation of the proposed project would increase demand for elementary schools (K-8) within the BESD and for high schools in the TUSD. Although the project includes a proposal for onsite schools, proposed facilities may not be sufficient to meet demand during Phase 1a and Phase 1. In addition, a schedule and funding mechanism for construction of these schools has not been confirmed.</p>	S	<p>The City shall not allow occupancy of any project residences until a mitigation agreement has been executed between the project applicant and the BESD and TUSD regarding the provision of school services for the proposed project or payment of the state-mandated school impact fee City.</p> <p>The BESD is considering becoming a unified school district and providing high school facilities to grade 9-12 students. If this occurs, and the BESD provides all K-12 school services to the project site, then the mitigation agreement needs to be executed only with the BESD and not with the TUSD.</p>	LTS
<p>4.10-h: Increased Generation of Solid Waste. The proposed project would substantially increase solid waste generation. However, Foothill Sanitary Landfill, which would receive solid waste from the project, has ample long-term available capacity.</p>	LTS	<p>No mitigation measures are necessary.</p>	LTS
<p>4.11 PUBLIC UTILITIES</p>			
<p>4.11-a: Demand for Potable Water. The proposed project would create demand for potable water that could not be met by existing City water production facilities (i.e., wells).</p>	S	<p>No portion of the proposed project shall be occupied until sufficient multi-drought year water supply is available to serve that portion of the project site being developed and water infrastructure (e.g., pipelines) to serve the area is complete.</p>	LTS
<p>4.11-b: Environmental Impacts Associated with the Development of New City Wells. According to the Master Plan EIR, the</p>	S	<p>The Water, Wastewater and Reclaimed Water Master Plan EIR contains measures to mitigate these impacts.</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>construction and operation of planned new City wells (Wells #21-23 and Emergency Wells #1 and #2) could contribute to significant geotechnical, groundwater, flooding, noise, farmland, aesthetics/views, terrestrial biology, and cultural resources impacts.</p>	S	Occupancy of individual developments included in Phase 1a and Phase 1 shall not be permitted by the City until both adequate wastewater treatment capacity and tertiary treatment to Title 22 standards for unrestricted use are available at WRP #1 or WRP #3 to serve this development.	LTS
<p>4.11-c: Demand for Wastewater Treatment Capacity during Phase 1a and Phase 1. Implementation of Phase 1a and Phase 1 of the proposed project would create a demand for wastewater treatment that could not be met by existing City facilities. Development and operation of the WRP #1 Phase 1 Expansion Project would be required to provide the River Islands project with adequate treatment capacity during Phase 1a and Phase 1.</p>	S	Elements of Phase 2 project development that would generate demand for wastewater treatment capacity shall not commence until both adequate wastewater treatment capacity and tertiary treatment to Title 22 standards for unrestricted use are available to serve the particular development area. It is expected that the necessary treatment capacity would require additional expansion of WRP #1 and/or construction of WRP #2 or #3.	LTS
<p>4.11-d: Demand for Wastewater Treatment Capacity for Phase 2. Inadequate wastewater treatment capacity currently exists to serve Phase 2 of the proposed project. Continued expansion of WRP #1 and/or development and operation of WRP #2 or WRP #3 would be required to provide the River Islands project with adequate treatment capacity at buildout.</p>	S	These impacts would be reduced to less-than-significant levels with implementation of the mitigation measures identified in the Master Plan EIR, with the exception of odor impacts and cumulative surface water quality and fisheries impacts, which would be significant and unavoidable.	LTS/ Potentially SU (odors only)
<p>4.11-e: Environmental Impacts Associated with the Expansion of WRP-#1 and Construction of WRPs #2 and #3. According to the Master Plan EIR, the expansion of WRP #1, construction of WRPs #2 and #3, and the potential discharges of treated wastewater to the San Joaquin River during later expansion phases could contribute to significant geotechnical, groundwater, flooding, air, odor, noise, land use, aesthetics/views, terrestrial biology, cultural resources, and emergency response impacts.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.11-f: Demand for Recycled Water Storage and Disposal Capacity during Phase 1a and Phase 1. The proposed project would increase the demand for recycled water storage and disposal areas. Adequate storage and disposal areas are available to accommodate the quantity of</p>	LTS		

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>treated wastewater to be generated by the project during Phase 1a and 1.</p> <p>4.11-g: Demand for Recycled Water Storage and Disposal Capacity for Phase 2. Implementation of Phase 2 of the proposed project would result in an incremental increase in project-generated recycled water requiring disposal. However, insufficient area would exist at the project site to dispose of this additional recycled water, and no offsite land disposal sites have been identified. There is not sufficient existing recycled water disposal capacity and there would not be sufficient capacity on the project site.</p>	S	<p>Elements of Phase 2 project development that would generate recycled water shall not commence until storage and disposal capacity is provided to address the incremental increase in recycled water generation associated with Phase 2 development. The additional disposal capacity may be provided through either land disposal or discharge to the San Joaquin River. If land disposal is selected, buildout shall not commence until:</p> <ul style="list-style-type: none"> ▶ sufficient acreage of storage ponds and spray fields is found for the disposal of the additional recycled water generated by the particular development area, ▶ infrastructure is developed to convey this additional recycled water to the storage and disposal areas, ▶ the storage ponds are lined, ▶ the application occurs at agronomic rates, and ▶ the off-site disposal system is operational. <p>If river disposal is selected, buildout shall not commence until river discharges of recycled water are permitted for expanded and/or new WRPs under the Master Plan.</p>	LTS
<p>4.11-h: Stormwater/Surface Runoff Management. The proposed project would generate substantial amounts of stormwater/surface runoff through the development of roughly 2,900 acres with land uses that create impervious surfaces. However, the project includes an extensive system of parks and paseos, created wetlands, and the central lake to manage, store, and clean stormwater runoff. This system is designed to provide onsite stormwater storage and discharge capability sufficient to protect the RID Area during a 1-in-100 Annual Exceedence Probability (AEP) event (i.e., 100-year flood event).</p>	LTS	<p>No mitigation measures are necessary.</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.11-i: Demand for Electricity and Natural Gas at Buildout. The proposed project would generate an increase in the demand for electricity and natural gas. PG&E is able to provide electricity and natural gas to the project, because the increase in demand for electricity and natural gas would not be substantial in relation to the existing electricity and natural gas consumption in PG&E's service area, and because the proposed electricity and natural gas improvements would be sufficient to provide the project with electricity and natural gas.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.12 RECREATION</p>			
<p>4.12-a: Demand for Neighborhood and Community Parks. Residential development proposed for Phase 1a would require 12.8 acres of parkland to meet the General Plan standard of 5 acres of parkland (2 acres of neighborhood park and 3 acres of community park per 1,000 residents). Phase 1a development with a nontraditional school system would include 38.2 acres of parkland. The completion of Phase 1 would increase the demand to 62 acres, and the project would provide 98.4 acres by the completion of Phase 1. Completion of Phase 2 would increase the total demand to 153.3 acres, and the project with a nontraditional school system would provide 265.3 acres in total. As such, development of the project with a nontraditional school system would create parkland in excess of anticipated demand. Development of the project with a traditional school system would result in 272.9 or more acres of parkland, which would also exceed demand established by the General Plan standards. The proposed project therefore would be expected to alleviate the demand on existing neighborhood and community parks. No substantial physical deterioration of existing parkland would result.</p>	B	No mitigation measures are necessary.	LTS
<p>4.12-b: Reduced Recreational Boating Opportunities. The proposed project would construct numerous new docks along the San Joaquin River and Old River that would require establishment of new</p>	LTS	No mitigation measures are necessary.	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>areas with boat speed limits near the project site, thus limiting some recreational boating opportunities (e.g., water skiing). However, overall the proposed project would provide additional public access to boating facilities in the project vicinity and increase recreational opportunities.</p>	B	No mitigation measures are necessary.	B
<p>4.12-c: Consistency with Open Space Designation. The General Plan designates a network of landscaped open space corridors on the proposed project site. The project includes habitat restoration, parks, and landscaped parkways in most of these areas and expands the network in other locations on the project site (i.e., landscaped areas along the internal lakes and an extensive network of bicycle and pedestrian trails). As such, the project would exceed open space requirements in the General Plan, enhancing the availability of recreational opportunities in the project vicinity.</p>	B		
<p>4.13 AGRICULTURAL RESOURCES</p>			
<p>4.13-a: Conversion of Important Farmland. Implementation of the proposed project would result in the permanent conversion of approximately 4,115 gross acres and 3,620 net acres of Prime Farmland and Farmland of Statewide Importance, as designated by the NRCS FPP and CDC's Important Farmland Inventory System and Mapping and Monitoring Program.</p>	S	<p>The City of Lathrop would participate in the SJMSCP. Fees would be paid to the SJCOG on a per-acre basis for lost agricultural land during development of both Phase 1 and Phase 2 of the proposed project. The SJCOG uses these funds to purchase conservation easements on agricultural and habitat lands in the project vicinity (in the Central Index Zone identified in the SJMSCP). The preservation in perpetuity of agricultural lands through the SJMSCP, a portion of which would consist of Prime Farmland and Farmland of Statewide Importance, would ensure the continued protection of farmland in the project vicinity, partially offsetting project impacts. However, because easements are purchased for land exhibiting benefits to wildlife, including a combination of habitat, open space, and agricultural lands, the overall compensation provided by the fee contribution for the proposed project would result in less than a 1:1 ratio of compensation specifically for agricultural land. In addition, no</p>	SU

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.13-b: Williamson Act Contract Cancellations. Implementation of the River Islands project would result in the cancellation of Williamson Act contracts for approximately 415 acres for Phase 1a and an undetermined amount of acreage (no more than 1,355 acres) for the completion of Phase 1. The total acreage lost to the cancellation of Williamson Act contracts would be up to 1,770 acres.</p>	S	<p>new farmland would be made available, and the productivity of existing farmland would not be improved as a result of SJMSCP implementation. Therefore, full compensation for losses of Important Farmland could not be achieved.</p> <p>Potential Williamson Act cancellations are limited to Phase 1a and Phase 1 of the River Islands project. The project applicant shall continue to allow/promote farming operations as long as possible on Phase 1a and Phase 1 as development proceeds. These actions would minimize the level of contract cancellations required.</p> <p>The River Islands at Lathrop project applicant would participate in the SJMSCP. Fees would be paid to the SJCOG on a per-acre basis for lost agricultural lands. The SJCOG uses these funds to purchase conservation easements on agricultural and habitat lands in the project vicinity (within the Central Zone identified in the SJMSCP). Participation in the SJMSCP would assist in compensating for Williamson Act contract cancellations by placing farmlands in conservation easements, requiring conservation of agricultural lands in perpetuity. These easements provide much more stringent and longer lasting protections than Williamson Act contracts.</p>	SU
<p>4.13-c: Adjacent Landowner/User Conflicts. Long-term impacts on adjacent offsite landowners and conflicts associated with noise, odor, and dust are expected to be minimal due the natural buffers of the Old River, San Joaquin River, and Paradise Cut.</p>	PS	<p>The following actions are consistent with those included in the WLSP EIR to address this impact. The project applicant would phase the development of agricultural lands in the RID Area (during both Phase 1 and Phase 2) to avoid the fracturing or fragmentation of continuing agricultural operations. As development occurs in the RID Area, fencing, walls, or other suitable barriers such as watercourses shall be established at the interface between development and adjacent agricultural lands. In addition, a buffer zone of at least 150 feet shall be provided</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>between the edge of residential or commercial development and the adjacent agricultural land. The City shall include the buffer as a condition of development approval, with the buffer being maintained until the next phase of development over the adjacent agricultural land is approved. Growers cultivating lands near or adjacent to urban development in the RID and PCC Areas shall comply with all necessary federal, state, and local restrictions regarding buffers between pesticide/herbicide applications and sensitive areas, such as schools, residences, and parks. Required buffer distances may vary depending on the type of chemicals used and the method of application. Residents and other individuals purchasing property near agricultural lands shall be provided information on the types of conflicts that may occur and appropriate means to address these conflicts, consistent with the City of Lathrop's Right-to-Farm Ordinance.</p>	
4.14 TERRESTRIAL BIOLOGY			
<p>4.14-a: General Biological Resources. Implementation of the proposed project would result in development or conversion of approximately 3,925 acres of agricultural, ruderal, and developed areas that provide habitat for a limited number of common plant and wildlife species.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.14-b: Special-Status Plants. Loss and disturbance of aquatic and riparian habitats associated with project activities during all three phases could result in loss of special-status plants.</p>	PS	<p>The following is a summary and clarification of SJMSCP incidental take avoidance and minimization measures for special-status plants:</p> <ul style="list-style-type: none"> ▶ Before project implementation, surveys for the special-status plants listed in Table 4.14-1 shall be conducted by a qualified botanist at the appropriate time of year when the target species would be in flower or otherwise clearly identifiable. Because all of the target special-status plants 	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>are associated with wetland and riparian habitats, the survey can focus on these habitats.</p> <ul style="list-style-type: none"> ▶ If no special-status plants are found during focused surveys, the findings shall be documented in a letter report to the regulatory agencies, and no further mitigation will be required. ▶ If special-status plants are found, the following measures shall be implemented: <p>Sanford’s arrowhead, Delta button-celery, and Slough thistle: The SJMSCP requires complete avoidance for these species; therefore, potential impacts on these species could not be covered through participation in the plan. If these species are present in the project area and cannot be avoided, a separate consultation with the regulatory agencies would be required. This consultation shall determine appropriate mitigation measures for any populations affected by the project, such as creation of offsite populations through seed collection or transplanting, preserving and enhancing existing populations, or restoring or creating suitable habitat in sufficient quantities to compensate for the impact. All mitigation measures determined necessary during this consultation shall be implemented by the project proponent.</p> <p>Mason’s lilaeopsis, rose mallow, Suisun marsh aster and Delta tule pea: These species are considered widely distributed species by the SJMSCP, and dedication of conservation easements is the preferred option for mitigation. If these species are found in the project area and a conservation easement is not an option, payment of</p> 	

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.14-c: Valley Elderberry Longhorn Beetle. Loss and disturbance of areas supporting natural vegetation during Phases 1 and 2 could result in loss of blue elderberry shrubs, which provide habitat for the valley elderberry longhorn beetle.</p>	<p>S</p>	<p>SJMSCP development fees may be used to mitigate impacts on these species.</p> <p>Wright’s trichocoronis: This species is considered a narrowly distributed species by the SJMSCP, and dedication of conservation easements is the preferred option of mitigation. If this species is found in the project area and the dedication of a conservation easement is not an option, the SJMSCP requires a consultation with the permitting agency representatives on the Technical Advisory Committee to determine the appropriate mitigation measures. These may include seed collection or other measures and would be determined on a population basis, taking into account the species type, relative health, and abundance. After the appropriate mitigation has been determined, it shall be implemented by the project proponent.</p>	<p>LTS</p>
		<p>The following is a summary and clarification of SJMSCP incidental take avoidance and minimization measures for the valley elderberry longhorn beetle (VELB):</p> <ul style="list-style-type: none"> ▶ Before project construction, a survey for elderberry shrubs shall be conducted where elderberries could occur within 50 feet of construction areas, including the banks of the San Joaquin River, the PCIP Area and the PCC Area. ▶ For all shrubs that are to be retained on the project site, a setback of 20 feet from the dripline of each elderberry bush found during the survey shall be established. ▶ Brightly colored flags or fencing shall be used to demarcate the 20-foot setback area and shall be maintained until project construction in the vicinity is complete. 	

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.14-d: Giant Garter Snake. Potential habitat for giant garter snake would be lost and/or disturbed as a result of project activities during Phases 1 and 2.</p>	<p>S</p>	<ul style="list-style-type: none"> ▶ For all shrubs without evidence of VELB exit holes that cannot be retained on the project site, all stems of 1 inch or greater in diameter at ground level shall be counted. Compensation for removal of these stems shall be provided in SJMSCP preserves as provided in SJMSCP Section 5.5.4(B). ▶ All shrubs with evidence of VELB exit holes or other evidence of VELB occupation that cannot be retained in the project area shall be transplanted to VELB mitigation sites during the dormant period for elderberry shrubs (November 1 to February 15). For elderberry shrubs displaying evidence of VELB occupation that cannot be transplanted, compensation for removal of shrubs shall be as provided, in accordance with SJMSCP Section 5.5.4(C). 	<p>LTS</p>
		<p>The SJMSCP requires full avoidance of known occupied giant garter snake habitat. Based on the lack of evidence during previous focused surveys, the giant garter snake is not expected to be present on the project site. However, if the giant garter snake is discovered on the project site, a separate consultation with USFWS under the ESA and CDFG under the CESA may be required. The following is a summary of SJMSCP and USFWS incidental take avoidance and minimization measures for the giant garter snake:</p> <ul style="list-style-type: none"> ▶ Preconstruction surveys for the giant garter snake shall occur within 24 hours of ground disturbance. ▶ Construction within 200 feet of suitable aquatic habitat for giant garter snake shall occur during the active period for the snake, between May 1 and October 1. Between October 2 and April 30, the Joint Powers Authority, with the concurrence of the Permitting Agencies' representatives on 	

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>the Technical Advisory Committee, shall determine whether additional measures (e.g., daily presence/absence surveys, exclusion fencing) are necessary to minimize and avoid take.</p> <ul style="list-style-type: none"> ▶ Limit vegetation clearing within 200 feet of the banks of potential giant garter snake aquatic habitat to the minimal area necessary. ▶ Confine the movement of heavy equipment within 200 feet of the banks of potential giant garter snake aquatic habitat to existing roadways to minimize habitat disturbance. ▶ Before ground disturbance, all onsite construction personnel shall be given instruction regarding the presence of the giant garter snake and the importance of avoiding impacts on this species and its habitats. ▶ In areas where wetlands, irrigation ditches, or other potential giant garter snake habitats are being retained on the site and are within 200 feet of an active construction area: <ul style="list-style-type: none"> a. install temporary fencing around potential garter snake habitat; b. restrict working areas, spoils and equipment storage, and other project activities to areas outside of potential garter snake habitat; and c. maintain water quality and limit construction runoff into wetland areas through the use of hay bales, filter fences, vegetative buffer strips, or other accepted equivalents. ▶ Other provisions of the USFWS Standard Avoidance and Minimization Measures during Construction Activities in 	

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.14-e: Western Pond Turtle. Suitable aquatic habitat for western pond turtle would be lost or disturbed as a result of project activities during Phases 1 and 2.</p>	PS	<p>Giant Garter Snake Habitat shall be implemented (excluding programmatic mitigation ratios, which are superceded by the SJMSCP's mitigation ratios).</p> <p>The following measures are designed to minimize potential loss of western pond turtles:</p> <ul style="list-style-type: none"> ▶ During dewatering and fill of the pond in the RID Area, a qualified biologist shall be present onsite to search for western pond turtles. If no pond turtles are observed, no further mitigation is necessary. ▶ If pond turtles are found, they shall be relocated by the biologist to the nearest suitable aquatic habitat in Paradise Cut. 	LTS
<p>4.14-f: Swainson's Hawk. Suitable Swainson's hawk foraging habitat would be lost, and loss of active nests could occur as a result of project activities during all three phases.</p>	S	<p>The City of Lathrop has obtained a California Endangered Species Act Management Authorization from CDFG for the WLSP (1996) to offset the impacts on the Swainson's hawk from development of West Lathrop. The management authorization is dependent on implementation of the WLSP habitat management agreement for Swainson's hawk (Sycamore Environmental Consultants 1995). However, because the project proponent would seek coverage under the SJMSCP, it is anticipated that the SJMSCP would be the mechanism used to mitigate impacts on the Swainson's hawk from the proposed project. As an alternative, the existing management authorization could be used. A summary of both mitigation alternatives is provided below.</p> <p>The following minimization measures are a summary and clarification of those set forth in the SJMSCP. These would be implemented in addition to payment of development fees required by the SJMSCP for funding of the establishment of</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>habitat conservation areas.</p> <ul style="list-style-type: none"> ▶ If project activity would occur during the Swainson's hawk nesting season (March 1 to August 15), preconstruction surveys shall be conducted during the nesting season in areas with suitable nest trees in and immediately adjacent to the construction area. The survey shall be conducted within 1 week before the beginning of construction. ▶ If an active nest is found, all construction activities shall remain a distance of two times the dripline of the tree, measured from the nest. A setback of this distance shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave the nest. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests which are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing. ▶ If the project proponent elects to remove a nest tree, then nest trees shall be removed between September 1 and February 15, when the nests are unoccupied. <p>The following measures are a summary of those set forth in the California Endangered Species Act Management Authorization from CDFG for the WLSP:</p> <ul style="list-style-type: none"> ▶ Mitigation for the loss of suitable Swainson's hawk foraging habitat shall be provided at a ratio of 0.5 acre of dedicated habitat to 1 acre of foraging habitat to be lost. ▶ Before project construction that would occur during the nesting season (March 1 through August 15), surveys shall 	

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>be conducted for active Swainson's hawk nests in areas with suitable nest trees within 0.25 mile of the proposed construction area. Large trees throughout the project site provide suitable habitat. Surveys shall be conducted at the beginning of the nesting season (April 15 through April 30). A visible exclusion zone shall be established around the portion of the construction area that occurs within 0.25 mile of the nest tree, and no project construction activity shall commence in the exclusion zone between March 1 and August 15. Nests shall be revisited during the posthatching stage (June 1 through June 30) and during the fledging period (July 1 through July 31) to determine the number of juveniles that have fledged.</p> <ul style="list-style-type: none"> ▶ All active and historic (those used during the previous 5 years) Swainson's hawk nest trees in the project area shall be preserved during implementation of the proposed project. No construction shall occur within 100 feet of a historic nest tree. A visible 100-foot exclusion zone shall be established around any historic nest tree located within 150 feet of a designated construction area. 	
<p>4.14-g: Aleutian Canada Goose and Greater Sandhill Crane. Winter foraging habitat for Aleutian Canada goose and greater sandhill crane would be lost during all three project phases, but suitable foraging habitat for these species is locally and regionally abundant.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.14-h: Burrowing Owl. Suitable burrowing owl foraging habitat would be lost and potential and active burrows could be removed as a result of project activities during all three phases.</p>	S	<p>The following is a summary and clarification of SJMSCP incidental take avoidance and minimization measures for burrowing owl:</p> <ul style="list-style-type: none"> ▶ Burrowing owls may be discouraged from entering or occupying construction areas by discouraging the presence of ground squirrels. To accomplish this, the project 	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>proponent could prevent ground squirrels from occupying the project site by employing one of several methods outlined in Section 5.2.4.15 of the SJMSCP. These include retention of tall vegetation, regular diskings of the site, or use of chemicals or traps to kill ground squirrels.</p> <ul style="list-style-type: none"> ▶ Preconstruction surveys for burrowing owls shall be conducted within 75 meters of areas of project activity in locations with potential burrow habitat, including field edges, roadsides, levees, and fallow fields. Actively farmed agricultural fields and regularly disked or graded fields do not provide suitable burrow sites and need not be surveyed. The survey shall be conducted within 1 week before the beginning of construction. If burrowing owls are found, the following measures shall be implemented: <ul style="list-style-type: none"> During the nonbreeding season (September 1 through January 31), burrowing owls occupying the project site shall be evicted from the project site by passive relocation as described in the CDFG's Staff Report on Burrowing Owls (CDFG 1995). During the breeding season (February 1 through August 31), occupied burrows shall not be disturbed and shall be provided with a 75-meter protective buffer until and unless the Technical Advisory Committee, with the concurrence of the permitting agencies' representatives on the Technical Advisory Committee, or a qualified biologist approved by the permitting agencies, verifies through noninvasive means that either (1) the birds have not begun egg laying or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. After the fledglings are capable of independent survival, the burrow can be destroyed. 	

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.14-i: Colonial Nesting Birds. Suitable foraging habitat for the tricolored blackbird, black-crowned night-heron, and great blue heron would be lost during all three project phases, but no nesting colonies of these species are known or expected to occur on the project site, and suitable foraging habitat is locally and regionally abundant.</p>	LTS	<p>The following is a summary and clarification of SJMSCP incidental take avoidance and minimization measures for the northern harrier:</p> <ul style="list-style-type: none"> ▶ If project activity would occur during the northern harrier nesting season (March 15 through September 15), preconstruction surveys shall be conducted during the nesting season in suitable nesting habitat within 500 feet of areas of project activity. Suitable habitat is currently limited to the bench in the PCIP Area but also could include fallow fields if they are allowed to develop herbaceous cover. The survey shall be conducted within 1 week before the beginning of construction. ▶ A setback of 500 feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests which are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing. 	LTS
<p>4.14-j: Ground-Nesting or Streamside/Lakeside-Nesting Birds. Suitable nesting habitat for northern harrier would be disturbed during Phase 1 and could result in loss of active nests.</p>	PS	<p>The following is a summary and clarification of SJMSCP incidental take avoidance and minimization measures for the northern harrier:</p> <ul style="list-style-type: none"> ▶ If project activity would occur during the northern harrier nesting season (March 15 through September 15), preconstruction surveys shall be conducted during the nesting season in suitable nesting habitat within 500 feet of areas of project activity. Suitable habitat is currently limited to the bench in the PCIP Area but also 	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.14-k: Birds Nesting in Isolated Trees or Shrubs Outside of Riparian Habitat. Yellow warblers are not expected to nest on the project site and are unlikely to be affected by the proposed project, but loggerhead shrike nests could be lost as a result of project construction during Phase 1.</p>	PS	<p>could include fallow fields if they are allowed to develop herbaceous cover. The survey shall be conducted within 1 week before the beginning of construction.</p> <ul style="list-style-type: none"> ▶ A setback of 500 feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests which are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing. <p>The following is a summary and clarification of SJMSCP incidental take avoidance and minimization measures for the loggerhead shrike:</p> <ul style="list-style-type: none"> ▶ If project activity would occur during the loggerhead shrike nesting season (March 1 through August 31), preconstruction surveys shall be conducted during the nesting season in suitable nesting habitat within 100 feet of areas of project activity. Suitable nesting habitat includes areas with natural vegetation of shrubs and small trees, including the UPRR tracks west of I-5, the PCIP Area, and the PCC Area. The survey shall be conducted within 1 week before the beginning of construction. ▶ A setback of 100 feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests that 	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.14-l: Birds Nesting along Riparian Corridors. Yellow-breasted chats are not expected to nest in the project area and are unlikely to be affected by the proposed project, but Cooper's hawk and white-tailed kite nests could be lost as a result of project construction during all three phases.</p>	S	<p>are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing.</p> <p>The following is a summary and clarification of SJMSCP incidental take avoidance and minimization measures for the white-tailed kite and Cooper's hawk:</p> <ul style="list-style-type: none"> ▶ If project activity would occur during the raptor nesting season (February 15 through September 15), preconstruction surveys shall be conducted during the nesting season in suitable nesting habitat within 100 feet of areas of project activity. Suitable nesting habitat for both species is present in the PCIP Area and in riparian patches adjacent to the San Joaquin River and in the PCC Area. The survey shall be conducted within 1 week before the beginning of construction or tree removal. ▶ A setback of 100 feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests that are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing. 	LTS
<p>4.14-m: Snowy Egret, American White Pelican, Double-Crested Cormorant, and White-Faced Ibis. Suitable foraging habitat for these species would be lost or disturbed during all three project phases; however, these species are not expected to nest in the project area, and similar foraging habitat is locally and regionally abundant.</p>	LTS	<p>No mitigation measures are necessary.</p>	LTS
<p>4.14-n: Ferruginous Hawk, Mountain Plover, Merlin, and Long-Billed Curlew. Suitable foraging habitat for these wintering species</p>	LTS	<p>No mitigation measures are necessary.</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>would be lost during all three project phases, but similar foraging habitat is locally and regionally abundant.</p> <p>4.14-o: Common Tree-Nesting Raptors. Red-tailed hawk, red-shouldered hawk, and great-horned owl nests could be lost as a result of project activities during all three project phases.</p>	S	<p>The following measures are designed to avoid loss of common tree-nesting raptors:</p> <ul style="list-style-type: none"> ▶ If project activity would occur during the raptor nesting season (February 15 through September 15), preconstruction surveys shall be conducted during the nesting season in suitable nesting habitat within 100 feet of areas of project activity. Large trees throughout the project area provide suitable habitat. The survey shall be conducted within 1 week before the beginning of construction or tree removal. ▶ A setback of 100 feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests that are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing. 	LTS
<p>4.14-p: Special-Status Bats. Construction throughout the project site during all three project phases could remove foraging habitat for special-status bats, but the project site is not expected to contain important roost sites that would be affected.</p>	LTS	<p>No mitigation measures are necessary.</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.14-q: Riparian Brush Rabbit. Project activities during construction Phases 1 and 2 would result in temporary and limited permanent loss and disturbance of suitable riparian brush rabbit habitat and could result in direct impacts on brush rabbits.</p>	<p>S</p>	<p>The SJMSCP requires full avoidance of riparian brush rabbit habitat in Paradise Cut and along the former SPRR right-of-way, because it is known occupied habitat. No conversion of occupied habitat or mortality to individual riparian brush rabbits is allowed under the SJMSCP. For the proposed project to qualify for coverage under the SJMSCP for riparian brush rabbit, a permanent setback of 300 feet from the outer edge of the dripline of riparian vegetation would be required. Because maintenance of such setbacks is not feasible, a separate consultation with USFWS under the ESA and CDFG under CESA would be conducted, and an Incidental Take Permit would be required. Specific mitigation measures would be developed during the consultation process. Potential take avoidance measures may include, but would not be limited to, conducting preconstruction surveys, conducting daily surveys of construction areas, installing exclusion fencing to prevent brush rabbits from entering construction areas, minimizing vegetation removal, and supporting the existing USFWS captive breeding program to establish new populations in appropriate habitat. Compensation for loss of habitat and other potential impacts is expected to include enhancement of existing habitat and creation of additional habitat in Paradise Cut. New high-ground areas would be created in the PCIP Area, and the existing Paradise Cut levee would provide new high ground after construction of the setback levee. Suitable vegetation would be planted in the areas.</p>	<p>LTS</p>
<p>4.14-r: Jurisdictional Waters of the United States and Riparian Habitat. Project construction during all three phases would result in loss, disturbance, and/or alteration of jurisdictional waters and riparian habitat.</p>	<p>S</p>	<p>The following measures are designed to minimize and mitigate impacts on jurisdictional waters of the United States and riparian habitat:</p> <ul style="list-style-type: none"> ▶ Before project implementation, a determination of waters of the United States, including jurisdictional wetlands and riparian habitat, that would be affected by the proposed 	<p>LTS</p>

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.14-s: Wildlife Corridors. Construction of the Lathrop Landing back bay on the San Joaquin River would conflict with the SJMSCP prohibition against development in the San Joaquin River Wildlife Corridor.</p>	<p>S</p>	<p>project shall be made by qualified biologists through the formal Section 404 wetland delineation process. This is expected to be completed through reverification of the existing wetland delineation.</p> <ul style="list-style-type: none"> ▶ Authorization for fill of the agricultural ditch and pond, alteration of waters of the United States, and disturbance of riparian habitat shall be secured from USACE via the Section 404 permitting process. ▶ A CDFG Streambed Alteration Agreement is also expected to be required for work within existing levees along the San Joaquin River, Old River, and Paradise Cut. ▶ The acreage of jurisdictional habitat removed shall be replaced or restored/enhanced on a “no-net-loss” basis in accordance with USACE and CDFG regulations. Habitat restoration, enhancement, and/or replacement shall be at a location and by methods agreeable to USACE and CDFG. It is anticipated that restoration and enhancement activities in Paradise Cut and creation of the proposed back bays would be sufficient to replace lost habitat. ▶ Measures to minimize erosion and runoff into drainage channels shall be included in all drainage plans. Appropriate runoff controls such as berms, storm gates, detention basins, overflow collection areas, filtration systems, and sediment traps shall be implemented to control siltation and the potential discharge of pollutants. 	<p>LTS</p>
<p>4.14-s: Wildlife Corridors. Construction of the Lathrop Landing back bay on the San Joaquin River would conflict with the SJMSCP prohibition against development in the San Joaquin River Wildlife Corridor.</p>	<p>S</p>	<p>The following measures are designed to address inconsistency with the SJMSCP:</p> <ul style="list-style-type: none"> ▶ Coordination with the Technical Advisory Committee, Joint Powers Authority, and resource agencies (e.g., USFWS and 	<p>LTS</p>

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.14-t: Biological Resources Associated with Offsite Facilities. Construction of offsite facilities could adversely affect special-status species and sensitive habitats if they occur in or near the facility footprint.</p>	PS	<p>CDFG) shall be conducted, as appropriate, to obtain a minor revision, minor amendment, or major amendment to the SJMSCP. No amendment to the incidental take permit is anticipated, because development of the shoreline (with implemented mitigation measures) is not expected to result in significant effects on any state-listed or federally listed species.</p> <p>▶ During this coordination process, it shall be determined whether any compensation would be required. Compensation may include, but would not necessarily be limited to, onsite or offsite habitat improvements along the San Joaquin River, such as restoration of other areas in the corridor that provide limited habitat for terrestrial wildlife. In addition, habitat improvements in Paradise Cut may serve as compensation because they would enhance its function as a wildlife corridor connecting the San Joaquin River to the Old River system.</p>	LTS
		<p>Biological resources potentially occurring at or near offsite project facilities and potential impact mechanisms would be the same as those identified previously for the RID, PCC, and PCIP Areas. Therefore, the mitigation approach described for the primary project area also would function for offsite facilities. The project applicant would participate in the SJMSCP for the offsite facilities and implement Mitigation Measures 4.14-b, -c, -d, -e, -f, -h, -j, -k, and -l (measures summarizing SJMSCP minimization measures) as appropriate based on the resources present. Mitigation Measures 4.14-o, -q, and -r also would be implemented as appropriate based on the resources present.</p> <p>A determination of habitat types and resources that might be present in each offsite facility area shall be made by a qualified</p>	

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>biologist once the facility footprint is established and access for a reconnaissance-level survey is available. A wetland delineation consistent with USACE methodology also shall be completed. These data, combined with resource identification surveys completed by the SJCOG as part of the SJMSCP, shall be used to determine the appropriate mitigation measures for each site.</p>	
4.15 FISHERIES			
<p>4.15-a: RID Area Construction Sediment. General construction activities in the RID Area could potentially release sediment and other water quality constituents into the San Joaquin River, Old River, and Paradise Cut, which could adversely affect fish species locally. However, given the location of construction activities relative to the surrounding levees and the requirements for erosion control during construction, limited to no sediment releases would occur.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.15-b: Levee Breaching. Levee breaching activities along the San Joaquin River, Old River, and Paradise Cut could result in streambed and riverbank disturbance, sediment input, and contaminant input, all of which could substantially adversely affect fish species in the immediate area.</p>	S	<p>The City shall ensure that a SWPPP is prepared and implemented during construction activities and that all water quality requirements included in various agency permits are adhered to. In addition, in-water work shall be restricted to periods when potential impacts on special-status fish species would be minimized.</p> <p>The City shall ensure that as project development proceeds, SWPPPs are prepared and implemented during construction. Goals of the SWPPPs shall include establishing procedures to minimize accelerated soil erosion, minimizing accelerated sedimentation in drainages and other receiving waters, minimizing or eliminating nonstormwater runoff, avoiding contaminant releases, and ensuring long-term stabilization of project soils. Also see Mitigation Measures 4.8-a and 4.8-c in</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.15-c: Bridge and Utility Crossings. Bridge and utility crossing construction activities on the San Joaquin River could result in streambed and riverbank disturbance, sediment input, and contaminant input, all of which could substantially adversely affect fish species in</p>	<p>S</p>	<p>section 4.8, "Hydrology and Water Quality." The City shall also ensure that all water quality requirements imposed by regulatory agencies (e.g., NMFS, USFWS, RWQCB, USACE) are implemented during project construction.</p> <p>In-water work shall be avoided and/or minimized during months when fish species are more susceptible to disturbance, particularly chinook salmon and Sacramento splittail. In-water construction activities in Old River and Paradise Cut should be conducted to the extent practical from July 1 through December 31. The highest priority months to avoid and/or minimize in-water work in Old River and Paradise Cut are March, April, and May, with January, February, and June being the second highest priority to avoid. In addition, all construction activities in Paradise Cut and associated levees must be completed during non-flood flows, when the San Joaquin River is not overtopping the Paradise Weir and there is no immediate threat of the river overtopping the weir.</p> <p>In-water construction activities in the San Joaquin River should be further restricted to avoid the primary adult fall-run chinook salmon upstream migration in August, September, and October. As much of the in-water work in the San Joaquin River as possible should be conducted between July 1 and August 31. If a longer construction period is required, the months of January, February, and June should be considered first; September and October should be considered next; and March, April, and May should be considered last.</p> <p>The City and the project applicant shall implement all measures identified for 4.15-b. Implementation of the items included in Mitigation Measure 4.15-b also would address potential construction impacts associated with bridge crossings over the</p>	<p>LTS</p>

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
the immediate area.		San Joaquin River. In addition, the SWPPP used for the directional boring of the 4-inch natural gas pipeline under the San Joaquin River shall include specific measures to avoid, minimize, and, if necessary, clean up bentonite/drilling slurry releases into the river. Measures could include monitoring drilling slurry pressures and halting drilling if pressures drop significantly; monitoring the river for bentonite plumes; avoiding drilling at night; and having containment booms, vacuum trucks, and other containment and cleanup equipment onsite during drilling. Also see Mitigation Measure 4.8-e in section 4.8, "Hydrology and Water Quality."	
4.15-d: Paradise Cut Bridge. Bridge construction activities on Paradise Cut could result in short-term degradation of fish habitat through streambed and riverbank disturbance, sediment input, and contaminant input that could substantially affect special-status fish species.	S	The project applicant shall implement all measures identified for 4.15-b. All construction activities in Paradise Cut must be completed during non-flood flows, when the San Joaquin River is not overtopping the Paradise Weir and there is no immediate threat of the river overtopping the weir.	LTS
4.15-e: Dock Construction. Dock construction activities along the San Joaquin River, Old River, and Paradise Cut could result in degradation of fish habitat through riverbank and benthic habitat disturbance and could adversely affect special-status species through sediment and contaminant input. However, construction activities for docks would be small in scale and temporary, and much of the activity would be limited to back bays. Disruption to fish and their habitat would be minimal.	LTS	No mitigation measures are necessary.	LTS
4.15-f: Structural Habitat Features. New bridges, docks, back bays, and habitat enhancements associated with the proposed project are long-term structural features located in or near the adjacent waterways that could affect fish habitats and populations.	LTS/B	No mitigation measures are necessary.	LTS/B
4.15-g: Entrainment in Project Pumps. Surface water would be pumped from Old River into the central project lake (River Islands lake)	B	No mitigation measures are necessary.	B

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>to manage lake levels. Special-status and other fish species could be adversely affected if they are drawn into the pumps. The amount and timing of existing agricultural diversions would be modified by the proposed project in a manner that reduces the amount of water diverted and reduces seasonal impacts on fisheries. Existing nonscreened agricultural pumps also would be replaced with screened pumps.</p>			
<p>4.15-h: Water Discharges to the Delta. Stormwater from the RID Area would eventually be pumped into Paradise Cut, drain into Old River, and possibly affect special-status fish species. However, the overall water quality of discharges into Paradise Cut would be improved under the proposed project compared to the agricultural return flow experienced under existing conditions.</p>	B	No mitigation measures are necessary.	B
<p>4.15-i: Altered Hydrology from Water Discharges. The discharge of stormwater, surface water runoff, and wastewater may alter the hydrology of Paradise Cut and adversely affect fishery resources. However, alterations would be minor and would be compensated for by increased water volumes associated with widening and deepening the Paradise Cut canal.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.15-j: Maintenance Dredging of Back Bays. Maintenance dredging of back bays may have substantial adverse effects on water quality and fish habitat in the San Joaquin River, Old River, and the back bays themselves.</p>	S	Dredging of back bays would be permitted only between July 1 and August 31, the period when special-status fish species that could occur in the project area are least likely to be affected. It is expected that a consultation with USFWS and NMFS under Section 7 of the ESA would be required for these agencies to approve the proposed project. The dredging window described above may be altered based on the consultation with USFWS and NMFS.	LTS
<p>4.15-k: Habitat Modifications in Paradise Cut. Habitat changes in Paradise Cut resulting from channel modifications, increased flood flows, and setback levee designs could provide additional fisheries habitat, particularly for Sacramento splittail.</p>	B	No mitigation measures are necessary.	B

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.15-l: Diversion of Chinook Salmon Smolts. Increasing flood flows in Paradise Cut may divert chinook salmon smolts from the San Joaquin River into Paradise Cut, resulting in higher entrainment and predation mortality if these fish reach the CVP/SWP pumps. However, incidence of increased flood flows would be infrequent, and any increases in salmon smolts entering Paradise Cut would be minor.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.15-m: Creation of New Fish Habitat in the RID Area. Creation of the new internal lake in the RID Area would result in an increase in available fish habitat.</p>	B	No mitigation measures are necessary.	B
<p>4.15-n: Introduction of Exotic Fish into the Delta. Exotic fish species could be transferred from the project lake into the Delta, resulting in adverse impacts on existing Delta fish populations.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.15-o: Increased Water Consumption. There is a potential indirect impact on fisheries resources associated with providing increased domestic water to support the proposed project.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.16 CULTURAL RESOURCES</p>			
<p>4.16-a: Listed Archaeological Sites. Construction of the proposed project would alter the surrounding visual context of cultural resources listed as California historic landmarks.</p>	S	<p>Before project implementation, the City of Lathrop shall retain an architectural historian to completely record the railroad drawbridge associated with site RI-2 (also called RI-13H) (P-39-00002) within the project area. This shall be completed to the standards of a Historic American Engineering Record. Recordation of the site would result in permanent documentation of the architectural, visual, and historic context of the site and would give historians and others access to documentation on preproject conditions. This is a standard mitigation practice for cultural resources and historic properties. In addition, as the project is developed, a public interpretive feature such as a plaque or sign shall be installed in a public space on the project site (e.g., park, trail), describing the history and significance of</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.16-b: Recorded Archaeological Sites. Construction of the proposed project would affect one prehistoric archaeological site and two archaeological isolates recorded during the field survey. One of these sites, RI-1, could represent a unique archaeological resource.</p>	PS	<p>the railroad bridge. The bridge must be visible from the location of the interpretive feature.</p> <p>The City of Lathrop shall retain a professional archaeological consultant to conduct Phase II testing at prehistoric site RI-1. The investigations shall be conducted before construction begins at this site. As currently envisioned, this site would be affected during Phase 1a activities. If any archaeological resources found at the site are concluded by the archaeologist to represent “unique archaeological resources,” as defined by CEQA, the archaeologist shall recommend additional actions deemed necessary for the protection of these resources. Such actions may include additional testing, data recovery, mapping, capping, or avoidance of the resource. The City shall ensure additional protection actions (if needed) are implemented prior to construction at this site.</p>	LTS
<p>4.16-c: Historic Properties. Project construction would result in the removal of several existing structures, as well as construction of structures near offsite historic properties that would not be removed. Three of these offsite structures and groups of structures are, or appear to be, eligible for listing on the California Register of Historical Resources.</p>	S	<p>Before project implementation the City of Lathrop shall retain an architectural historian to completely record sites RI-10H and RI-12H (historic grain silos). This shall be completed to the standards of a Historic American Engineering Record. Recordation of the sites would result in permanent documentation of the architectural, visual, and historic context of the resources and would give historians and others access to documentation on preproject conditions. This is a standard mitigation practice for cultural resources and historic properties. In addition, as the project is developed, a public interpretive feature such as a plaque or sign shall be installed in a public space on the project site (e.g., park, trail) or on the shoulder of Manthey Road near the silos. The interpretive feature shall explain Lathrop’s agricultural history as well as the history of the dairy the silos were associated with.</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.16-d: Undiscovered/Unrecorded Archaeological Sites. Construction of the proposed project may affect as yet undiscovered or unrecorded archaeological sites.</p>	PS	<p>Before the initiation of construction or ground-disturbing activities associated with the proposed project, all construction personnel shall be alerted to the possibility of buried cultural resources. If artifacts or unusual amounts of stone, bone, or shell are uncovered during construction activities, work within 50 feet of the specific construction site at which the suspected resources have been uncovered shall be suspended, and the City of Lathrop Community Development Department/Planning Division shall be immediately contacted. At that time, the City shall retain a professional archaeological consultant. The archaeologist shall conduct a field investigation of the specific site and recommend mitigation deemed necessary for the protection or recovery of any cultural resources concluded by the archaeologist to represent significant or potentially significant resources as defined by CEQA. The City shall implement the mitigation prior to the resumption of construction activities at the construction site.</p>	LTS
<p>4.16-e: Undiscovered/Unrecorded Human Remains. Project-related construction activities could affect as yet undiscovered or unrecorded human remains.</p>	S	<p>If human remains are discovered at any project construction sites during any phase of construction, work within 50 feet of the remains shall be suspended immediately, and the City of Lathrop Community Development Department/Planning Division and the county coroner shall be immediately notified. If the remains are determined by the county coroner to be Native American, the Native American Heritage Commission (NAHC) shall be notified within 24 hours, and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. The City of Lathrop shall also retain a professional archaeological consultant. The archaeologist shall conduct a field investigation of the specific site and consult with the Most Likely Descendant identified by the NAHC. As necessary, the archaeological consultant may provide professional assistance to the Most Likely Descendant including the excavation and</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>4.16-f: Offsite Resources. Specific construction corridors/footprints have not been absolutely defined for several offsite project elements (e.g., electrical transmission lines, Golden Valley Parkway link to I-205). Construction-related activities during installation of these facilities could affect as yet undiscovered or unrecorded archaeological sites in these areas.</p>	S	<p>removal of the human remains. The City shall implement any mitigation prior to the resumption of activities at the site where the remains were discovered.</p> <p>Once disturbance areas for offsite project elements are sufficiently defined and property access is available, the City shall retain a professional archaeological consultant to review the results of existing records searches and conduct field surveys, as needed, for these facilities. If cultural resources are found in the potential disturbance area, Mitigation Measures 4.16-a through 4.16-c shall be implemented as appropriate. If discoveries are made during construction, Mitigation Measures 4.16-d and 4.16-e shall be implemented.</p>	LTS
<p>4.17 AESTHETIC RESOURCES</p>			
<p>4.17-a: Views of the Site from Surrounding Lands. After project implementation, the project elements visible from the surrounding lands would be houses on the high-ground corridors and potentially small portions of the project bridges, the electrical transmission line connecting to the project site, and tops of buildings in the Employment Center and potentially the Town Center. However, most views of the houses would be obscured by existing levees and planned landscaping/revegetation, and other project features would be visible only from limited locations. In addition, from most vantage points, viewers from surrounding lands would be limited to the low densities of residents in dispersed farmsteads/homes and farmers and others tending agricultural lands.</p>	LTS	<p>No mitigation measures are necessary.</p>	LTS
<p>4.17-b: Views from I-5 and the I-5/I-205/SR 120 Merge Segment. After project implementation, views of the project site from I-5 and the I-5/I-205/SR 120 merge segment would include the cross levee, the top portion of buildings in the Employment Center and potentially the Town Center, the Golden Valley Parkway bridges over the San Joaquin</p>	LTS	<p>No mitigation measures are necessary.</p>	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>River and Paradise Cut, the electrical transmission line connecting to the project site, and some houses on high-ground corridors. Although this would alter existing views, none of these roadway segments is a scenic highway; in addition, the altered views would not be substantially different from those from other, nearby portions of these highways.</p>			
<p>4.17-c: Views for Recreational Boaters. After project implementation, views of the levee face for recreational boaters along the San Joaquin River and Old River would include docks, homes along the high-ground corridors, restored habitat, and landscaping. This variety of views would replace the managed vegetation and riprap typical of the existing levee faces.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.17-d: Nighttime Views. The degree of darkness in the City of Lathrop and on the proposed project site would diminish as a result of development, effectively obscuring views of stars, constellations, and other features of the night sky. However, implementation of lighting guidelines in the UDC would substantially reduce the potential level of light generated by the proposed project, thereby minimizing the loss of nighttime views.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.17-e: Views of the Grain Silos and Railroad Bridge. The brick grain silos between I-5 and the UPRR tracks and the UPRR bridge over the San Joaquin River are considered historic structures (see section 4.16, "Cultural Resources"). These structures are not located on the proposed project site; however, project elements would be visible behind these structures when they are viewed from the east. The visual background for these historic structures would be altered, although the structures themselves would not be affected.</p>	LTS	No mitigation measures are necessary.	LTS
<p>4.17-f: Design and Function of Walls and Fences/Consistency with the WLSP. Proposed openings in walls adjacent to arterial roads, as described in the UDC, could expose adjacent residential areas to</p>	PS	Before approval of any residential development that would be located adjacent to an existing or planned future arterial road, proposed walls and fences shall be included in the architectural	LTS

**TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
intrusive levels of light and glare. This is inconsistent with guidelines related to the type and function of walls as described in the WLSF.		and design review. Any proposed gaps or openings in walls along the arterial road shall be evaluated as part of the design review for their potential to permit light and glare from the roadway to enter the residential development. Gaps or other openings shall not be permitted where light or glare may pass through the gap and adversely affect homes or other residences.	
<p>B = Beneficial LTS = Less-than-Significant S = Significant SU = Significant and Unavoidable PS = Potentially Significant</p>			

3 PROJECT DESCRIPTION

3 DESCRIPTION OF THE PROPOSED PROJECT

3.1 LOCATION AND SETTING

The proposed River Islands at Lathrop (River Islands) project is located in the City of Lathrop, San Joaquin County, California. Lathrop is situated in the San Joaquin Valley, at the junction of Interstate 5 (I-5), I-205, and State Route 120 (SR 120), approximately 65 miles east of San Francisco and 55 miles south of Sacramento (Exhibit 3-1).

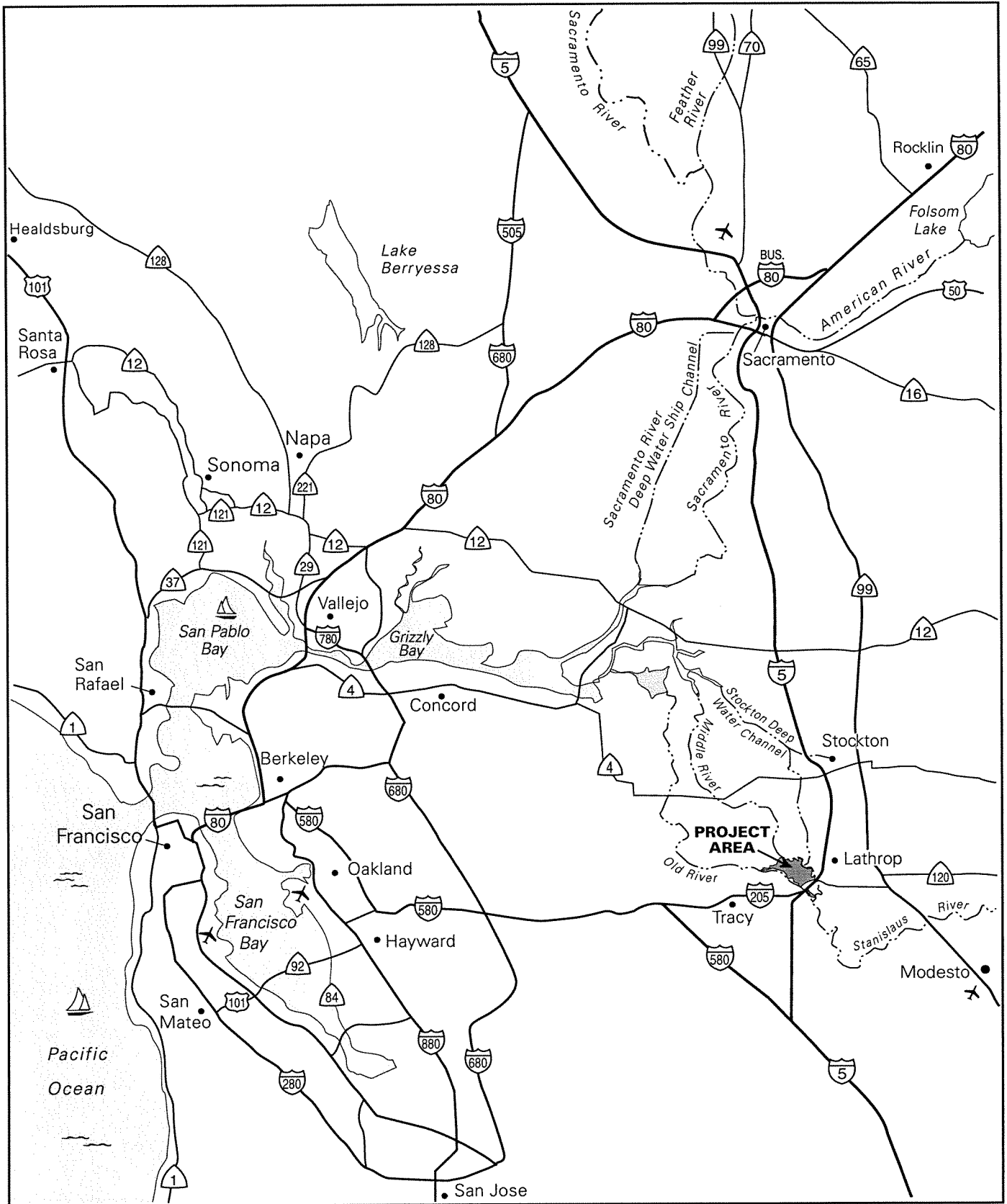
The project site is located primarily on Stewart Tract and in Paradise Cut, in the area known as West Lathrop, which was annexed to the City in 1997 (Exhibit 3-2). Stewart Tract is an island in the Sacramento–San Joaquin River Delta bounded by the San Joaquin River on the north and east, Old River on the west, and Paradise Cut on the south. Union Pacific Railroad (UPRR) tracks (previously owned by the Southern Pacific Railroad [SPRR]) provide the eastern boundary to the largest portion of the project site. Several project elements related to open space conservation and flood control are located in Paradise Cut, a flood control bypass connecting the San Joaquin and Old Rivers (Exhibit 3-3).

Land uses adjacent to the project site are dominated by agricultural lands interspersed with farmsteads and associated outbuildings. This is the case for almost all lands in the project area west of I-5 and north of I-205. Immediately east of I-5 are some agricultural lands; however, most of the land uses are associated with the developed portions of the City of Lathrop.

The River Islands project consists of a proposed mix of residential, employment, and commercial development with several open space and flood control components. The entire project site covers approximately 4,905 acres on Stewart Tract and Paradise Cut. The existing land use at the site is agriculture, consisting primarily of alfalfa, melons, tomatoes, safflower, and walnuts. The site contains approximately 30 existing structures, including farm residences, barns, ancillary farm structures, sheds, and equipment storage and maintenance buildings.

Local vehicular access to Stewart Tract is provided by the Manthey Road bridge over the San Joaquin River, the Paradise Road bridge over Paradise Cut, and the Mossdale/Manthey interchange on I-5 (Exhibit 3-3). Paved roads on the Stewart Tract portion of the project site include Stewart Road, Cohen Road (formerly called San Joaquin Road), and Paradise Road. However, because of poor road conditions, much of Stewart Road in the central portion of the project site is closed to through traffic. Access to most of the project site is provided by unpaved farm roads.

Stewart Tract and Paradise Cut are both surrounded by levees that provide physical and visual barriers from adjacent land uses. In addition, I-5 and the UPRR tracks are elevated above local topography, providing further separation between the project site and lands to the south and east.

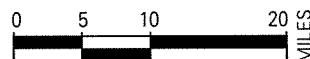


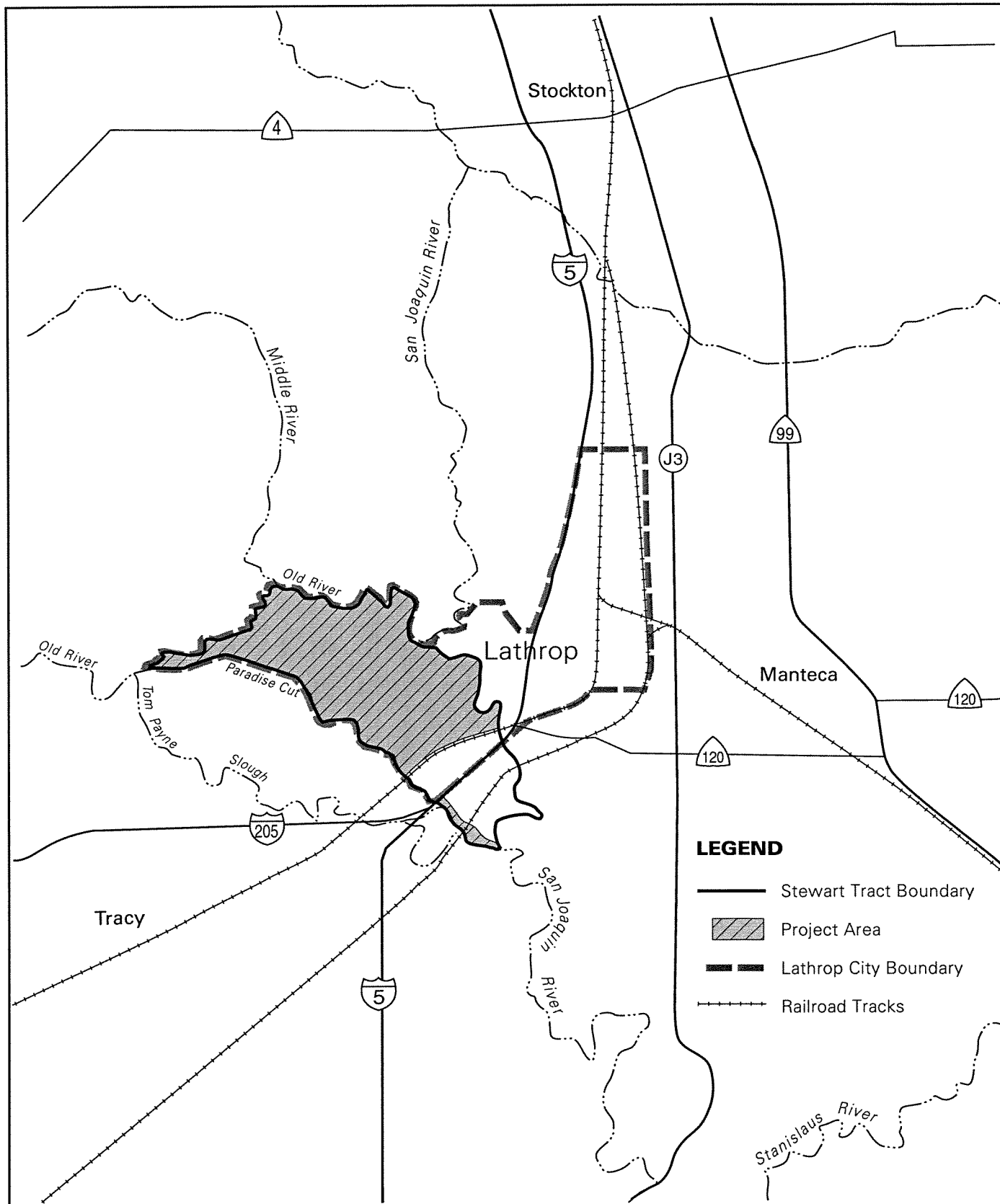
Source: EDAW 2002

Regional Location of the River Islands at Lathrop Project

EXHIBIT 3-1

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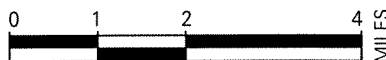


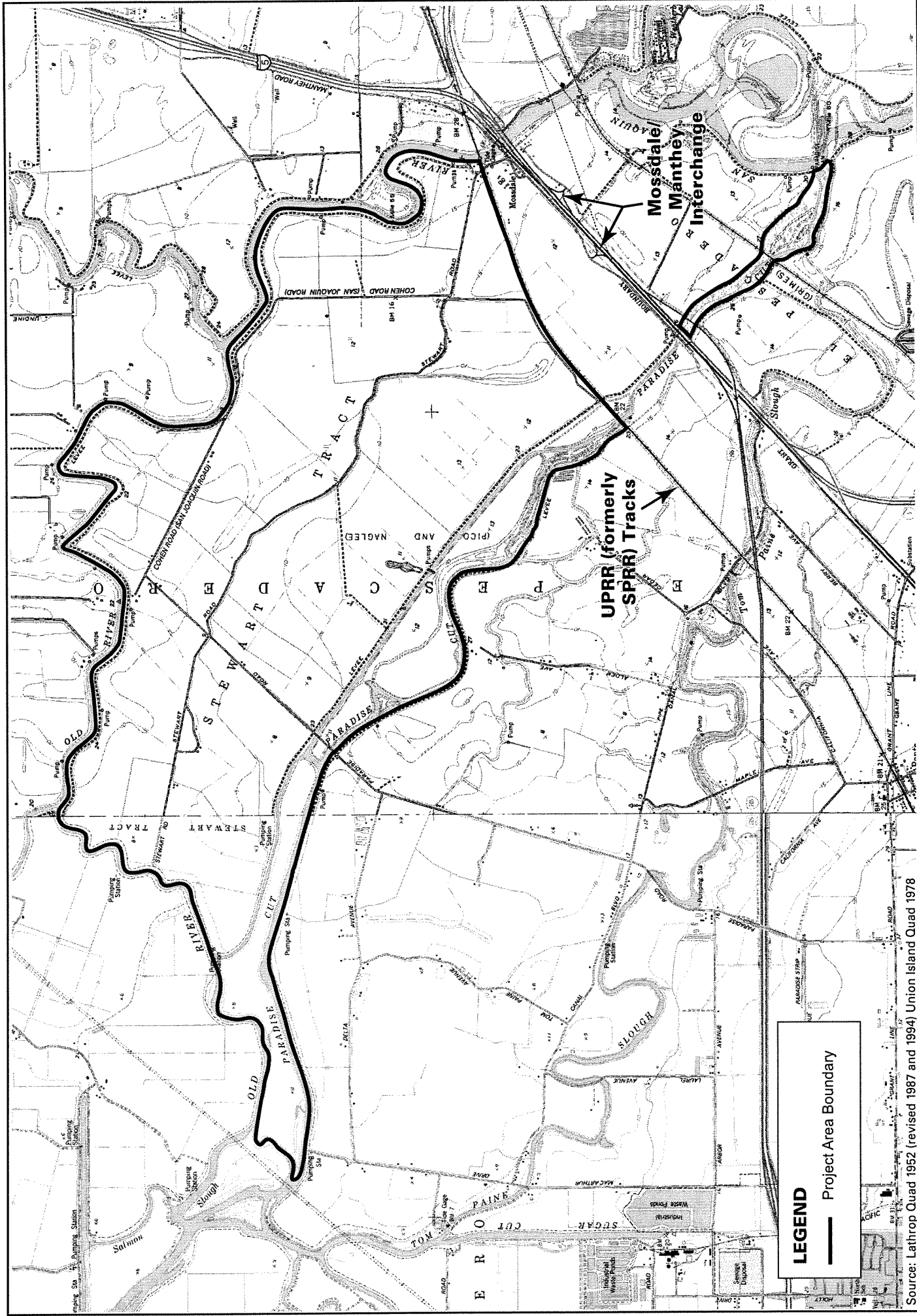
Source: EDAW 2002

Local Project Setting

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EXHIBIT 3-2





Source: Lathrop Quad 1952 (revised 1987 and 1994) Union Island Quad 1978

LEGEND

— Project Area Boundary



Project Vicinity Map

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3.2 PROJECT BACKGROUND

3.2.1 STEWART TRACT PLANNING HISTORY

Stewart Tract was first approved for urban development in the City of Lathrop General Plan, adopted in 1991 (City of Lathrop 1991). The City further refined the vision for urban development of Stewart Tract in the West Lathrop Specific Plan (WLSP) (adopted by the City of Lathrop in 1996 and as amended by Measure D) and evaluated the impacts of this development in the WLSP EIR (State Clearinghouse no. 93112027) (Grunwald & Associates 1995), certified in February 1996. The WLSP also addressed proposed future development of an area north of the San Joaquin River called the Mossdale Village area (Exhibit 3-4). In addition, in 1996, the City adopted a wastewater facilities master plan and an EIR evaluating that plan (Siegfried Engineering and Century West Engineering 1996) which encompassed the Stewart Tract and Mossdale Village area. The master plan was updated in 2001 and water and recycled water were added, which led to preparation of a new EIR.

The WLSP EIR included an environmental analysis for, among other things, construction of a theme park development as the first use of the Stewart Tract area and a development agreement between the project proponent and the City that outlined the rights, obligations, and performance standards that the City and the project proponent needed to meet to comply with the WLSP.

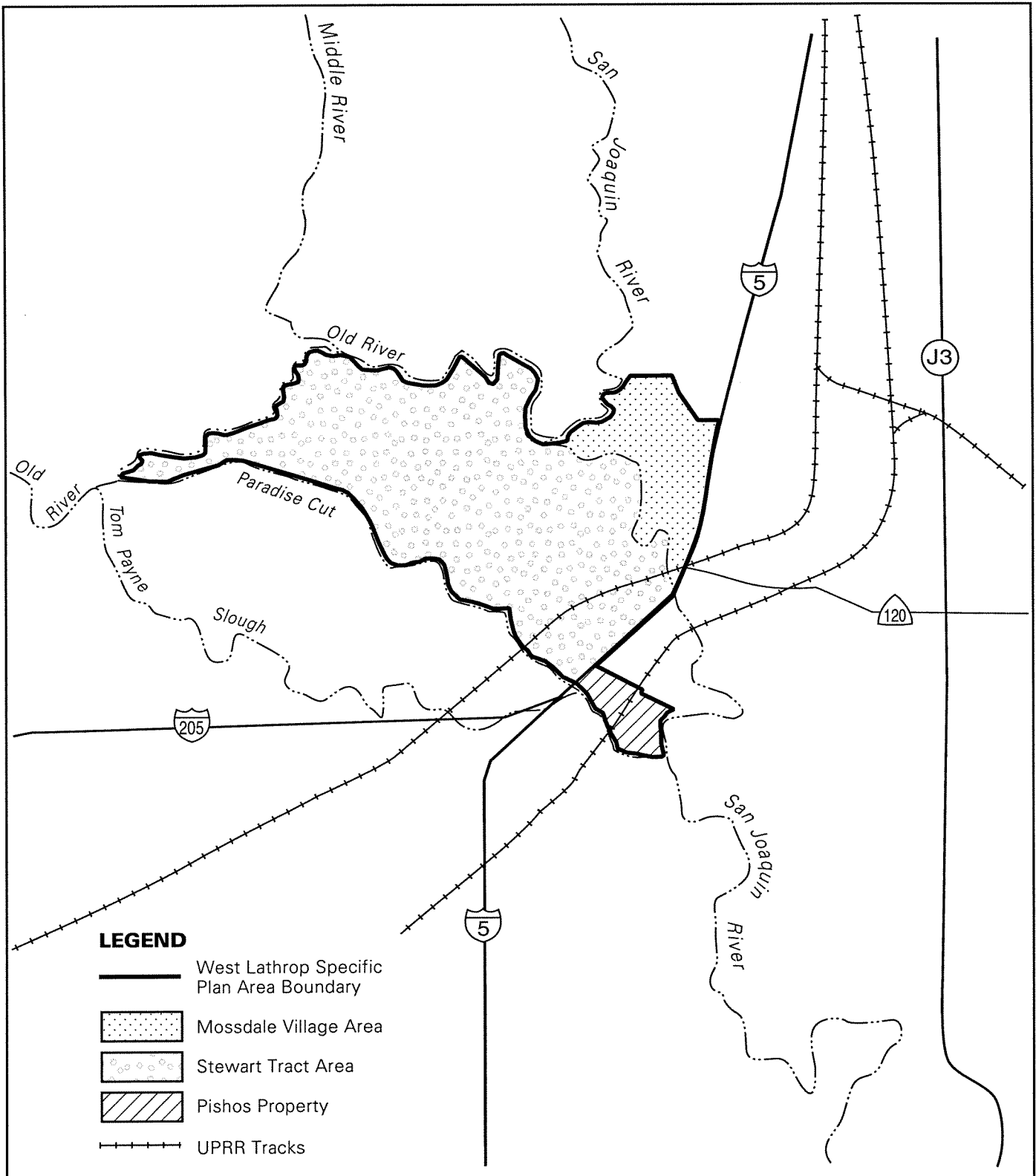
The WLSP and associated EIR were subject to litigation by the Sierra Club and others. However, this litigation was dismissed in 1997. The development agreement also was subject to litigation, and that challenge lapsed in 2000.




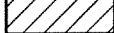
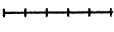
The San Joaquin County Local Agency Formation Commission (LAFCO) approved annexation of the entire WLSP area, with the exception of the Pishos property (an area in southeast Stewart Tract), in 1996 (Exhibit 3-4). The Sierra Club and others also litigated against this action. The trial court upheld LAFCO's approval, and this decision was recently appealed.

Annexation of the Pishos property was approved by LAFCO in 2000 and was also the subject of a lawsuit brought forth by the Sierra Club and others. The San Joaquin Superior Court overturned this annexation in 2001, and that ruling was appealed. However, the appeal was dropped in 2002. Therefore, the Pishos property is not annexed to the City of Lathrop and is no longer in the City's Sphere of Influence. The River Islands project proposes several flood management activities in and along Paradise Cut within a portion of the Pishos property.

3.2.2 PREVIOUS DEVELOPMENT PLANS FOR STEWART TRACT

Between 1991 and 1993, the project proponent, the Cambay Group/Califia, LLC, acquired options on most of the property at the proposed project site with the goal of developing a theme park-centered facility with associated commercial, recreation, and resort residential uses. The project at that time was known as Califia/Gold Rush City. The 1991 Lathrop General Plan and 1996 WLSP envisioned an entertainment-oriented development on Stewart Tract that included the development of four theme parks, 5,000 hotel rooms, a regional retail mall, and other associated entertainment-oriented uses. Those plans



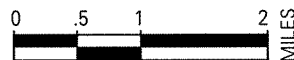
- LEGEND**
-  West Lathrop Specific Plan Area Boundary
 -  Mosssdale Village Area
 -  Stewart Tract Area
 -  Pishos Property
 -  UPRR Tracks

Source: City of Lathrop 1996

West Lathrop Specific Plan Area

EXHIBIT 3-4

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also included the development of 8,500 housing units that would have resulted in 25,000–30,000 residents on Stewart Tract, although a theme park was required to be developed prior to occupancy of any development as a condition of project approval.

After the WLSP was approved in 1996, economic conditions changed such that development of a major theme park-centered attraction at this location was no longer economically feasible. In recognition of these altered conditions, a citizen’s group gathered signatures and asked the city council to place Measure D on the ballot, which was approved by the voters in November 2000. Measure D eliminated the “theme park first” phasing requirement of the WLSP and development agreement and allowed additional land use options in the planning area, including provision of commercial development, and provision of in-lieu fees of \$5,000 per residential unit, which could be paid into a fund to provide substantially equivalent long-term community, economic, and other benefits.

3.2.3 PREVIOUS ENVIRONMENTAL DOCUMENTS AND THEIR RELATIONSHIP TO THIS SEIR

The WLSP and associated EIR addressed three areas: the portion of Stewart Tract proposed for the Califia/Gold Rush City project and located west of the UPRR (former SPRR) tracks; a portion of Stewart Tract located east of the UPRR tracks and zoned primarily Urban Reserve; and the Mossdale Village project area, north of the San Joaquin River (Exhibit 3-4).

The Stewart Tract portion of the WLSP area west of the UPRR tracks is the location of what is now the proposed project. As stated previously, the portion of the WLSP area on Stewart Tract west of the UPRR tracks included several region-serving theme parks and associated commercial recreation and resort residential housing. The currently proposed River Islands project does not envision the theme park and resort elements and focuses instead on a mixed-use residential, employment, and commercial development. Because of these and other changes in the proposed project, the applicant is requesting amendments to the Lathrop General Plan and WLSP to accommodate the River Islands project.

As described in Chapter 1, the City has determined that a subsequent EIR (SEIR) shall be prepared to evaluate proposed changes to the Lathrop General Plan and the WLSP associated with the proposed project.

3.3 PROJECT GOALS AND OBJECTIVES

The general goal of the proposed project is completion of a mixed-use residential, employment, and commercial development that would provide a variety of housing, employment, and recreational opportunities in Lathrop. The specific objectives of the proposed project are as follows:

- ▶ Provide to Lathrop (and the surrounding region) long-term community benefits, including generation of substantial permanent employment opportunities.
- ▶ Reinforce and enhance the City’s positive image.
- ▶ Contribute a new variety of mixed-use/commercial land uses that could become a citywide and regional focal point.

- ▶ Create a community that is consistent with many of the original goals of the Lathrop General Plan and WLSP but that also could generate a job base more quickly than the theme park orientation would allow.
- ▶ Develop a well-integrated and harmonious pattern of resident-oriented and visitor-oriented land uses in West Lathrop that provides local jobs, homes, and revenue-generating uses that complement other Lathrop development.
- ▶ Arrange phases of development to allow ongoing agricultural operations in the plan area to continue as long as feasible while allowing initial phases to act as catalysts for subsequent development.
- ▶ Create signature landscaped parkways and waterways that define an attractive image for West Lathrop.
- ▶ Incorporate water in its many forms throughout the project area, such as for boat travel and visual amenity and to reinforce the area's Delta setting.
- ▶ Retain and enhance existing habitat in the project site wherever feasible, phasing the provision of habitat preservation areas with overall development phases.
- ▶ Provide a wide range of housing types that could accommodate most income levels.
- ▶ Provide a variety of recreational opportunities that focus on outdoor uses.

3.4 PROJECT DESCRIPTION

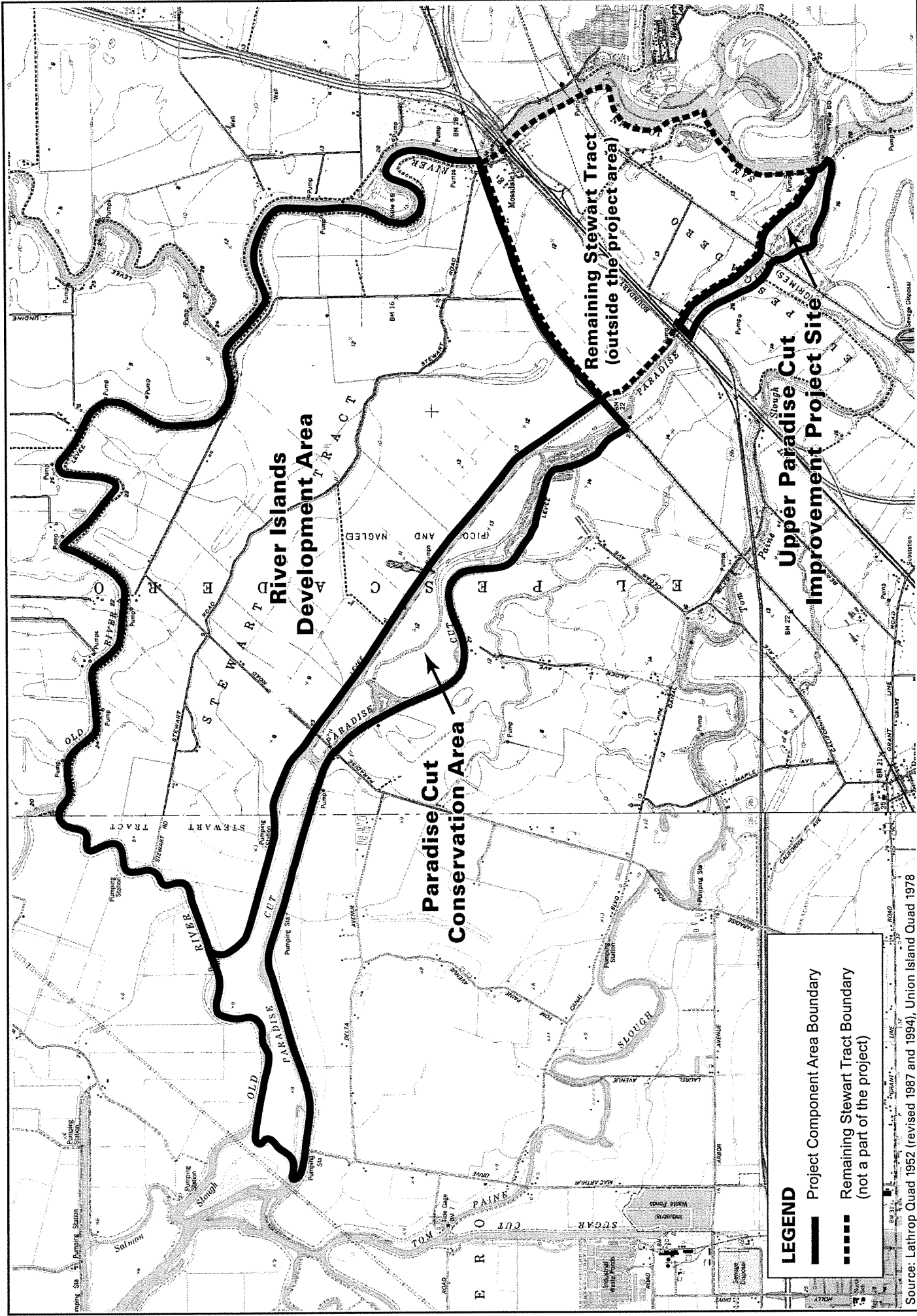
The River Islands project site covers most of Stewart Tract and Paradise Cut (Exhibit 3-5). The project site has been divided into three key units:

- ▶ River Islands Development Area (RID Area),
- ▶ Paradise Cut Conservation Area (PCC Area), and
- ▶ Upper Paradise Cut Improvement Project Area (PCIP Area).

The various project components discussed below will often be described in relation to these three units. Several project activities occur in two or all three of the units.

3.4.1 LAND USES

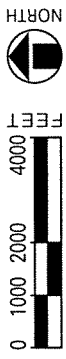
The project applicant is proposing a variety of land uses on the project site. General categories described below include a Town Center, an Employment Center, residential areas, lakes and water features, schools, and parks and trails. Specific elements of the proposed project would include an approximately 305-acre employment center; a roughly 45-acre town center; various single-boat and multiboat docks; approximately 2,060 acres of residential development; 2 golf courses; more than 260 acres of parkland; over 600 acres of lakes, waterways, and canals; more than 600 acres of open space; and necessary public



Source: Lathrop Quad 1952 (revised 1987 and 1994), Union Island Quad 1978

Project Component Areas

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facilities and infrastructure to support the project (Exhibit 3-6). For corresponding zoning and general plan land uses, specific plan land uses, and zoning designations, see section 4.2, “Land Use.”

As described in the following sections, the proposed project allows for some moving or “swapping” of land uses within the project site. For example, the active adult community proposed in the Lakeside district may be moved to the Woodlands district, and the proposed uses in the Woodlands district would then be moved to the Lakeside district. Also, housing units may be shifted from one district to another (consistent with the amended WLSP) as long as the total number and type of project housing units do not change. As development of the proposed project proceeds over the 25-year buildout period, it is recognized that various conditions may make it beneficial or necessary to adjust or swap the locations of some land uses. However, if this occurs, important project elements, such as the number and type of housing units, total acreage of parks, public services capacity, and other factors, would not be changed. Only locations of land uses would be shifted within the project site to better accommodate conditions at the time of development.

TOWN CENTER DISTRICT

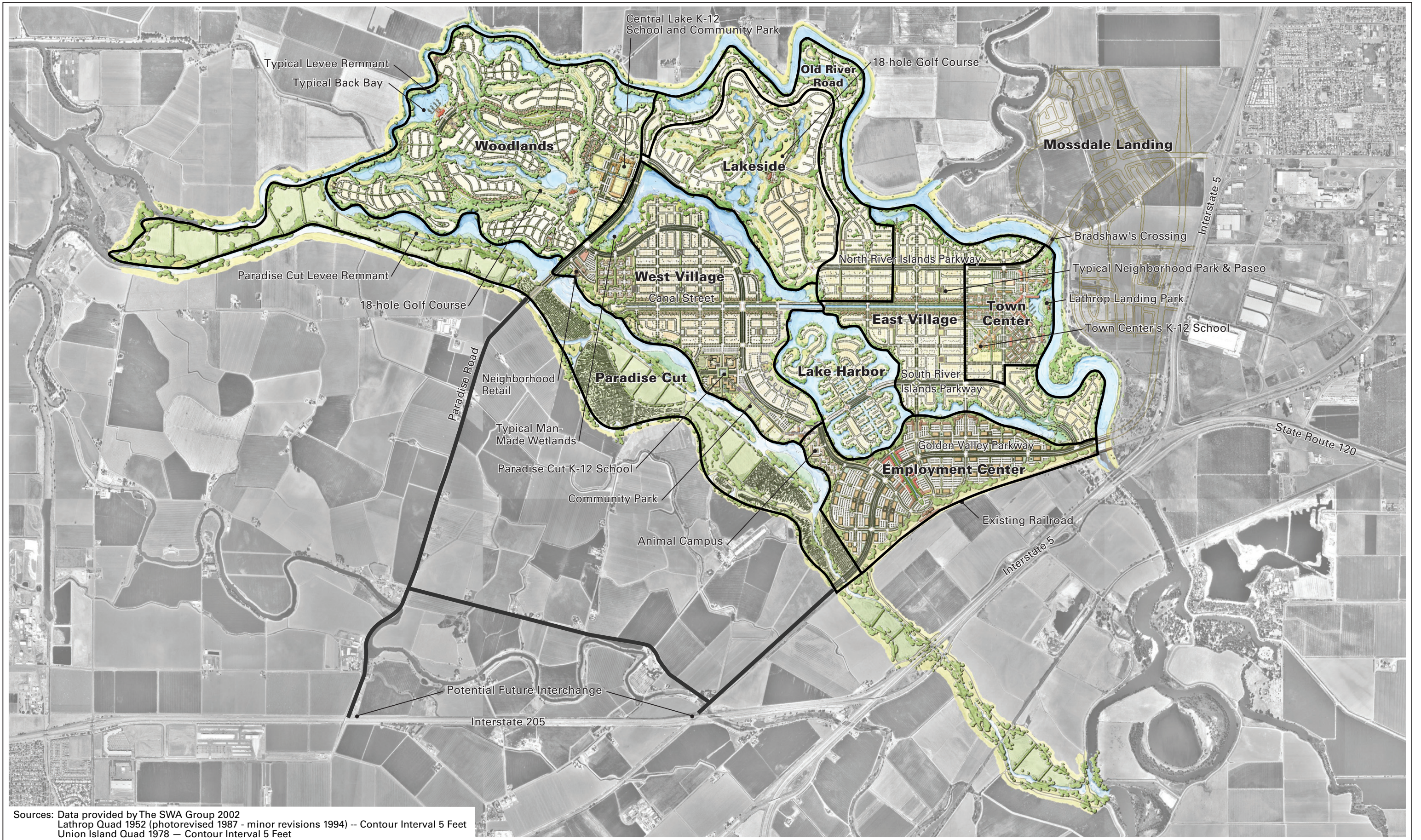
The proposed Town Center district would be the commercial and community center of River Islands. It would include a mix of retail, office, residential, education, and civic uses (e.g., city offices, performing arts center, churches); dock facilities; parks; and other public spaces. The City of Lathrop Government Center described in the General Plan to be located west of I-5 could also be included in the Town Center.

Roughly 160 acres of the Town Center district would be devoted to commercial, residential, and public uses. Commercial uses would include 100,000 square feet of retail space, 150,000 square feet of retail/office/civic space, and 100,000 square feet of office/hotel uses. The combined 350,000 square feet of office and retail uses are expected to generate approximately 1,400 jobs.

Proposed residential uses in the Town Center district consist of approximately 150 single-family-detached residences on approximately 20 acres and 600 apartment units (multifamily residences) spread over approximately 30 acres.

Roughly 31 acres in the Town Center district would be devoted to a school and community park. The preferred option for the school is a combined K–12 campus, although housing separate K–5 and grade 6–8 schools in this area is also being considered, with high school students served at another facility. An additional 21 acres would consist of community and neighborhood parks. See the “Schools” and “Parks” sections below for additional information on these facilities.

Along the edge of the San Joaquin River, the Lathrop Landing element of the Town Center would be developed. Lathrop Landing includes a back bay connecting to the San Joaquin River (Exhibit 3-6), with docks to allow temporary parking of up to 40 boats, and public parks and open space on the riverbanks. For information regarding back bays, see the section titled “External Water System,” below. For information regarding the park element of Lathrop Landing, see “Parks,” below.



River Islands at Lathrop Development Concept Plan

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An alternative development option for the Town Center, Option B, is also being considered. The preferred scenario, described above, has been called Option A. Option B includes a K–8 school on a 20-acre parcel with ball fields that would be used as parkland by the community, rather than the K–12 school (or separate K–5 and grade 6–8 schools) and associated community park on 31 acres under Option A. The remaining 11 acres under Option B would be used for an additional 100 single-family residences (combination of detached and attached residences). The adjusted school acreage and housing units would be shifted or “swapped” with some other districts(s) in the RID Area. All other elements of the Town Center are the same under Options A and B.

EMPLOYMENT CENTER

The Employment Center district occupies approximately 450 acres in the southeastern portion of the RID Area. Roughly 35% of this area would be used for roads, parks, a fire station, the cross levee (see section 3.4.2, “Flood Protection”), and other infrastructure and also encompasses a portion of the central lake and other open space features. Approximately 305 acres would be available for primary Employment Center uses. The primary uses in the Employment Center would consist of office/administrative and research/development. The intent is to provide a business/research park development to attract and capture corporate relocations from other areas. It is estimated that the Employment Center would support up to 3.75 million square feet of building space with 15,000 employees. Only uses that generate at least 30-50 employees per acre would be permitted in the Employment Center proper. However, these square footage and employment numbers also include necessary support services such as restaurants and hotels. It is estimated that up to 3 hotels with a total of 600 guest rooms would be needed in the Employment Center.

An additional element of the Employment Center district would be the River Islands Animal Campus, to be located adjacent to Paradise Cut Community Park (Exhibit 3-6). This 15- to 20-acre public/private partnership facility would be a refuge for domestic and farm animals in a setting that encourages human interaction in an animal-friendly environment. Students, volunteers, and others would have the opportunity to learn animal care and rehabilitation techniques in this facility. The Animal Campus could also serve as an animal shelter and adoption center for lost and stray animals for the City of Lathrop Animal Control Division.

RESIDENTIAL DISTRICTS

The proposed project is intended to provide a mix of housing types in all phases of the development. Residential districts would support housing, parks, water features, and schools, as well as limited commercial and employment development. Table 3-1 summarizes the housing to be provided by density (low, medium, and high). The text below describes housing by type (single family, multifamily, active adult). Up to 11,000 residences are proposed, ranging from single-family-detached homes to condominiums, townhouses, apartments, and active adult (senior-oriented) housing. Both townhouses and apartments are considered multifamily units and would comprise 1,629 of the up to 11,000 total project housing units (1,200 apartments, 429 townhouses). These may fall into the medium-density or high-density housing categories. Proposed residential areas have been divided into various districts described below.

For each residential district, the amended WLSP identifies a minimum, optimum, and maximum number and mix of housing units. The 11,000 total project housing units and the distribution shown in Table 3-1 are based on the optimum blend of units in each district. However, as discussed previously, limited shifting of housing units in and between districts is permitted as long as the overall number of housing units (11,000) is not exceeded and the types of housing units (single family, multifamily, active adult) are not changed.

East Village District

The East Village district occupies approximately 590 acres on the eastern side of the RID Area, surrounding the Town Center (discussed previously in the “Town Center” section). The district is bisected by Canal Street, which includes a canal associated with the project’s internal lake system that runs east to west through the RID Area. The East Village district is planned to have 2,300 residences (Table 3-1). These would include 2,100 single-family residences and 200 multifamily residences (townhouses).

Residential District	Low-Density Residential (3-9 dwelling units per acre)	Medium-Density Residential (6-20 dwelling units per acre)	High-Density Residential (15-40 dwelling units per acre)	Subtotal
East Village	1,900	400	0	2,300
Old River Road	700	0	0	700
Lake Harbor	500	0	0	500
West Village	1,700	400	600	2,700
Woodlands	1,800	800	0	2,600
Lakeside	1,400	0	0	1,400
Town Center	200	0	600	800
Total	8,200	1,600	1,200	11,000

Features of this district include 2 back bays along the San Joaquin River (see the description of back bays in the external water system discussion below) with 53 individual docks and one group dock holding 20 berths. Up to 124 individual docks would also be constructed along the San Joaquin River.

Old River Road District

The Old River Road district would contain 700 residences, all of which would be single-family-detached homes (Table 3-1). These homes would be located along Old River, on the edge of the RID Area. Most of the homes that are part of the Old River Road community would be built on a “high-ground corridor,” a large earthen structure (several hundred feet wide at the top) built along the edge of the river. High-ground corridors are described in greater detail in section 3.4.2, “Flood Protection.”

The Old River Road district includes 2 back bays along Old River with up to 84 individual docks proposed in these back bays. Up to 165 individual docks are also proposed along Old River associated with the homes on the high-ground corridor.

Lake Harbor District

The Lake Harbor district is located on two islands constructed in the project's central lake and occupies approximately 275 acres, of which roughly 120 acres is comprised of the central lake. This area is proposed to include 500 single-family residences (Table 3-1). Residents and visitors would access the district via bridges and berms constructed over the project lake, as well as by boat. A planned 469 single-boat docks would be constructed around the islands, allowing most residents to have boat access to the lake (see the discussion of the lakes and water system below).

West Village District

The West Village district occupies approximately 720 acres on the west side of the RID Area. Like the East Village district, it is bisected by Canal Street and the associated canal that crosses much of the project site.

The West Village district is proposed to include 2,700 residences (Table 3-1), with 1,900 single-family residences and 800 multifamily residences (200 townhouses and 600 apartments).

Most of the other features of the West Village neighborhood are located along the water's edge of Paradise Cut. They include an office/retail center, the Paradise Cut school, and two parks. The office/retail center would be located on the south side of Paradise Road just before it crosses Paradise Cut (Exhibit 3-4). This approximately 17-acre facility would include convenience retail businesses offering recreation-related products and services (such as boat rental and marine supplies) and small office facilities. It is estimated that roughly 250 employees would work at this site. The school is described below, under "Schools." Located adjacent to the school would be a community park. An additional community park is proposed northwest of the school. Park facilities are discussed in more detail in the section titled "Parks and Trails," below.

Four group docks with a total of 70 berths are proposed along the Paradise Cut canal in the West Village district. Up to 35 individual docks and 1 group dock with 10 berths are proposed in the central lake.

Woodlands District

The Woodlands district occupies approximately 965 acres in the northwestern portion of the RID Area. The district would include 2,600 residences (Table 3-1), with 2,571 single-family residences and 49 multifamily residences (townhouses). An 18-hole golf course would meander through the development and would include ponds, a clubhouse, and other features typically associated with a golf course. The Olympic/Central Lake School and associated community park would also be located here. Four back bays are proposed along the Old River in this district with up to 119 individual docks and 1 group dock

with 40 berths. Along the shore of Old River, 76 individual docks are also proposed, and an additional 130 are proposed along the Paradise Cut canal.

Lakeside District

The Lakeside district occupies approximately 470 acres in the north-central portion of the RID Area. This “active adult” community would include 1,400 single-family residences (Table 3-1) restricted to senior citizens. The 18-hole golf course would meander through the development and would include ponds, a clubhouse, and other features typically associated with a golf course.

Development of the RID Area is generally expected to occur in a southeast to northwest direction. Therefore, the Lakeside District active adult community would be expected to be built before the Woodlands District described above. However, if future real estate market conditions indicate greater demand for non-age-restricted housing in the near term, the Lakeside District may consist of non-age-restricted housing and the Woodlands District would contain the active adult community. Under this scenario (as discussed previously), only the location of the active adult community and non-age-restricted housing within these two districts would change. The overall acreages, number and type of housing units, and other facilities would be substantially the same.

LAKES AND WATER

The water elements incorporated into the proposed project can be divided into two systems: the internal system and the external system. The internal system would consist of the man-made lake, canals, and other waterways in the RID Area. The external system would consist of those elements outside the Stewart Tract levee system: the San Joaquin River, Old River, and Paradise Cut. The external system also would include the back bays.

Internal Lake and Water System

The largest water body in the internal system would be the roughly 280-acre central lake, which would traverse much of the River Islands Development Area from the southeast to the northwest, covering a distance of roughly 4 linear miles. The lake configuration would be bisected by Canal Street and the associated canal connecting the lake to the East Village and West Village districts and the Town Center. The lake and canal system ultimately would provide a water connection between many of the developed areas on the project site (Exhibit 3-6).

Boating in the internal lake system would be restricted to human-powered boats (e.g., rowboats, paddleboats, canoes), electric boats, and small sailboats. No internal combustion engines would be allowed to operate with the exception of boats potentially used by police and fire agencies for emergency response. Many of the private lots with lake frontage would have single-boat docks where a small boat can be stored. One group dock with up to 10 berths, associated with a lakefront park facility, is also planned. Single-boat docks and the multiboat dock in the internal lake system would accommodate up to 604 boats (Tables 3-2 and 3-3).

Table 3-2 Number of Single-Boat Docks on the Internal Water System	
Location	Total Number of Berths
West Village district	98
East Village district	55
Lake Harbor district	441
Total	594

Table 3-3 Number of Multiboat Dock Berths on the Internal Water System			
Location	Number of Multiboat Docks	Number of Boats per Dock	Total Number of Boats
West Village district	1	10	10
Total			10

Swimming would not be permitted in the central lake. However, fishing would be allowed, and the central lake would be stocked to enhance recreational fishing opportunities and for lake management (vegetation removal, mosquito control). Because the internal water system would double as a stormwater retention system, water would be pumped from the lake into the Delta during the winter months. (See the “Stormwater Drainage” portion of Section 3.4.4, “Public Utilities.”) Therefore, it would be possible for fish in the lake to be transported to Delta waterways. For this reason, fish used to stock the lake would consist only of species that already exist in the Delta and would not cause harm to the Delta ecosystem if they escaped from the project site. The U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and California Department of Fish and Game (CDFG) would be consulted regarding appropriate species for fish stocking, and project residents would be educated on the potential damage that could be caused by introductions of exotic species into the lake.

The edge of the lake subject to seasonal inundation may have a variety of treatments. A majority of the lake edge would have a natural appearance and would be planted with trees and grasses that can tolerate occasional high water. Some of the lake edge would have a bulkhead against which the water surface can fluctuate.

The internal water system also includes several ponds and water features to be constructed as part of the two proposed golf courses. No swimming, fishing, or boating would be permitted in these ponds.

External Water System

In addition to the San Joaquin River, Old River, and Paradise Cut, the external water system would include up to 9 back bays, one of which is the Lathrop Landing “harbor.” Back bays would range in size

from roughly 5 to 15 acres and would consist of water surfaces, levee remnants, and the edges of the levees and high ground corridors that surround the water surface (Exhibit 3-7). The back bays would serve several purposes, including providing recreational opportunities, a visual amenity to residents, and habitat for plants and wildlife.

Because back bays would be located outside the main channel of the river, activities along their edges would not adversely affect river flows. Boat docks would be provided in each back bay, and a fishing pier and boat launching area also might be included in some of the back bays.

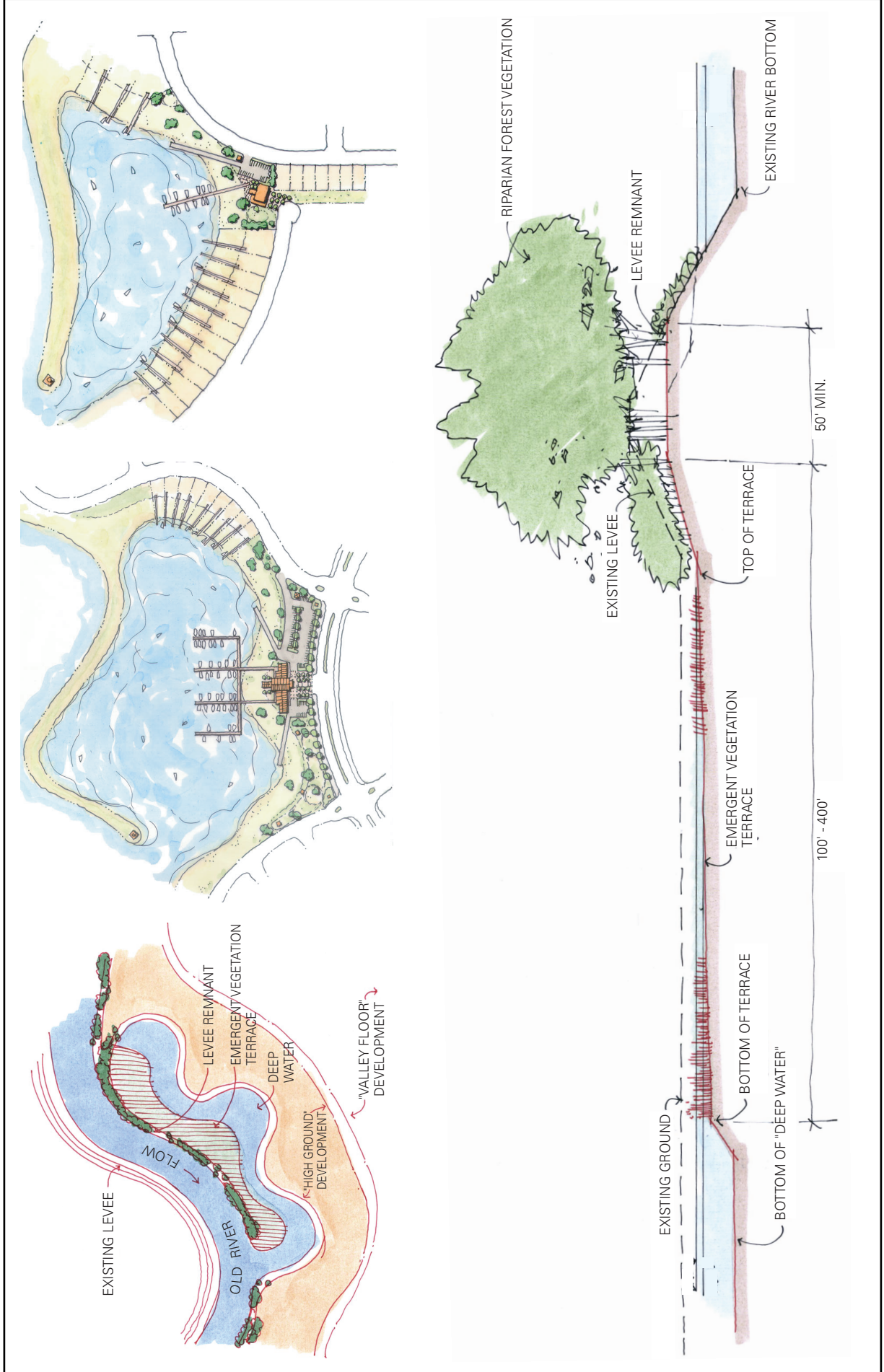
The Lathrop Landing back bay would differ from other project back bays because of its association with the Town Center. Lathrop Landing would include group docks to provide temporary berthing of up to 40 boats, but no boat launching facility. Park facilities would be developed along the water's edge; however, providing habitat for wildlife and fisheries is not a specific component of Lathrop Landing design. Also, where other back bays would have residences along the perimeter, Lathrop Landing would have retail and commercial facilities associated with the Town Center along the water's edge.

Other than the Lathrop Landing back bay, other back bays would be specifically designed to have a natural appearance. Levee remnants would be planted predominantly with native trees and shrubs. The edges of the back bays adjacent to residential neighborhoods might have a more manicured appearance, but trees and shrubs would be arranged to appear natural. Some portions of a back bay might be occupied by a seasonal wetland.

Each back bay would have one or more small parks that provide access to the back bay water surface as well as to the levee remnant. Access to some back bays would be intended primarily for River Islands residents who lack direct access from their private lot, although other back bays would be accessible to the public. These parks are intended for passive activities, such as picnicking, boat launching, fishing, walking, and nature observation.

To preserve boat access to the back bay, the bays may be dredged up to every 5-10 years. Dredging spoils may be deposited on the levee remnants adjacent to the back bay or at an agency-approved location.

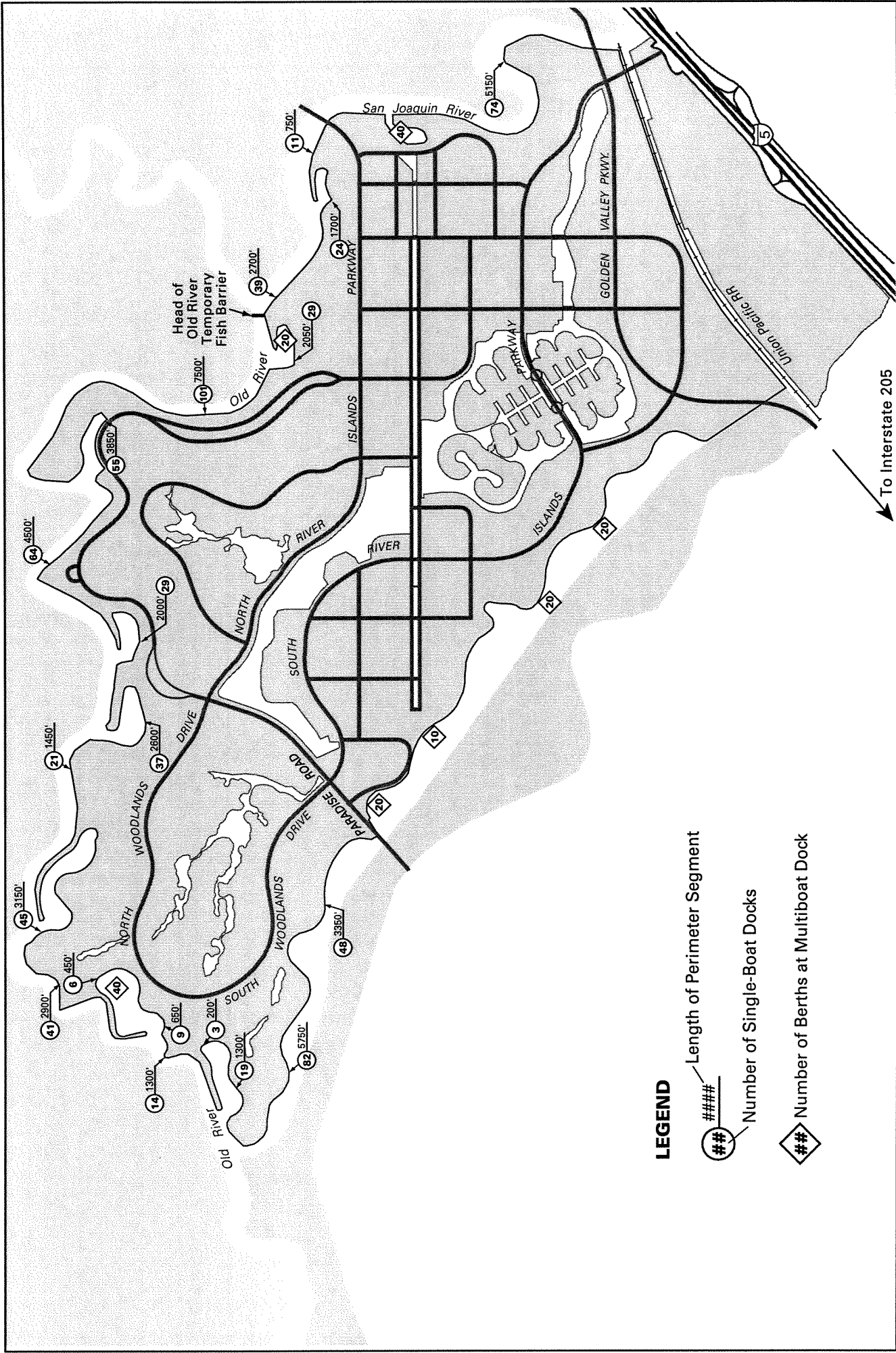
Single-boat and multiboat docks associated with the external water system would be built in various locations along the perimeter of the RID Area as an amenity for project residents and to support recreational boaters visiting the areas. The combined docks of the external system would accommodate up to 921 boats (Tables 3-4 and 3-5). Multiboat docks at Lathrop Landing, in the back bay closest to the confluence of the San Joaquin River and Old River, and at the Woodlands District back bay would accommodate 40, 20, and 40 local resident boats and guest boats, respectively (Exhibit 3-8). The four multiboat docks proposed for Paradise Cut would serve 20 boats at the retail center, 20 boats at the environmental campus (see the "Schools" section below), 20 boats at the community park, and 10 boats at a neighborhood park (see the "Parks and Trails" section below).



Source: Data provided by the SWA Group 2002

Typical Design of Back Bay

River Islands at Lathrop
 CITY OF LATHROP
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LEGEND

- #### Length of Perimeter Segment
- ## Number of Single-Boat Docks
- ## Number of Berths at Multiboat Dock

Source: Data provided by The SWA Group 2002

Location of Single-Boat and Multiboat Docks on the External Water System

River Islands at Lathrop
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Location	Shoreline Segment Length with Single-Boat Docks (feet)	Total Number of Single-Boat Docks
River edge	25,550	365
Back bay	17,920	256
Paradise Cut	9,100	130
Total		751

Location	Number of Multiboat Docks	Total Number of Berths	Remarks
Lathrop Landing	1	40	At the Town Center
Woodlands District	1	40	Old River
Retail Center	1	20	At Paradise Cut
Environmental School	1	20	At Paradise Cut
Community park	1	20	At Paradise Cut
Neighborhood park	1	10	At Paradise Cut
East Village	1	20	Old River
Total		170	

Single-boat docks proposed for the external system would accommodate 256 boats in nine proposed back bays and 365 boats along the river edge. In Paradise Cut, single-boat docks are proposed for 130 boats. Single-boat docks along the river edges (i.e., outside of back bays) would consist of floating platforms running parallel to the bank and would be attached to the banks by cables. Limitations on boat speeds (“no wake zones”) would be instituted along the San Joaquin River, Old River, and the Paradise Cut channel where single-boat docks are installed to prevent damage from wakes. Of the 921 total berths proposed on the external water system, roughly 60% (553 berths) would be designed to accommodate boats up to 32 feet long. Approximately 30% (276) of the berths would be designed to accommodate boats up to 40 feet long. The remaining 10% of the berths (92) would be designed to accommodate boats up to 56 feet long.

The channel in Paradise Cut along the edge of the project’s levee (Exhibit 3-6) would be widened and deepened to allow small boats to access the single-boat and multiboat docks proposed along Paradise Cut. The improved channel would be excavated to a depth sufficient to support boat traffic. Boat speeds in the channel would be heavily restricted to prevent wake-generated damage to docks and shoreline erosion and disturbance of nearby residents from engine noise. The height and piling spacing of the existing Paradise Road bridge (which would be retained) would restrict boat access beyond the bridge to the channel to only small boats.

Public access to the riverbanks along the project perimeter generally shall be provided at defined locations. Access points would occur at locations that contain other project features, such as at parks and back bays. However, residents on the high-ground corridors would have direct access to the riverbank adjacent to their property, as well as single-boat and multiboat docks as appropriate. Residents along the edge of the external system would have ownership of the property to the water's edge on the San Joaquin River and to the middle of the channel along Old River and Paradise Cut. However, the portion of each parcel from the top of the outer bank of the high-ground corridor to or into the water (Old River, San Joaquin River, Paradise Cut) would contain various easements limiting landowner activities to ensure the protection of habitat values, maintenance of water quality, prevention of bank erosion, and passage of high water flows. The reclamation district or other public agency would continue to maintain the water facing side of the high-ground corridors (as well as all levees). Access for the reclamation district and authority to conduct any necessary maintenance activities would also be included in the easement language for parcels along the edge of the external water system.

SCHOOLS

The project site is located within two different school district boundaries: the Banta Rural Elementary School District (BRESO), which serves grades K–8, and the Tracy Unified School District (TUSD), which serves grades 9–12. On the basis of initial student generation estimates provided to the project applicant by the two school districts during project design, the project is expected to generate approximately 5,600 grade K–8 students and 1,350 grade 9–12 students at full buildout.

If the school system follows a traditional model, each K–8 school would house approximately 750 students and be located on 13–14 acres, based on input from the BRESO. On the basis of this model and the anticipated student generation from the project, 7-8 grade K–8 schools (or six grade K–5 schools and two grade 6–8 schools) would be needed on the project site, covering a total of approximately 100 acres. One small high school also would be required on a 40- to 50-acre parcel.

The project applicant has been coordinating with both the BRESO and the TUSD in an effort to implement a nontraditional school program on the project site. The school program would consist of the following elements:

- ▶ Three schools/campuses would be constructed in the RID Area each housing approximately 2,000–2,400 students.
- ▶ Each campus would house grade K–8 and grade 9–12 students. Although facilities for these two student groups would not necessarily be intermingled, they would be located on the same parcel.
- ▶ Each of the three schools (Exhibit 3-6) would have a magnet focus.
 - A performing arts/business-focused school would be located at the Town Center and would likely be a two-story urban campus.
 - An environmental focused campus would be located near the PCC Area and the proposed Animal Campus to facilitate learning focused on biology, the environment, and natural resources.

- The “Olympic School” (Central Lake School) would be located adjacent to the internal lake and near one of the golf courses. Traditional high school athletic facilities (e.g., baseball and football fields, gymnasium) would be housed on this campus.
- ▶ The acreage for each campus would vary because the types of facilities would differ at each school. The school located in the Town Center (Exhibit 3-6) would cover approximately 31 acres, the environmental campus at Paradise Cut would consist of approximately 40 acres, and the Olympic/Central Lake School near the golf course would cover approximately 65 acres.

Although high school students would be located at each of the three campuses, generating fewer than 500 students per location, the high schools would operate as one system.

The preferred school approach for the River Islands at Lathrop Project is the nontraditional, three-campus system described above. However, the applicant, the BRESA, and the TUSD are aware of the challenges associated with implementing such a nontraditional system. Therefore, the traditional school system, with 7-8 grade K–8 schools (with either combined or separate K–5 and grade 6–8 schools) and one high school, also is considered, optionally, as part of the proposed project. Ongoing negotiations with the two school districts would determine which system is implemented.

A minimum of 136 acres is set aside in the RID Area for the three campuses under the nontraditional system. Additional space would be made available for the 140–150 acres needed to implement the traditional school model if this approach is adopted.

If the nontraditional system is implemented, the performing arts/business focused campus in the Town Center would be built first. As development proceeds and student numbers increase beyond the capacity of the Town Center campus, the environmental campus adjacent to Paradise Cut would be built next to meet student demand. When student demand has increased sufficiently again, the Olympic/Central Lake School would be built.

Under the traditional model, the 7-8 elementary schools (or six K–5 and two grade 6–8 schools) would be built one at a time, as needed, to meet student demand. One or more of the first elementary or middle schools would have facilities temporarily set aside to accommodate high school students. After project development proceeds to a point where high school student numbers are sufficient to support the single proposed high school, this school would be built.

Schools associated with the proposed project would be built to accommodate students residing in the RID Area. In early phases of development, students from River Islands could temporarily attend schools outside the community. When homes are first built in the RID Area, temporary school facilities may also be constructed to accommodate students until the population is large enough to support the Town Center campus and to minimize the need to send students offsite. Schools associated with the proposed project are not expected to accept students from outside the project site unless accepted on a transfer basis as required by the school districts.

FIRE AND POLICE PROTECTION

Fire protection services at the project site would be provided by the Lathrop-Manteca Fire Protection District (LMFPD). During Phase 1a (see section 3.4.7, “Phasing,” at the end of this chapter), an interim fire station would be put into service in the Phase 1a area to provide fire protection to the initial 800 housing units. At an appropriate time during Phase 1 (based on demand for fire protection services), a permanent fire station would replace the interim facility. This station is expected to be located in the Employment Center district. As development continues, one or more additional fire stations would be put into service on the project site based on service demand calculated by the LMFPD.

Police service at the project site would be provided by the Lathrop Police Department. The police department is currently located at the Lathrop City Hall. However, the department is in negotiations to move to a larger facility at 15597 7th Street. In the future, in accordance with the General Plan, a new Government Center, to include a new police station, would be developed west of I-5 in the City of Lathrop. The Government Center would be located either north of the Mossdale Village area, within the River Islands project site, or in another area west of I-5 planned for development. The Government Center police station would either add to or replace the 7th Street station, depending on conditions when the Government Center is built. Police officers serving the proposed project may be stationed at any of these facilities or other facilities ultimately used by the Lathrop Police Department.

An emergency response/evacuation plan for the project site would be developed in coordination with the police and fire departments to ensure that island residents would be evacuated safely in the event of a large-scale emergency or natural disaster.

PARKS AND TRAILS

Two varieties of parks and trail facilities are included in the proposed project:

- ▶ passive – for activities in the natural environment in general and the delta environs in specific, and
- ▶ active – for organized sports and other forms of recreation, such as fishing and boating.

Parks

Four primary categories of parks are proposed as part of the River Islands at Lathrop Project: community parks, river vista parks, lakefront parks, and neighborhood parks. Each of these is discussed below. Anticipated acreage of each park type by project district is shown in Table 3-6. (The terminology used in this section to refer to the different park categories was provided by the project proponent and differs somewhat from the terminology used in the City’s General Plan and UDC. For an interpretation of how the project proponent’s categories relate to those of the City, see section 4.12, “Recreation.”) No parks are proposed within the boundaries of the Lakeside District, although a golf course is present in this active adult community. Small areas in many of the neighborhood parks would be set aside for stormwater management and would feature grasses and other plants that would clean and polish initial

Table 3-6 Park Acreage by District										
Park Type	Paradise Cut	Town Center	Employment Center	Old River Road	Lake Harbor	East Village	West Village	Woodlands	Total	
Community Parks	0.0	28.2	0.0	0.0	0.0	0.0	32.0	38.9	99.1	
Lathrop Landing Park	--	11.0	--	--	--	--	--	--	11.0	
Improvable area ¹	--	2.9	--	--	--	--	--	--	2.9	
River slope	--	4.3	--	--	--	--	--	--	4.3	
Back bay slope	--	--	--	--	--	--	12.0	--	12.0	
Paradise Cut Community Park	--	10.0	--	--	--	--	--	--	10.0	
Town Center Community Park	--	--	--	--	--	--	20.0	--	20.0	
Paradise Cut School Community Park	--	--	--	--	--	--	--	38.9	38.9	
Central Lake Community Park	--	--	--	--	--	--	--	--	--	
Neighborhood Parks and Paseos	0.0	3.0	0.0	6.3	0.0	15.3	17.8	0.0	42.4	
Usable area	--	2.2	--	5.6	--	12.5	15.0	--	35.3	
Stormwater infiltration area	--	0.8	--	0.7	--	2.8	2.8	--	7.1	
River Vista Parks	3.0	0.0	4.9	13.3	0.0	10.4	21.5	20.0	73.1	
Improvable area ¹	--	--	--	9.3	--	5.8	--	20.0	35.1	
River slope	--	--	--	2.0	--	3.4	--	--	5.4	
Back bay slope	--	--	--	2.0	--	--	--	--	2.0	
Paradise Cut trail	0.6	--	--	--	--	--	--	--	0.6	
Improvable area ¹	2.4	--	--	--	--	--	--	--	2.4	
Slope area	--	--	4.9	--	--	1.2	21.5	--	27.6	
Linear Park	--	--	--	--	--	--	--	--	--	
Lake Front Neighborhood Parks	0.0	0.0	13.7	0.0	6.3	9.6	21.1	0.0	50.7	
Improvable area ¹	--	--	--	--	4.3	--	6.5	--	10.8	
Lake slope	--	--	--	--	2.0	--	2.1	--	4.1	
Lake front trail	--	--	3.7	--	--	--	--	--	3.7	
Improvable area ¹	--	--	10.0	--	--	--	--	--	10.0	
Slope area	--	--	--	--	--	9.6	12.5	--	22.1	
Linear Park	--	--	--	--	--	--	--	--	--	
TOTAL	3.0	31.2	18.6	19.6	6.3	35.3	92.4	58.9	265.3	

¹ Improvable area is the area where various facilities and hard improvements could be constructed based on slope and water levels.
Note: The acreage shown for parks within the Woodland district was provided by The SWA Group. The configuration of these parks is unknown at this time and may include all park types shown above. The acreage shown in this table is preliminary and may vary from final design.

stormwater runoff. For more information on how the parks serve as part of the storm drainage system, see the discussion of “Storm Drainage” in section 3.4.4, “Utilities.”

Community parks are the largest parks on the project site providing active recreation opportunities. The five proposed parks are referred to as the Lathrop Landing Community Park, Paradise Cut Community Park, Paradise Cut School Community Park, Central Lake Community Park, and Town Center Community Park. Three of these 10- to almost 40-acre parks are associated with the proposed school campuses and are intended to provide facilities for organized sports and active recreation as well as support the athletic needs of the schools. They would feature play fields, game courts, and other specialized recreation facilities. The two remaining community parks are intended for more passive uses. Each park would be specifically designed to minimize/eliminate potential adverse noise, light, and traffic impacts on adjacent residential neighborhoods.

The Lathrop Landing Community Park was described previously in the discussions of the Town Center and the Lathrop Landing back bay. The Paradise Cut Community Park is located along Paradise Cut south of the Paradise Road bridge. This 12-acre park would be used primarily for passive recreation but would also include a public boat ramp suited to small boats and a multiboat dock with up to 20 berths.

Under the nontraditional school model, the remaining three community parks would be developed in conjunction with one of the three campuses for ease of maintenance, dual use, parking, and efficient management. The schools and parks would share operation costs. These would be the Paradise Cut School Community Park, the Central Lake Community Park, and the Town Center Community Park. Under the traditional school model, these three community parks would be built in locations similar to those proposed under the nontraditional school model, and facilities would be similar; however, the financial and operational interrelationship between the parks and the schools would not be as strong.

The Paradise Cut School Community Park would be associated with the proposed environmental campus and is intended to provide for a variety of active recreation needs. This park would have play fields, basketball courts, and space for other popular sports. Facilities would be provided for both Little League and adult softball. Two baseball fields would have night lighting, dugouts, and grandstands. The park also would provide free-play areas and space for passive uses, such as picnicking, walking, and sitting. The scale of this park (20 acres) would allow it to accommodate larger public gatherings than other River Islands’ parks. Off-street parking would be provided consistent with the requirements of the park uses. Along the park’s Paradise Cut frontage, public access to the water would be provided in the form of a public boat ramp suited to small boats, a small multiboat dock with up to 20 berths, and a public fishing pier. Optional facilities that might be appropriate for this park include an enclosed recreation facility building, public swimming pool, and public tennis courts. The precise number and variety of facilities would be established in conjunction with the City of Lathrop.

The Central Lake Community Park would be associated with the proposed Olympic/Central Lake School and would be intended to provide space for a variety of organized sports activities. The approximately 39-acre park would include play fields (e.g., soccer, football, softball) and various outdoor courts (e.g., basketball, tennis, volleyball). Depending on the needs of the school district and park department, this park could include a small stadium (fewer than 5,000 seats) suitable for interschool athletic activities,

such as track meets and football games. This park also could contain an Olympic-size swimming pool with locker rooms. Off-street parking would be shared with the school. Passive use of this park would be limited to small areas around the perimeter of the site, such as small picnic areas and walking trails.

As its name implies, the Town Center Community Park would be located in the Town Center and would be adjacent to the proposed performing arts/business campus. The smallest of the five community parks (approximately 10 acres), it would provide play fields, a game court area, and other outdoor play facilities for the adjacent school. The public would be permitted to use these facilities during nonschool hours, while other portions of the park would be dedicated exclusively to public use.

River vista parks would be located on the perimeter of the RID Area adjacent to one of the three surrounding water bodies (San Joaquin River, Old River, Paradise Cut). The small parks associated with the back bays are included in the river vista park system. (See “External Water System” above for more information on back bays.) The primary purpose of river vista parks is to provide a means of access to the river for River Islands’ residents and visitors.

These parks would vary in size and form, depending on their location and purpose. On the northern edge of the community, in the residential neighborhoods, these parks would be small, and their primary use would be to serve as river access. Typically, they would include a place to view the river, seating, and picnic facilities. On the edge of the River Islands project adjacent to Paradise Cut, the river vista parks would have a linear form, providing trails along the water edge that extend for several miles. These parks generally would be narrow (30–50 feet wide) but might widen in several locations to allow for picnic facilities or a small boat launching. Along much of the length of these parks, a public road would establish the inland edge.

Lakefront neighborhood parks would provide access to the project’s main lake. Located on the lake’s perimeter, these parks are intended to connect lakefront residential neighborhoods with the lake and communitywide lakefront open space system. The lakefront parks would range in size from less than 1 acre to several acres. They would primarily be designed to accommodate passive uses, although some may include active use facilities such as sports fields or tennis courts. For some lakefront parks, the predominant uses would be related to the park’s lake orientation and would include a boat dock/fishing pier or place to launch small boats. Informal gathering places, picnic tables, seating areas and small free-play areas also would be part of these parks, depending on the location and neighborhood needs. Linear lakefront parks also would be established in several locations. These parks would be intended for passive uses and would include trails for walking and bicycling, as well as seating areas.

Neighborhood parks and paseos would be located primarily in neighborhoods that are not directly adjacent to the internal or external water systems. These small parks would be intended to provide convenient active and passive recreation facilities. Facilities would vary by park depending on neighborhood needs and the availability of other parks and facilities (e.g., community parks) in the vicinity but typically would include free-play areas and locations for small social gatherings and picnics.

Trails

The proposed project trail system consists of an interconnected, hierarchical system of trails for pedestrians and bicyclists that provides access to virtually all the project neighborhoods and districts (Exhibit 3-9). To provide privacy for waterfront residents, the trail system would not include a continuous loop around the levee/high-ground corridor system. However, the system would connect to existing and planned trails in Lathrop and surrounding areas via pedestrian/bicycle lanes incorporated into project bridges over the San Joaquin River.

The two main components of the trail system are the River Islands loops and the Canal Street promenade. Supporting and supplementing these two primary systems are the paseos, sidewalks, and bicycle lanes that crisscross the project site.

The **River Islands loops** are a two-level trail system that would provide access to virtually all the project districts. The core of the system is the Main Loop, a bicycle and pedestrian trail that follows the edge of central lake and Paradise Cut to create an approximately 12-mile-long loop (Exhibit 3-9). The trail would be separated from vehicular traffic for most of its length. The five secondary loops, which would connect to the Main Loop, provide additional access to the trail system, as well as provide a series of shorter, varied trails. Portions of each secondary loop might be incorporated into paseos, linear parks, or roads. The five secondary loops are the Town Center Loop, Employment Center Loop, West Village Loop, Woodlands Loop, and Old River Road Loop.

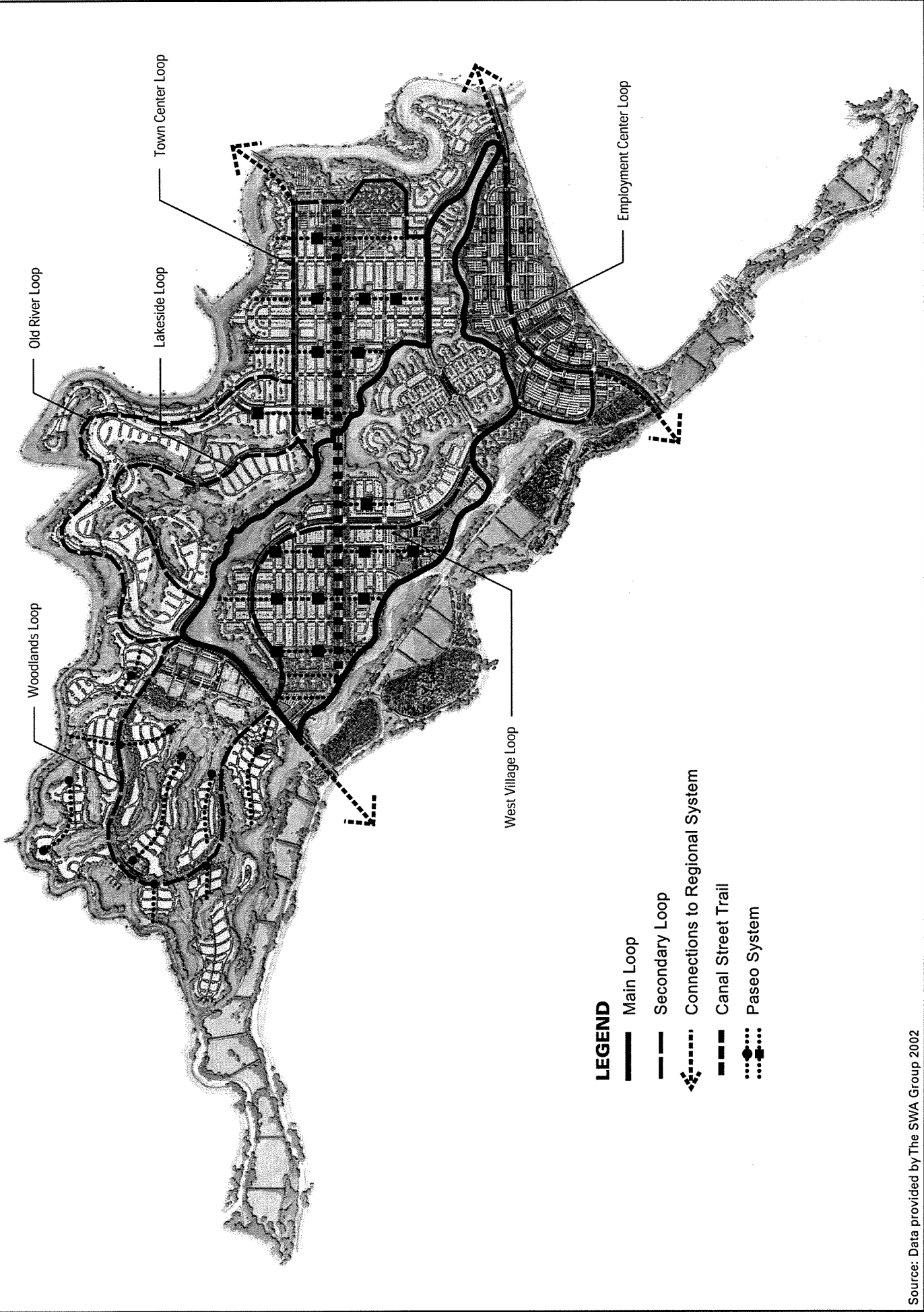
The **Canal Street promenade** is located on both sides of the main canal, which extends from the Town Center to the edge of Paradise Cut. This public area would parallel Canal Street and be part of a continuous parkway planted with large, regularly spaced trees and grass. The promenade would terminate on the west side near the Paradise Cut Community Park and at the Town Center in the east.

The **paseo system** would provide off-street, intra-neighborhood connections and convenient access to the River Islands trail system. Each paseo would consist of a path, trail, or sidewalk paralleling a park strip of varying width. The park strip may contain grass, trees, and/or a small channel to move/hold water. The trail might pass along the edge of the park strip or meander through it. Like the park system described above, the park strips associated with many of the paseos would be used for stormwater management, with the grasses and other plants used to clean and polish initial stormwater runoff.

The **sidewalks** and on-street **bicycle lanes** that support the project trail system would be the same as those found in any typical community. They would be incorporated into each neighborhood's design as the overall project is developed.

3.4.2 FLOOD PROTECTION

The entire River Islands project site is in the 100-year floodplain. To provide flood protection for the RID Area (i.e., all new urban development associated with the proposed project), various measures have been incorporated into the project design, including:



LEGEND

- Main Loop
- - - Secondary Loop
- Connections to Regional System
- - - Canal Street Trail
- ◆◆◆◆◆ Paseo System

Source: Data provided by The SWA Group 2002

Trail System

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- ▶ increasing the flow volume and capacity of Paradise Cut,
- ▶ constructing and strengthening levees and creating high-ground corridors, and
- ▶ constructing back bays on the San Joaquin River and Old River.

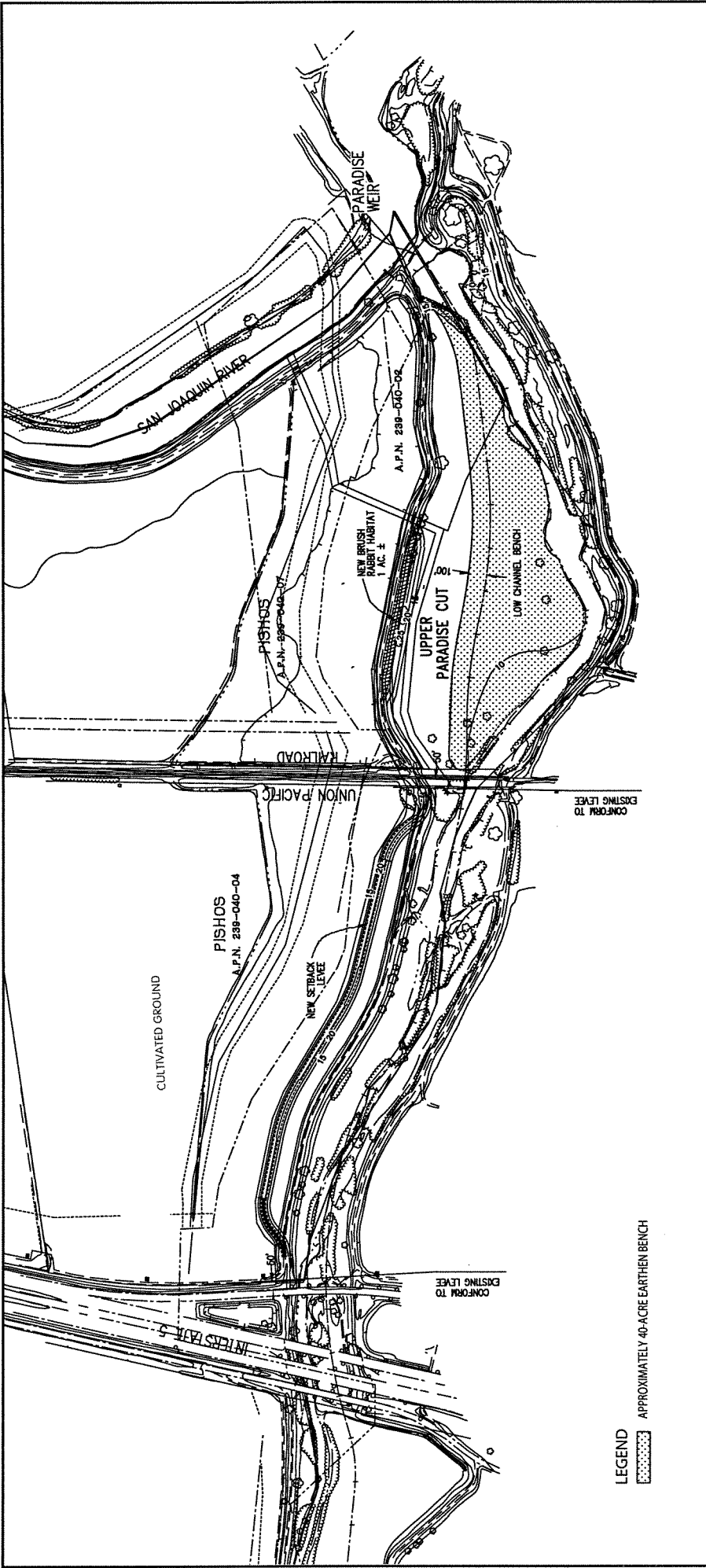
Each of these elements is discussed below. Construction and strengthening levees as proposed would remove the RID Area from the 100-year floodplain. These levee improvements would result in an increase in the flood event water surface elevation in the rivers surrounding Stewart Tract under certain circumstances. Improvements to Paradise Cut are proposed that would reduce peak-flow river elevations. These improvements not only would provide increased flood protection to the River Islands project but also would minimize any potential adverse downstream effects associated with removing the development area from the 100-year floodplain.

PARADISE CUT IMPROVEMENTS

Reclamation District (RD) 17 is responsible for maintaining the levee on the east bank of the San Joaquin River in Lathrop. This levee was raised and strengthened in the 1980s, resulting in the removal of most of RD 17 from the 100-year floodplain. RD 17 representatives were among those who expressed early concerns regarding the effect of removing the RID Area from the 100-year floodplain. They suggested that the River Islands project improve flood protection for the region by directing more flow down Paradise Cut. As a result, the PCIP was conceived. The PCIP would provide additional flood protection to the RID Area and the region by inducing increased flood flows through Paradise Cut. To accommodate these increased flows, Paradise Cut would be expanded by approximately 300 acres to enhance storage capacity in the cut.

It was decided not to change the width or elevation of the Paradise Weir at the San Joaquin River to enhance flows into the cut. Instead, flood flows would be increased in Paradise Cut by widening the flow area in the cut and removing existing flow restrictions in the cut near the Paradise Weir. Just northwest of the weir, 4–5 feet of soil would be removed from an existing approximately 40-acre earthen bench in the PCIP Area (Exhibit 3-10). This would allow water from the San Joaquin River to move more quickly into Paradise Cut when flows overtop the weir at approximately 18,000 cubic feet per second (cfs) (approximately once every 4 years). A portion of the removed soil would be placed along a roughly 800-foot segment of the inside edge of the northern Paradise Cut levee, between the Paradise Weir and the UPRR tracks east of I-5. This extra soil would be used to widen the levee, expanding the peak width by roughly 50 feet. The new 800-foot-long- by 50-foot-wide area at the top of the levee would be vegetated with appropriate species to provide approximately 1 acre of habitat suitable for the riparian brush rabbit (*Sylvilagus bachmani riparius*), a federally endangered species. The levee widening also would reinforce this levee segment. The balance of the fill would be transported to the land side (south side) of the levee on the opposite bank of Paradise Cut and used to reinforce that levee.

Between the eastern UPRR tracks and I-5 (Exhibit 3-10), the existing Paradise Cut levee would be removed, and a new setback levee would be constructed approximately 150 feet back from the current levee location. Construction of the setback levee would widen this segment of the Paradise Cut channel by 150 feet, allowing greater flows to enter Paradise Cut from the San Joaquin River and increase the storage capacity of Paradise Cut. The setback levee would be the same height as the existing levee and



Source: Data provided by Carlson, Barbee & Gibson 2002

PCIP Area Improvements

River Islands at Lathrop
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EXHIBIT 3-10



would be constructed to meet all applicable agency standards. Exhibit 3-10 shows the setback levee located on the north side of Paradise Cut. However, depending on negotiations with the property owners, the setback levee might be constructed on the south side of the cut. The setback levee design and dimensions and the increased channel width for Paradise Cut would be the same in either case.

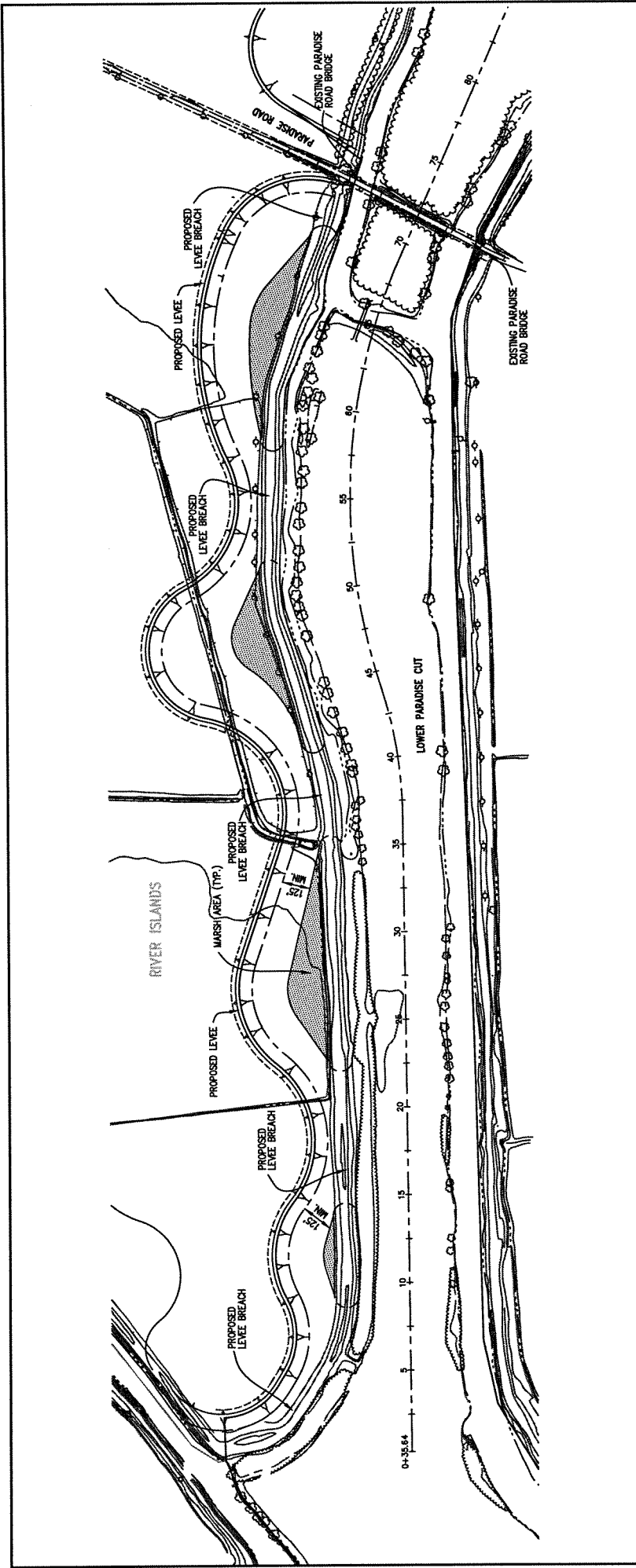
The project also includes breaching and abandoning the existing Paradise Cut levee in the PCC Area and replacing it with a setback levee (Exhibits 3-4 and 3-11a through 3-11c). The remnants of the existing levee would be restored to riparian vegetation for the benefit of wildlife and as a visual amenity. This restoration effort is described in more detail in section 3.4.5, "Natural Lands," below. The new setback levee would be built to applicable agency standards and would be stronger than the existing Paradise Cut levee with a minimum elevation equal to the 1-in-200 Annual Exceedence Probability (AEP) flood elevation (200-year flood elevation) plus 3 feet of freeboard (elevation of approximately +19 to +23 feet National Geodetic Vertical Datum [NGVD]) depending on location at the project site. The levee on the opposite bank, however, ranges from approximately +21 to +25 feet NGVD and would remain substantially higher under its existing condition than the new setback levee. Constructing the setback levee would widen Paradise Cut, allowing higher volumes of water to enter, be stored in, and pass through the cut during high-flow periods on the San Joaquin River. The improved levee also would provide a greater level of protection in the RID Area than the existing Paradise Cut levee.

The Paradise Cut setback levee ultimately would be converted to a high-ground corridor: a man-made earthen berm wide enough at its crest to allow homes, roads, or other facilities to be constructed on the high ground (Exhibit 3-12). To construct the high-ground corridor, earth would be added to the landward side of the setback levee to widen it until the desired dimensions are achieved. The maximum height of the high-ground corridor would be the same as that of the setback levee. When the setback levee is converted to a high-ground corridor, flood protection along the edge of Paradise Cut would be improved further.

LEVEE CONSTRUCTION AND STRENGTHENING AND HIGH-GROUND CORRIDORS

The RID Area is currently surrounded by levees along Old River, the San Joaquin River, and Paradise Cut. These levees were part of a Corps flood control project in the 1950s and were designed for a 1-in-50-AEP flood event. In most cases, the existing levees are high enough to protect the property from 1-in-100-AEP flows (the current 1-in-100-AEP flood elevation is 18 feet based on Federal Emergency Management Agency [FEMA] flood insurance rate maps) but have never been certified to provide that level of protection.

The UPRR tracks west of I-5 are elevated by an earthen berm that could act as a levee against floodwaters potentially entering from the east. However, the railroad berm is not a Corps project levee and has never been certified to provide any level of flood protection. During the 89-year flood event in 1997 the railroad berm temporarily held flood waters entering Stewart Tract from a levee breach on Paradise Cut near the weir. The railroad berm eventually failed and all of Stewart Tract was inundated. Concrete culverts have been installed in the railroad berm at the 1997 breach site, severely limiting its capability to function as a levee.



Source: Data provided by Carlson, Barbee & Gibson 2002

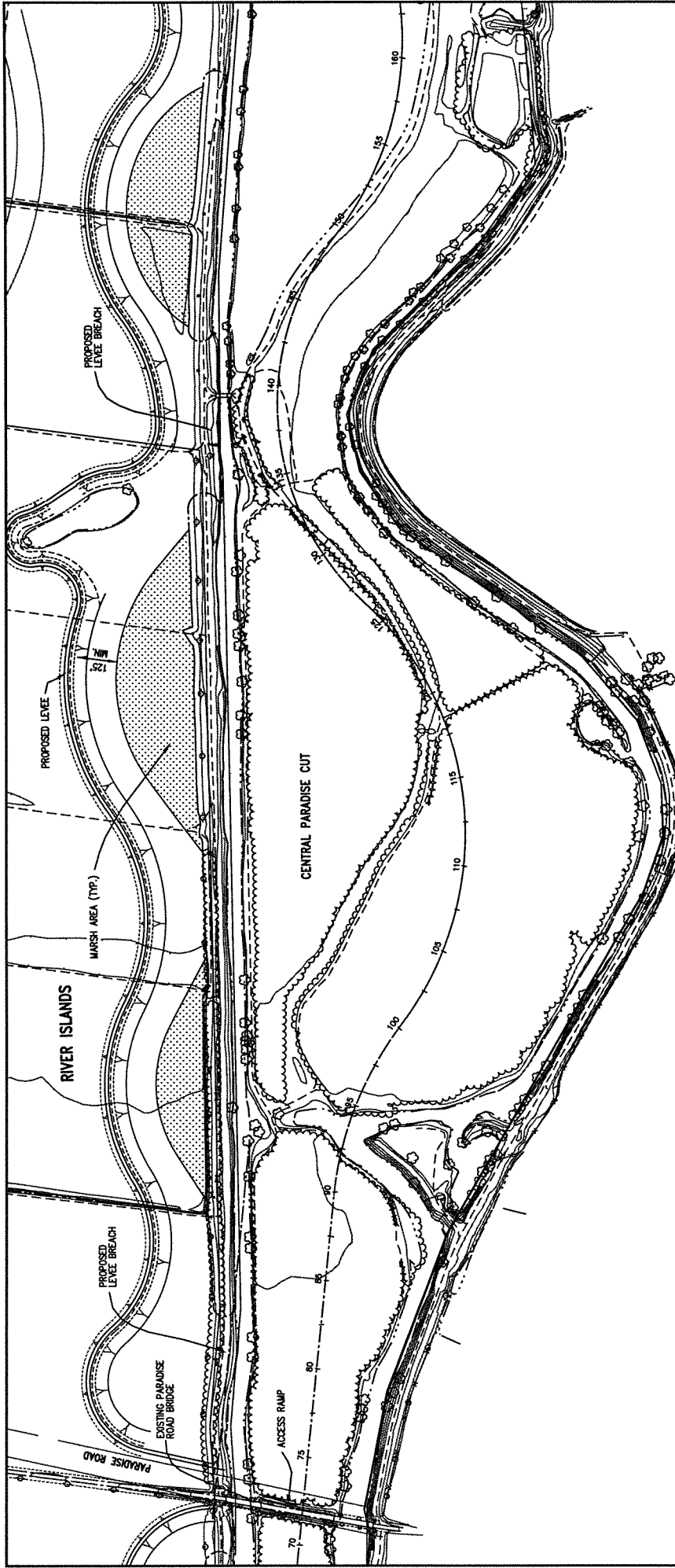
PCC Area Levee Improvements

River Islands at Lathrop
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EXHIBIT 3-11a



EDAW



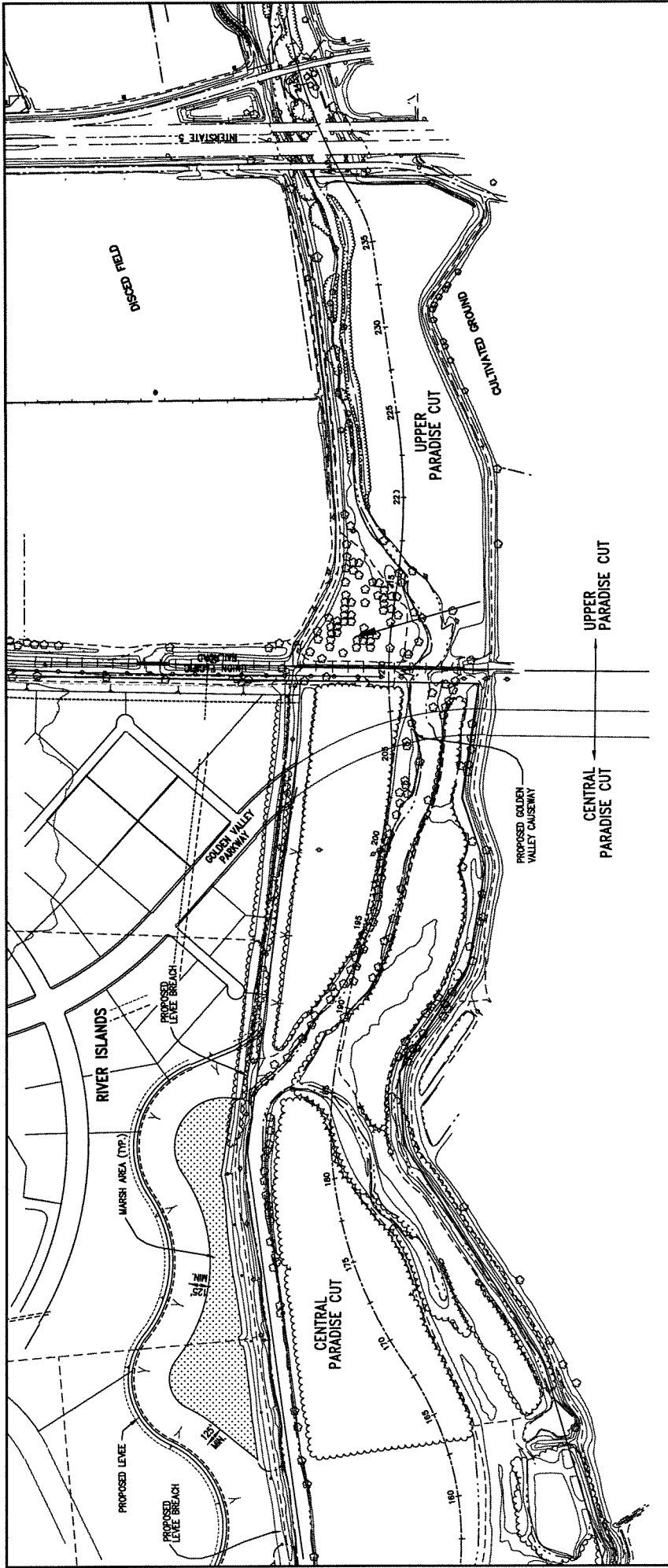
Source: Data provided by Carlson, Barbee & Gibson 2002

PCC Area Levee Improvements

River Islands at Lathrop
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EXHIBIT 3-11b





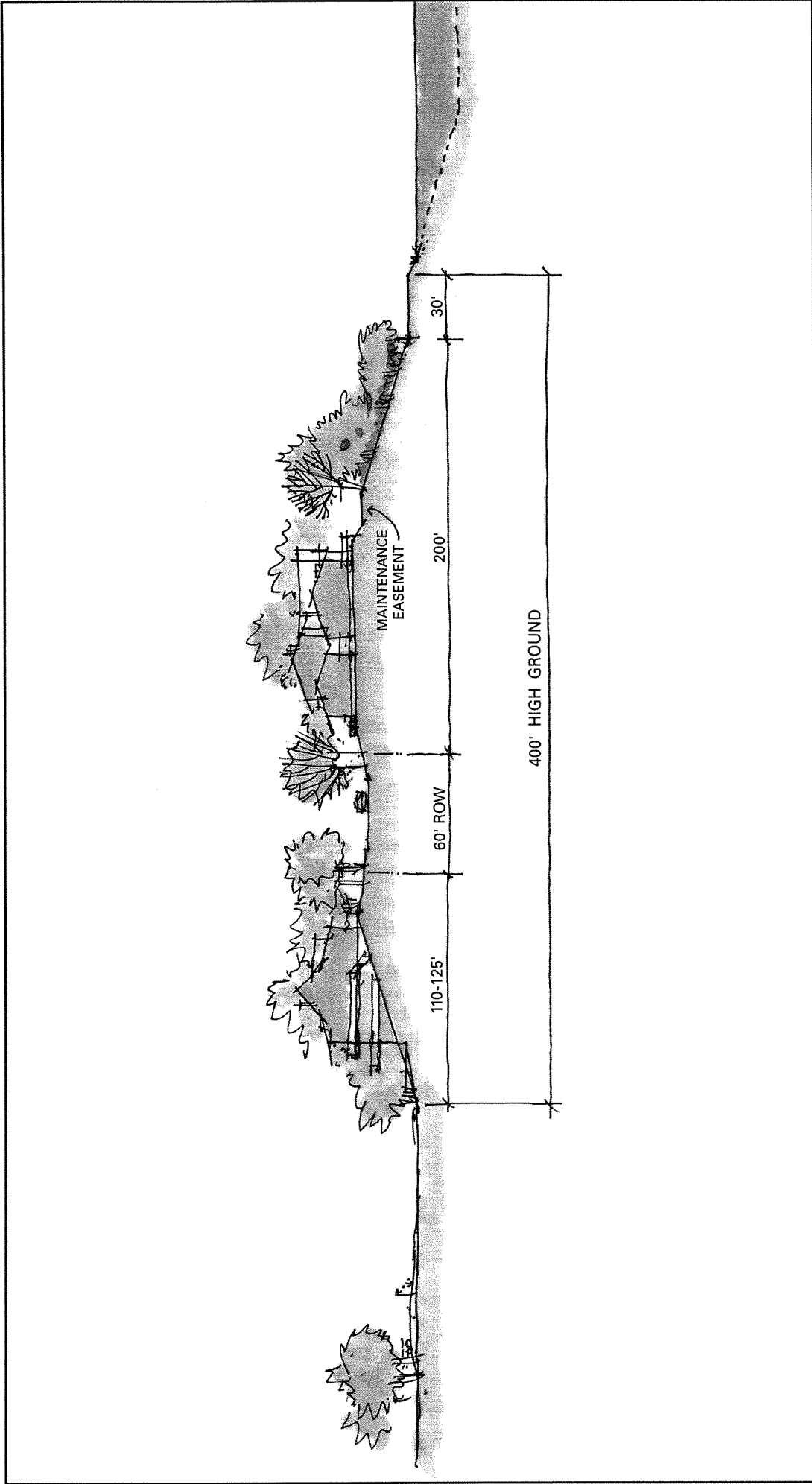
Source: Data provided by Carlson, Barbee & Gibson 2002

PCC Area Levee Improvements

River Islands at Lathrop
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EXHIBIT 3-11c





Source: Data provided by The SWA Group 2002

Typical Design of High-Ground Corridor

River Islands at Lathrop
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As described above, Paradise Cut levee protection would be increased by replacing the existing levee with an improved setback levee, and eventually a high-ground corridor. Levees along the San Joaquin River and Old River from the western UPRR tracks in the south to the end of the Old River Road District in the north would be reinforced by adding soil to the landward side to immediately create high-ground corridors along the river edge (Exhibit 3-12). These high-ground corridors would be many times as wide as a typical levee, with space available at the top sufficient to accommodate houses, roads, and other facilities. The minimum elevation would be equal to the 1-in-200-AEP flood elevation plus 3 feet of freeboard.

As part of the flood protection activities during Phase 1 of the proposed project (see the discussion of phasing at the end of this section), the remaining levees along Old River also would be reinforced by adding soil to the landward side, but not an amount sufficient to create a high-ground corridor. These levees would be reinforced, and raised if necessary, to equal the 1-in-200-AEP flood elevation plus 3 feet of freeboard. As with the setback levee along Paradise Cut during Phase 2, these reinforced levees would later have soil added to the landward side to convert them to high-ground corridors.

Along some levee segments, setback levees/high-ground corridors would be constructed to allow for the creation of back bays. After construction of the setback structure is complete, the existing levee would be breached to allow the river water to flow in and fill the back bay. The remnant of the existing levee would be retained and vegetation would be allowed to grow back naturally, or native vegetation may be planted and actively managed.

A new cross levee also would be built immediately west of, and paralleling, the western UPRR tracks. The toe of the cross levee would be outside of the UPRR right-of-way (approximately 50 feet from the railroad berm toe) to allow Union Pacific to patrol the berm by vehicle and to avoid removing existing habitat for riparian brush rabbit in the UPRR right-of-way. The levee height would equal the 1-in-200-AEP flood elevation plus 3 feet of freeboard and would be built to meet all applicable agency standards. This cross levee would provide much greater flood protection than currently afforded by the UPRR berm.

A fence, wall, or other barrier would be built along the cross levee to prevent people and domestic pets from entering the UPRR right-of-way. Feral cats are a major cause of mortality for riparian brush rabbit. The barrier would be designed to prevent cats, which might escape from project residences, from entering the area between the UPRR berm and the cross levee where riparian brush rabbits are known to occur. Vegetation would be allowed to grow on the east side of the cross levee to provide additional habitat for the brush rabbit.

All improved levees, new levees, and high-ground corridors on the project site would continue to be maintained by RD 2062, the RD with current jurisdiction over the project site.

The levees in the Remaining Stewart Tract area provide 1-in-50-AEP flood protection. If these levees fail, then the project cross levee could increase the depth and duration of flooding in Remaining Stewart Tract (Exhibit 3-5). Under current conditions, floodwaters that enter Remaining Stewart Tract from a levee failure on the San Joaquin River or Paradise Cut flow under the UPRR tracks east of I-5 via one or more trestles or bridges, under I-5 through the causeway at the Mossdale/Manthey interchange, past the

western UPRR berm through the existing 4- by 8-foot box culverts (installed by UPRR after the 1997 flood), and through the RID Area to the junction of Paradise Cut and Old River. Construction of the cross levee would prevent floodwaters from leaving the Remaining Stewart Tract area as they have done in the past. To ensure that the existing 100-year flood elevation in Remaining Stewart Tract would not be significantly increased as a result of the proposed project, a removable levee segment would be constructed as an offsite feature along the northern Paradise Cut levee between I-5 and the western UPRR tracks. A slurry wall would be constructed on an approximately 100-foot segment of the levee. The top of the slurry wall would be 9 feet below the top of the levee. If the remaining portion of Stewart Tract floods, the 9 feet of levee soil above the slurry wall could be removed, allowing water to drain from Remaining Stewart Tract into Paradise Cut without compromising the overall levee integrity. The removable levee segment would be built to USACE standards and would provide flood protection equal to or better than the existing adjacent levee segments. In addition, the project proponents would purchase portable or permanent pumps to drain remaining water in Remaining Stewart Tract after a flood event. If portable pumps are used, a concrete platform would be constructed at the intersection of the UPRR berm and the Paradise Cut levee to act as a platform for these pumps when they are needed. If permanent pumps are used, as many as 20 outfalls into Paradise Cut would be installed to carry water from the pumps. If permanent pumps are used, three outfalls would be installed.

BACK BAYS

A small amount of additional flood protection would be provided by back bays on the San Joaquin River and Old River (Exhibit 3-6). Construction of the back bays would slightly increase the river's overall water storage capacity during flood events.

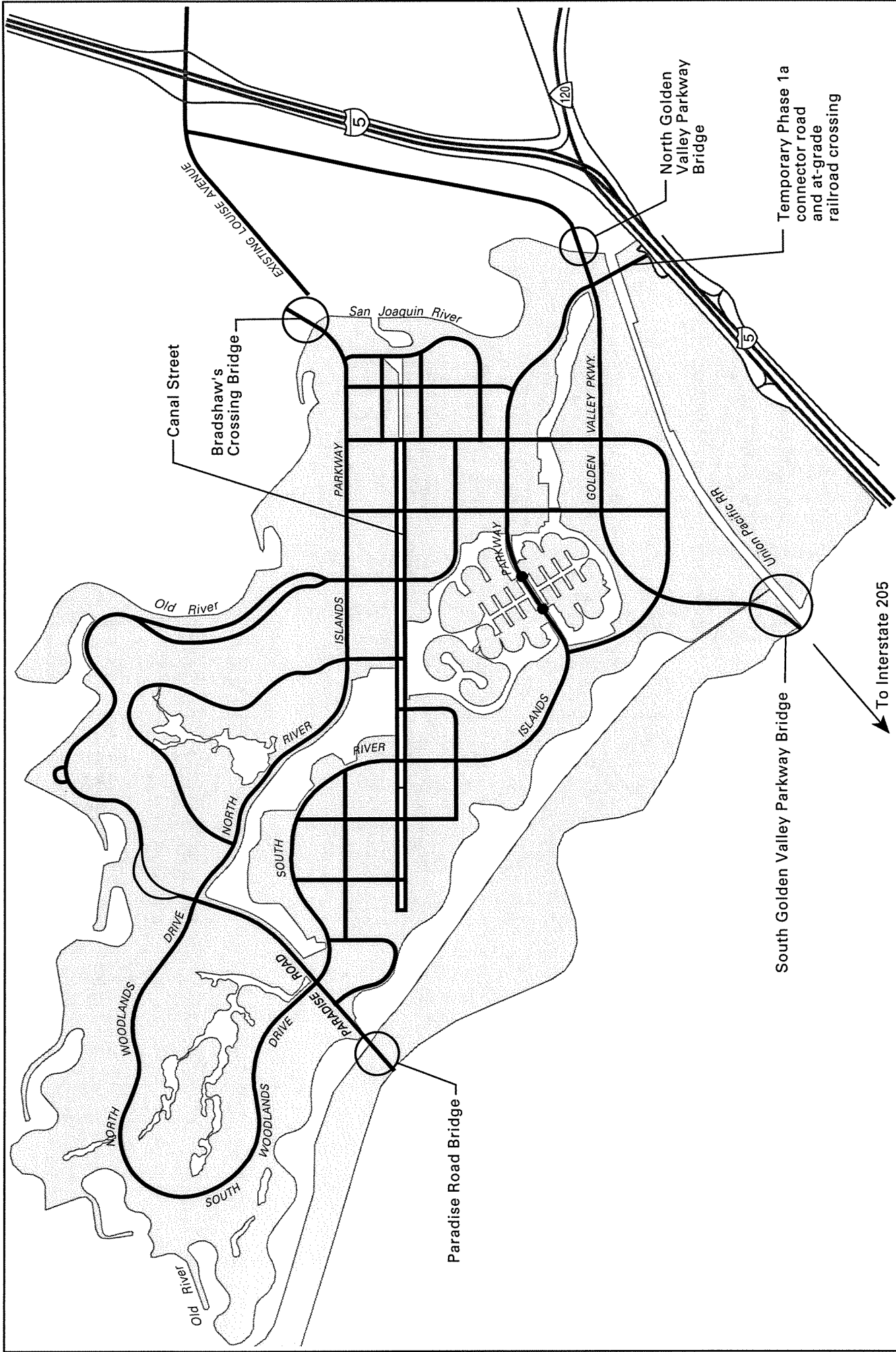
3.4.3 TRAFFIC AND VEHICULAR ACCESS

There are two primary elements to the traffic network for the proposed project: an internal circulation network in the RID Area and external traffic features that connect the project site to highways and surface streets. Bridges crossing the San Joaquin River and Paradise Cut to allow vehicles to enter the project site are considered part of the internal circulation system.

INTERNAL CIRCULATION

Several arterial roads, collectors, and local streets have already been incorporated into the proposed project design (Exhibit 3-13). The primary arterial providing access to the Employment Center district would be Golden Valley Parkway. Golden Valley Parkway includes a four-lane bridge on the east side crossing the San Joaquin River and a four-lane bridge to the west crossing Paradise Cut (Exhibit 3-6). The parkway itself would remain a four-lane road through the length of the Employment Center.

Approximately 3 miles downstream from the Golden Valley Parkway bridge over the San Joaquin River, the Bradshaw's Crossing bridge would be constructed across the San Joaquin River to provide the primary point of access to the Town Center and surrounding residential districts. Initially, a two-lane bridge would be constructed at Bradshaw's Crossing. However, as project development proceeds and



Source: Data provided by The SWA Group 2002

Circulation Plan

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traffic demand increases, an additional two-lane bridge would be constructed immediately adjacent to the first bridge. Each two-lane bridge would then carry one direction of traffic flow. The existing Paradise Road bridge (across Paradise Cut) would be retained to provide a point of access to the northwestern portion of the RID Area.

The primary onsite arterial road first carrying traffic from the Bradshaw's Crossing bridge is River Islands Parkway North. This main road connects to River Islands Parkway South via Paradise Road, and ultimately connects to Golden Valley Parkway at the eastern end of the Employment Center (Exhibit 3-13). A primary east/west arterial for vehicle, as well as pedestrian and bicycle traffic, would be Canal Street. The roads on each side of the canal would carry traffic one way, creating a loop around the main canal. Various collectors and local streets would then carry traffic from these arterial roads to the remainder of the development.

EXTERNAL TRAFFIC FEATURES

Initially, the River Islands Development Area would connect to City of Lathrop surface streets and I-5 via existing Stewart Road, using the existing at-grade rail crossing near the San Joaquin River to Manthey Road. Access to the freeway system would then be via either the Louise Avenue interchange or the Mossdale/Manthey interchange (Exhibit 3-13). This access route would be used during Phase 1a (see section 3.4.7, "Phasing," at the end of this chapter). As part of this early project phase, emergency access during a flood event would be ensured by elevating necessary segments of Stewart and Manthey Roads out of the 100-year floodplain.

To provide access to the Bradshaw's Crossing bridge, River Islands Parkway would extend from the existing Louise Avenue to the San Joaquin River. After construction of the first 2-lane segment of the bridge is complete, the at-grade rail crossing on Stewart Road used in Phase 1a would be restricted to emergency uses. In addition, because of proposed development in Mossdale Village, it is anticipated that in later project phases Manthey Road south of Stewart Road would be restricted to one-way northbound traffic. This restriction would prevent the new residents of Mossdale Village from having direct access to the Mossdale/Manthey interchange.

The existing access to the MacArthur Drive/I-205 interchange via Paradise Road would be retained and would be used for both construction and operations access. A portion of the construction and operational traffic during Phase 1a would also access the project site via the Mossdale/Manthey Interchange on I-5. However, the amount of traffic on the interchange would be limited in accordance with the capacity identified by the California Department of Transportation (Caltrans) for this interchange.

Initially, South River Islands Parkway would be the primary method of access to the Employment Center. In later phases, the Employment Center would primarily be accessed via Golden Valley Parkway. From the San Joaquin River, Golden Valley Parkway would extend north, generally paralleling I-5, and connect to the Louise Avenue west of the I-5 interchange (Exhibit 3-13). After crossing Paradise Cut, Golden Valley Parkway would extend south, then west, generally paralleling I-205. Golden Valley Parkway may connect to I-205 at a new interchange at Paradise Road/Chrisman Road and/or at the existing interchange at MacArthur Drive.

3.4.4 UTILITIES

As part of the River Islands at Lathrop project, the project applicant intends to provide various infrastructure financing mechanisms independent of the City of Lathrop. In pursuit of this goal, the applicant has completed the process of forming an irrigation district, titled the Lathrop Irrigation District (LID), with the authority to provide irrigation water, electricity, telecommunications, potable water, and wastewater services. The LID was approved by San Joaquin County in May 2002. Through the formation of the LID, infrastructure development and construction can be financed through the use of land bonds, revenue bonds, and other forms of financing available to public agencies. Use of the LID is the preferred method to fund electrical, potable water, and wastewater utilities to the River Islands project. However, more traditional systems where the utility provider installs the necessary infrastructure may also be used if necessary.

WATER

Water for the proposed project would come from a combination of groundwater and treated surface water, in accordance with the Master Plan (Nolte Associates 2001). Water for initial development during Phase 1a and Phase 1 would come from the planned expanded City of Lathrop well field located south of Yosemite Avenue, near McKinley Avenue, in the Lathrop Sphere of Influence. By 2005 treated surface water deliveries from the South County Surface Water Supply Project (SCSWSP) to the City of Lathrop are anticipated to begin. During later project development, water provided to River Islands by the City would consist of a mix of groundwater from the City's expanded well field and treated surface water from the SCSWSP.

The SCSWSP is a joint effort of the South San Joaquin Irrigation District (SSJID) and the cities of Escalon, Manteca, Lathrop, and Tracy, to supply treated potable water to the participating cities. The SCSWSP project includes a new water treatment plant located near Woodward Reservoir and various pipelines to transport the treated water to the four cities. If for some reason, sufficient water cannot be provided by the SCSWSP project and the City of Lathrop to support the proposed project, existing riparian and appropriative water rights associated with the project property may be used to provide domestic water.

Water mains, booster pumps, and storage tanks needed to support the River Islands project would be constructed in phases per the Master Plan. This would include an 18-inch pipeline following the extended Louise Avenue right-of-way crossing the San Joaquin River and an additional 18-inch pipeline following the eastern UPRR right-of-way to the RID Area. One of these pipelines would be constructed to support Phase 1a and 1, and the other would be needed for Phase 2 (see section 3.4.7, "Phasing," at the end of this chapter). Which pipeline would be constructed first has not been specified. Water storage tank/booster pump station #4 (as described in the Master Plan) would be constructed at an appropriate location in the RID Area and would consist of two storage tanks with a combined capacity of 3.5 million gallons (MG), along with necessary booster pumps (City of Lathrop 2001). This facility is expected to be constructed in phases, with the first storage tank and appropriate booster pumps constructed during Phase 1 of the River Islands project and the remainder of the facility constructed during Phase 2. Water delivery infrastructure in the RID Area would be constructed as needed, as development proceeds. Water

mains and other necessary pipelines would be installed in road right-of-ways and other appropriate utility corridors.

SEWER AND RECYCLED WATER

Wastewater from the project would be collected, treated to a tertiary level, and disposed of in accordance with the Master Plan. The Master Plan includes two options for treatment of wastewater from the project area: expansion and upgrade of Water Recycling Plant (WRP) #1, located in the Crossroads Commerce Center, and construction of WRP #3 on Stewart Tract, southeast of the UPRR line. These two locations remain options available to the River Islands project; however, the preferred alternative is expansion of WRP #1. The Master Plan also anticipated maximizing the use of recycled water for irrigation in the summer growing season and discharging the tertiary-treated effluent to the San Joaquin River in the winter months, when irrigation demand for recycled water is at its lowest and river flows are highest, so that any effect of effluent on water quality constituents in the river would be minimized.

The City has proceeded with evaluation of the WRP #1 Phase 1 Expansion Project, a first phase of expansion and upgrade of WRP #1 to provide the capacity needed for full buildout of Phase 1 of River Islands, additional development proposed for the WLSP area, and some commercial uses.

The River Islands project incorporates the maximum potential use of recycled water through several methods. During Phases 1a and 1, recycled water would be used to irrigate appropriate crops (e.g., alfalfa) in the PCC Area or on remaining agricultural lands in the RID Area, as needed, during the irrigation season. Sufficient acreage has been identified in these two areas to fully accommodate the demand for recycled water land disposal areas, and the potential use of each is addressed in the WRP #1 Phase 1 Expansion Project EIR. As project facilities are developed in the RID Area, recycled water would be used to irrigate public landscaped areas, such as the two golf courses, parks, landscaped road medians, and other vegetated features as appropriate.

During winter months, when demand for irrigation water is at its lowest, the recycled water would be held in storage ponds associated with WRP #1 in East Lathrop and in ponds construction on remaining agricultural land in the RID Area during Phase 1, as described in the WRP #1 Phase 1 Expansion Project EIR. In Phase 2, as the remainder of the RID Area is converted to the uses planned for the area as part of the proposed project, the use of this pond would be phased out, and the recycled water may be stored onsite in the golf course lakes and offsite in additional storage ponds. The wastewater and recycled water lines between WRP #1 and the River Islands project site and the interim onsite storage pond included in Phase 1 of the proposed project are elements of the WRP #1 Phase 1 Expansion Project and are evaluated in the EIR prepared for that project. However, expected impacts are summarized in this SEIR.

STORM DRAINAGE

Currently all storm drainage, as well as irrigation runoff, in the RID Area is collected into a central drainage ditch and is pumped into Paradise Cut. Under the proposed project the overall storm drainage system would be designed to minimize the volume of stormwater released into the surrounding rivers and

maximize the quality of all storm drainage water that must be discharged. The storm drainage system described below would also provide sufficient onsite flood detention to retain the 1-in-100-AEP storm event onsite without impact to the levees and high-ground corridors.

Stormwater Treatment Measures

Because Stewart Tract is on the west side of the San Joaquin River, it was not included in Lathrop's first storm drainage master plan. The first Stewart Tract storm drainage master plan was created as part of the WLSP. That plan included the concept of large internal lakes for collecting and cleaning all drainage before it was discharged into the nearby rivers. The proposed project builds on this concept by including grassy swales and other features throughout the project site to clean stormwater as it moves through the site and using created wetlands that would be managed to clean stormwater flows, as well as constructing a large central lake that would hold stormwater and allow it to percolate into the soil.

The drainage system would be designed to allow stormwater to be kept on the surface and flow through grassy swales located along parks and paseos. This process would maximize percolation through the soil in the parks and paseos and clean the remaining flow as it passes through the vegetation before entering the central lake.

Approximately 35 acres of man-made wetlands would be created in several locations along the central lake edge. These wetlands would be designed and managed to treat stormwater before it enters the lake. Because the movement of water would be slowed as it passes through the wetland vegetation and soil, sediment and a variety of contaminants would be removed.

The central lake would then be used to store the remaining stormwater, allowing sediment and other contaminants to further settle and a portion of the water to percolate through the soil.

Stormwater Storage and Central Lake Management

The approximately 300-acre central lake would collect and store all onsite drainage. To maximize percolation into the ground, the lake would not be lined. The lake bottom would be set at -8.0 feet NGVD, roughly 12-20 feet below the ground surface depending on the location on the project site.

This -8.0-foot-NGVD depth puts the lake bottom below the existing groundwater table, placing the lake in continuous direct contact with groundwater. Therefore, any changes in groundwater elevation would have a direct effect on the lake level. Groundwater on the project site fluctuates on both a seasonal and annual basis. Data collected on-site during 1999 and 2000 showed the groundwater elevation varying between +3.5 and +1.6 feet NGVD (HSI Hydrologic Systems 2002). These fluctuations are due to precipitation, water levels in the adjacent rivers, and to a small degree agricultural irrigation.

Based on an analysis of anticipated groundwater level variations, stormwater flows, and percolation rates, it is estimated that the level of the central lake would range between +7.8 feet and +0.0 feet NGVD (HSI Hydrologic Systems 2002). This high degree of variation is considered unacceptable since during high lake levels, a portion of the water would overtop the lake banks and threaten adjacent structures.

During low water levels, a “bathtub ring” effect would be visible around the lake edge, with several feet of bare shoreline exposed. Water quality within the lake would also be more difficult to manage at these low levels, increasing the potential for algal blooms, eutrication, and odors. To reduce this large variation in the lake level, pumping water in and out of the central lake would be required.

The desired lake level would range from +2.0 to +6.0 feet NGVD. To maintain these levels, water would be pumped out of and into the lake from the surrounding rivers during extreme rainfall events and during dry periods. Installation of four 4,000-gallon-per-minute pumps is proposed to move the necessary water volumes into and out of the lake to maintain the desired levels. Water would be pumped into the lake from the San Joaquin River and Old River using existing riparian water rights. New intake structures with fish screens would be constructed, replacing the current unscreened agricultural intakes. When water is pumped out of the lake it would be pumped into Paradise Cut.

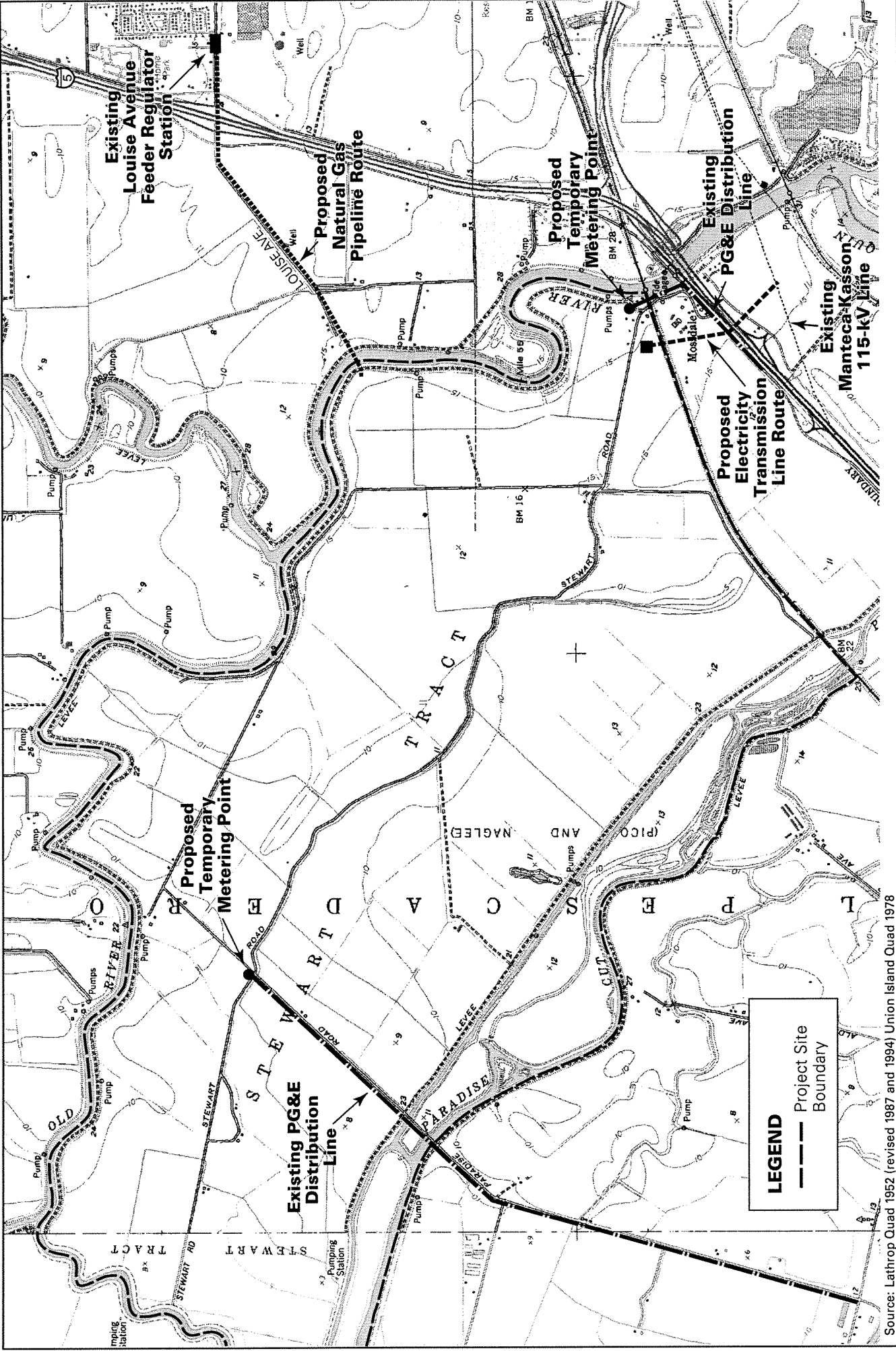
ELECTRICITY

Currently, electricity is delivered to the RID Area by two existing Pacific Gas and Electric Company (PG&E) 12-kV overhead electrical lines (Exhibit 3-14). These lines would be used to serve approximately the first 600 housing units in Phase 1a of the proposed project. Power for the project site may be purchased and distributed by the LID; therefore, temporary metering points would be installed to gauge the amount of power delivered to the project site by PG&E or others. Access to higher capacity transmission lines would be required to provide electricity to the remainder of the proposed project beyond the first 600 units.

Several large transmission lines in the project vicinity could be tapped into to provide power. The preferred option is to connect to the existing PG&E Manteca-Kasson 115-kV line east of I-5 in Remaining Stewart Tract (Exhibit 3-14). Approximately 4,500 feet of overhead lines would be used to link the 115-kV line with a proposed 115-kV to 12-kV substation in the eastern corner of the Employment Center. The lines would be mounted on a standard steel pole (60–70 feet tall) system designed to meet or exceed existing codes.

From the proposed substation, power would be distributed to customers via an underground system radiating out from the substation along major roadways. Where possible, installation of the electrical infrastructure would be coordinated with other utilities to allow the use of common trenches. The substation and power distribution system would be built by either PG&E or the LID.

As part of the overall energy strategy for the project, studies would be made to identify economically feasible alternative energy solutions. Included in the evaluations would be nonpolluting renewable energy sources, such as photovoltaics, solar collectors for hot water heating, and fuel cell technology. As part of a total energy management program, the project also would evaluate load-shifting technologies intended to reduce peak demand, such as commercial and residential thermal energy storage, energy-efficient district heating and cooling systems, and geothermal heat pumps.



Source: Lathrop Quad 1952 (revised 1987 and 1994), Union Island Quad 1978

Proposed Utility Routes

River Islands at Lathrop
CITY OF LATHROP
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NORTH

FEET

0 1000 2000 4000

NATURAL GAS

The WLSP EIR included a letter from PG&E stating that its natural gas system in Lathrop had capacity sufficient to meet the needs of the Califia project. Recent contacts with PG&E indicate that capacity on the PG&E system in Lathrop is sufficient to meet the needs of the River Islands project (Navigant Consulting 2002).

There are several natural gas pipelines and distribution systems in Lathrop and the surrounding area that could provide natural gas to the proposed project. The preferred delivery option is to connect to PG&E's Louise Avenue feeder, located on the east side of I-5, on Louise Avenue, east of South Harlan Road (Exhibit 3-14). An underground gas distribution regulator station located approximately 1,000 feet east of I-5 is the endpoint of the feeder and the location where the source gas pipeline for River Islands would begin. Two gas lines would be installed in phases to deliver natural gas to the project site: a 4-inch and then a 6-inch steel transmission pressure line. The lines would tap into the PG&E feeder line and cross I-5 to the west at the Louise Avenue undercrossing. The lines would be placed into an existing utility easement along Louise Avenue on the west side of I-5 and extend to the San Joaquin River. The first 4-inch line would be directionally bored under the river adjacent to the location of the proposed Bradshaw's Crossing bridge. This line would provide natural gas for Phases 1a and 1 of the proposed project (see section 3.4.7, "Phasing"). The second 6-inch line would be attached to the Bradshaw's Crossing bridge to cross the San Joaquin River. It would provide sufficient natural gas to serve the remainder of the proposed project. After each line enters the RID Area, they would follow planned or existing roadway alignments to a pressure-regulating station. This route is approximately 1.5 miles long.

The gas distribution system in the RID Area would be limited to operating at distribution pressures, defined as 60 psig in most cases. Therefore, a pressure-regulating station would be required to convert the transmission pressures to distribution pressures. The station would be constructed in underground vaults located near the point where the gas source lines enter the RID Area at Bradshaw's Crossing. From the pressure-regulating station, distribution gas lines would radiate out along roadway rights-of-way to end uses.

3.4.5 NATURAL LANDS/ECOLOGICAL RESTORATION

Natural lands planned as part of the proposed project would provide a variety of uses, including flood control, recreation, and habitat for sensitive species. Habitat restoration/enhancement would also be conducted in many of the natural land areas. The primary natural land areas associated with the project are Paradise Cut, the riverbanks and back bays, and the cross levee paralleling the western UPRR right-of-way. Although the man-made wetlands adjacent to the internal lake, the lake itself, and small natural areas planned as part of the parks and trails system provide natural habitat values, they are relatively small pockets of habitat isolated from larger natural areas. Therefore, these areas are not included in the description of natural lands below.

PARADISE CUT CONSERVATION AREA

After the setback levee/high-ground corridor on the east side of the PCC Area is constructed, the existing east levee would be breached in several locations and the levee remnants left in place. The elevated areas comprised of the levee remnants would be used to create islands supporting native habitats. An ecosystem restoration program would be implemented to create and enhance habitats on these levee remnant islands. The ecorestoration program would focus on providing habitat for rare, threatened, or endangered species, with riparian brush rabbit being one of the species of most concern.

The remainder of the PCC Area would consist of water features; agricultural lands; and additional natural habitat preservation, enhancement, or creation. The entire conservation area ultimately would be transferred to an appropriate land management organization (e.g., CDFG, The Nature Conservancy) with appropriate conservation easements so that the habitat values would be protected in perpetuity. A variety of species would benefit from the agricultural and natural lands in the PCC Area, including Swainson's hawk, riparian brush rabbit, valley elderberry longhorn beetle, and various fish species.

Other than boating in the main channel of Paradise Cut, public access would be limited and controlled. Visitors would be required to obtain permits, and would be restricted to designated trails. Fences or other barriers may be installed adjacent to populated areas to limit access by residents, visitors, pets, and feral domestic animals.

RIVERBANKS

In various locations along the banks of the San Joaquin River, Old River, and Paradise Cut, riparian vegetation would be retained, enhanced, or created. Most of the landscaping elements would consist of native trees, shrubs, and grasses planted in a manner to mimic natural vegetation and enhance habitat along the river edge while remaining consistent with the hydraulic function of the river. In many areas, the vegetation would be planted in a manner that provides shaded riverine aquatic (SRA) habitat to benefit anadromous fish and other aquatic species.

Levee remnants also would be created when the back bays along the San Joaquin River and Old River are constructed (Exhibit 3-7). The levee remnants would be predominantly planted with native trees and shrubs, providing wildlife habitat and enhancing views for homes along the perimeter of the back bay. Some portions of the back bays might be contoured to provide seasonal wetland or shallow water habitat along the shoreline.

Natural areas along the shoreline and back bays would be open only to limited passive use by residents and visitors.

CROSS LEVEE

As stated in section 3.4.2, "Flood Protection," a new cross levee would be built immediately west of, and paralleling, the western UPRR tracks. The toe of the cross levee would be far enough to the west of the UPRR berm to avoid removing existing habitat for riparian brush rabbit. In the area between the railroad

berm and the cross levee controlled by River Islands (i.e., the portion outside the UPRR right-of-way), vegetation would be allowed to grow to provide additional habitat for the brush rabbit. No public access would be allowed in this area. Because the cross levee would not have water running across the levee surface (as would occur on a river levee) active management of vegetation on the levee is not expected to be needed. Therefore, little to no disturbance would occur on the east side of the cross levee. River Islands cannot control right-of-way management activities undertaken by UPRR in its right-of-way.

A fence, wall, or other barrier would be built along the cross levee to prevent people and domestic pets from entering the area between the cross levee and the UPRR right-of-way. Feral cats are a major cause of mortality for riparian brush rabbit. The barrier would be designed to prevent cats, which might escape from project residences, from entering the area between the UPRR berm and the cross levee where riparian brush rabbits are known to occur.

3.4.6 GENERAL PLAN AND WLSP AMENDMENTS

The proposed action analyzed in this SEIR includes amendments to the General Plan and WLSP needed to accommodate the River Islands project. The General Plan and the WLSP both envisioned a theme park-focused, entertainment-oriented development on the proposed project site (Califia/Gold Rush City). The River Islands project differs substantially from this previously planned development, requiring amendments to various portions of the General Plan and WLSP to reflect the new development proposal.

The 2002 WLSP proposes the same land uses and development standards for Mossdale Village and Southeast Stewart Tract as described in the 1996 WLSP. The only changes regarding Mossdale Village and Southeast Stewart Tract are (1) Gold Rush Boulevard is renamed River Islands Parkway; (2) a grade-separated intersection where Golden Valley Parkway meets River Islands Parkway is eliminated; (3) the light rail right-of-way within Golden Valley Parkway is eliminated; and (4) the City's 2001 Water, Wastewater, and Recycled Water Master Plan supercedes the 1996 Specific Plan infrastructure chapter as the most current source for information regarding the wastewater, water, and recycled water systems for all of West Lathrop.

Most of the proposed amendments deal purely with text changes to remove references to Califia/Gold Rush City project elements and to accurately describe the River Islands project. The General Plan and WLSP amendments also include minor editorial corrections and updated information (e.g., observations of riparian brush rabbit on Stewart Tract) were also identified and included in the amendments where appropriate. Because of the differences between the Califia/Gold Rush City project and River Islands project and the comprehensive nature of the General Plan and WLSP, amendments are proposed in almost all sections of each plan. Below is a listing of plan policies, objectives, and elements where amendments are proposed. Complete copies of the Draft Amended General Plan and WLSP are available at the City of Lathrop Community Development/Planning Department, 16775 Howland Road, Suite One, Lathrop, California 95330 (209/858-2860, extension 327).

PROPOSED GENERAL PLAN AMENDMENTS

Before adoption of the WLSP amendments, the City of Lathrop General Plan Land Use Diagram adopted December 17, 1991, as amended through 2001, would be amended to reflect the proposed River Islands land uses. The project also includes amendments to several policies contained in the Lathrop General Plan Community Development, Transportation and Circulation, Resource Management, and Hazard Management Elements of the General Plan, as summarized below. Clarifying amendments also are proposed to Part II, Growth Assumptions and Opportunities: Major Policies and Major Proposals of the General Plan, and Part VII of the General Plan regarding General Plan interpretation and implementation. Many of the minor amendments would change the General Plan references from “Gold Rush City” to “River Islands.”

For a complete description of the proposed General Plan amendments, please refer to the River Islands proposed Lathrop General Amendments on file with the City of Lathrop Community Development Department. The following summarizes the proposed amendments to General Plan text and policies.

Growth Assumptions and Opportunities: Major Policies and Major Proposals of the General Plan

Minor text revisions are proposed to Part II, Growth Assumptions and Opportunities: Major Policies and Major Proposals of the General Plan, to clarify the change from a theme park-oriented development to a mixed-use residential and employment center community with water-oriented, commercial recreational features.

Community Development Element

General Plan amendments are proposed to the policies, General Plan Land Use Diagram, and land use designations governing Sub-Plan Area #3, one of three sub-planning areas defined in the General Plan, to reflect the proposed land use changes for Stewart Tract. These amendments reflect the land use changes from a theme park-oriented development to a mixed-use residential and employment center community with water-oriented, commercial recreational features. All text and corresponding land use designations for the Gold Rush City project are proposed to be deleted. The proposed General Plan amendments include new Residential Land Use Policies, Commercial Land Use Policies, Public, Semi-Public, and Private Institutional Facilities, and Resource, Conservation, and Open Space Policies, as well as corresponding land use designations that would govern the development of Subplan Area #3.

Transportation and Circulation Element

General Plan amendments are proposed to the text and corresponding diagrams and tables in the Transportation and Circulation Element to eliminate the reference to expressways because arterial streets are intended to serve as the principal carriers of north-south and east-west traffic. Similarly, Policy #1 of the Policies and Proposals for Interstate and State Route Freeways Serving the Lathrop Area and Policies # 1 and #2 of the Policies and Proposals for Arterial Streets are revised to eliminate the reference to expressways and to retain the reference to arterial streets. Additionally, the descriptions of various

transportation improvements would be revised to support the transportation and circulation improvements proposed in the WLSP.

Water, Sewerage, Storm Drainage and Flood Control

General Plan amendments are proposed to the text to update the context for citywide water, sewerage, drainage, and flood control. The text would identify the Water Supply Agreement with SSJID adopted in 1995; the Water, Wastewater, and Recycled Water Master Plan approved in 2001; and the Drainage Master Plan for Stewart Tract approved in 1996. The amendments then would address the information in those documents regarding water provision; the collection, treatment, and disposal of wastewater; and drainage policies.

Resource Management Element

The River Islands project proposes minor amendments to Agricultural Land Policy #1 to clarify that this policy applies to Sub-Plan Area #3. A minor amendment also is proposed to Mineral Resources Policy #2 to clarify the location of the MRZ-2 designation on Stewart Tract.

Vegetation, Fish & Wildlife Policy #3 is proposed to be amended to clarify the date on which the City adopted the Swainson's hawk habitat conservation plan. Additionally, Policies #5 and #6 are proposed to be amended to clarify the uses that are compatible with riparian habitat and that may be located in such areas.

The "Wetlands and Navigable Waters Policy Issues" section also would be deleted because this section merely described some of the resources on Stewart Tract and included excerpts of the federal and state regulatory process. The applicant is proposing to delete this section in order to eliminate further confusion, because the section does not contain City policies governing the treatment of wetlands and navigable waters and does not accurately portray the regulatory process governing the development of Sub-Plan Area #3.

Hazard Management Element

The River Islands project includes a proposed amendment to Seismic Policy #3 to clarify that the present building height limit of 50 feet may be increased to 125 feet in the River Islands portion of Sub-Plan Area #3, upon availability of appropriate equipment for evacuation and firefighting in upper stories of buildings. A minor amendment also is proposed to Seismic Policy #7 to clarify that the City's practice is to require developers to submit the findings of a soil investigation for each nonresidential development site. Public Safety Hazard Policy #1 is proposed to be amended to replace the references "Fire Department" with "Fire District."

Directions for General Plan Interpretation and Implementation

Clarifying amendments are proposed to Part VII of the General Plan, Directions for General Plan Interpretation and Implementation. This section is proposed to be amended to clarify the applicable

school districts responsible for implementing various policies and proposals of the plan. Additionally, text revisions are proposed to the growth management policies and procedures to document the content of specific plans and to reflect the change from a theme park-oriented development to River Islands.

PROPOSED WEST LATHROP SPECIFIC PLAN AMENDMENTS

The proposed modifications reflected in the 2002 WLSP are considered amendments to the prior WLSP, which was adopted on February 20, 1996, and updated with the adoption of Measure D. The WLSP covers the 1,611-acre Mossdale Village and the 5,794-acre Stewart Tract, comprised of the approximately 4,900-acre River Islands area and the 913-acre Southeast Stewart Tract. The WLSP sets forth the proposed areas and configurations of each land use designation, the intended circulation pattern connecting those land use areas, and the relationship of the land uses to the existing physical characteristics of the property, as described in detail throughout this chapter.

The proposed WLSP amendments apply primarily to the Stewart Tract portion of the WLSP. These amendments include revisions to the WLSP text and policies to reflect the land use changes from a theme park-oriented development to a mixed-use residential and employment center community with water-oriented, commercial recreational features. Accordingly, changes also are proposed to many of the WLSP objectives, consistent with the intent to develop a balanced, mixed-use sustainable community comprised of residential and commercial development on the River Islands portion of Stewart Tract.

Corresponding policies contained in the WLSP Land Use, Infrastructure, Community Design and Implementation chapters are proposed, as summarized below. Many of the minor amendments to the WLSP are proposed to change the references from “Gold Rush City” to “River Islands.” For a complete description of the proposed WLSP amendments, please refer to the Revised West Lathrop Specific Plan, dated October 2002, on file with the City of Lathrop Community Development Department. The following text summarizes the proposed amendments to WLSP text and policies.

Land Use

WLSP amendments are proposed to the policies, Specific Plan Land Use Plan, and land use designations governing the River Islands portion of Stewart Tract to reflect the proposed land use changes associated with the development of a mixed-use residential and employment center community with water-oriented, commercial recreational features. All text and land use designations for the Gold Rush City project are proposed to be deleted. The proposed WLSP amendments include a new land use program for the development of nine planning districts comprised of Mixed Use; Employment Center; Low-, Medium-, and High-Density Residential; Neighborhood Commercial; and Resource Conservation and Open Space land uses. Public, semipublic, and open space uses (e.g., schools, civic uses, central lake) are contemplated in the land use categories identified above, as further defined in the WLSP. Corresponding revisions and additions are proposed to the land use chapter policies, in conjunction with an illustrative River Islands Development Concept, to guide the development of River Islands through the adoption of urban design concepts (UDCs).

Infrastructure

Amendments also are proposed to the WLSP infrastructure chapter to reflect modifications to the WLSP regional and local circulation system providing access to and within the River Islands portion of Stewart Tract. Additionally, amendments are proposed to the utilities section of the Infrastructure Element to reflect the proposed revisions to the water, wastewater, recycled water, flood protection, drainage, solid waste, electrical and gas service, and telecommunications systems serving River Islands.

Community Design

The community design chapter is proposed to be amended to reflect the overarching design principles for the development of River Islands. The more detailed community design guidelines for the River Islands portion of Stewart Tract are contained in the River Islands UDC. Additionally, the proposed amendments clarify the role of the Stewart Tract Design Review Board.

Implementation

The implementation chapter of the WLSP is proposed to be amended to clarify the land use entitlement and approval process for the development of River Islands. Additionally, clarifications are proposed to define the WLSP requirements and those established in the City of Lathrop Zoning Ordinance.

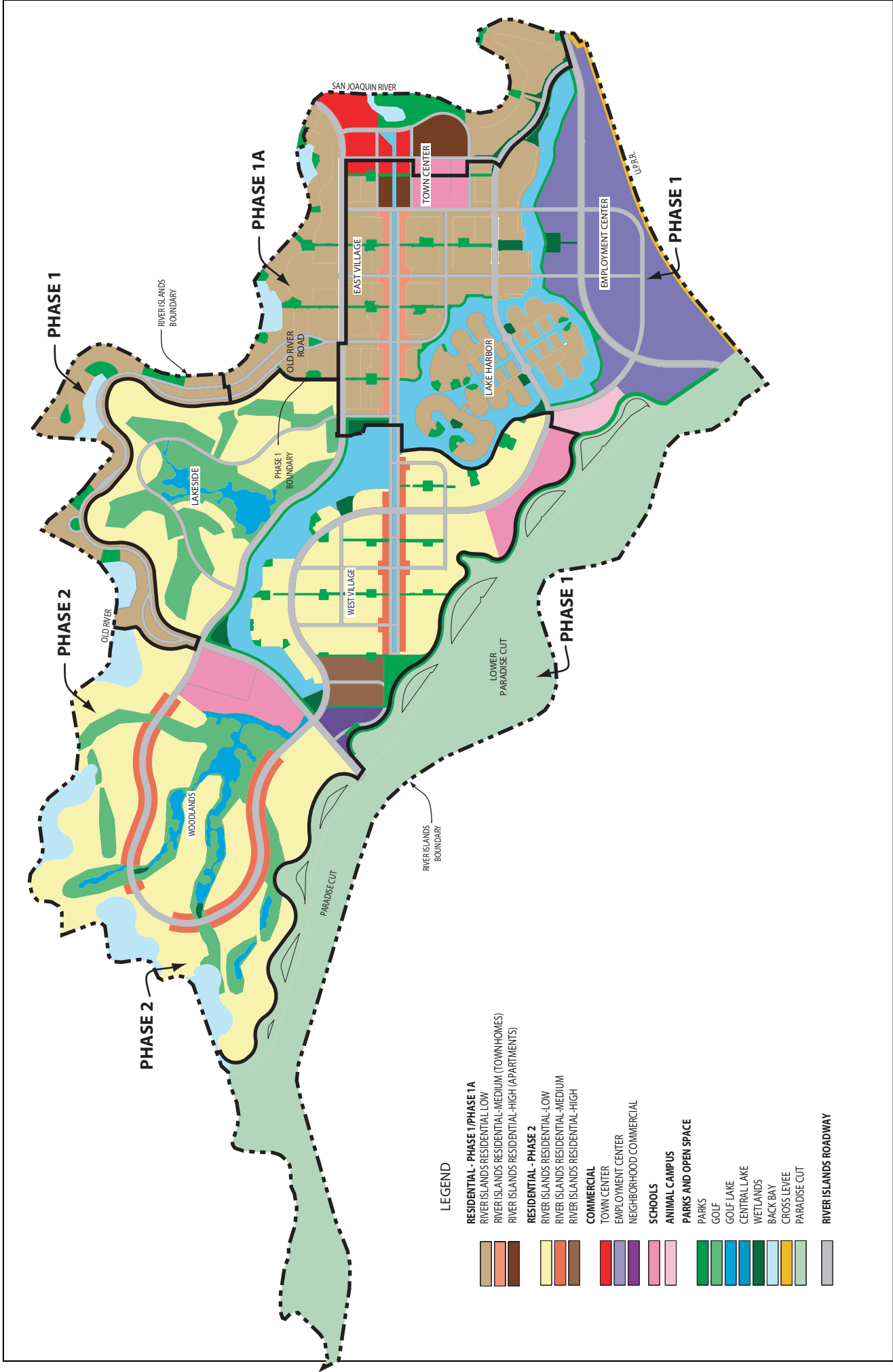
Mossdale Village and Southeast Stewart Tract

For Mossdale Village and Southeast Stewart Tract, the amended WLSP retains the land uses and development standards from the 1996 WLSP. The only substantive changes regarding Mossdale Village and Southeast Stewart Tract are (1) Gold Rush Boulevard is renamed River Islands Parkway, (2) a grade-separated intersection where Golden Valley Parkway meets River Islands Parkway is eliminated, (3) the light rail right-of-way within Golden Valley Parkway is eliminated, and (4) the City's 2001 Water, Wastewater and Recycled Water Master Plan supercedes the 1996 Specific Plan infrastructure chapter as the most current source of information regarding the wastewater, water, and recycled water systems for all of Lathrop.

3.4.7 PHASING

Development of the project would be divided into two primary phases: Phase 1 and Phase 2 (Exhibit 3-15). Phase 1, which includes the Town Center; the Employment Center; East Village; Lake Harbor, and Old River Road districts; and various flood control and other project features, is anticipated to be completed by 2015. The remainder of the project, which would be constructed as part of Phase 2, is planned for completion by 2025.

Phase 1 includes a subphase, Phase 1a, which is scheduled for completion in 2007. The primary component of Phase 1a is the placement of fill in the southeastern section of the RID Area to create approximately 415 acres of "high ground" above the 1-in-100-AEP flood elevation. Up to 800 housing units and associated roads and infrastructure would be constructed on the high-ground area.



LEGEND

- RESIDENTIAL - PHASE 1/PHASE 1A**
 - RIVER ISLANDS RESIDENTIAL-LOW
 - RIVER ISLANDS RESIDENTIAL-MEDIUM (TOWN-HOMES)
 - RIVER ISLANDS RESIDENTIAL-HIGH (APARTMENTS)
- RESIDENTIAL - PHASE 2**
 - RIVER ISLANDS RESIDENTIAL-LOW
 - RIVER ISLANDS RESIDENTIAL-MEDIUM
 - RIVER ISLANDS RESIDENTIAL-HIGH
- COMMERCIAL**
 - TOWN CENTER
 - EMPLOYMENT CENTER
 - NEIGHBORHOOD COMMERCIAL
- SCHOOLS**
- ANIMAL CAMPUS**
- PARKS AND OPEN SPACE**
 - PARKS
 - GOLF
 - GOLF LAKE
 - CENTRAL LAKE
 - WETLANDS
 - BACK BAY
 - CROSS LEVEE
 - PARADISE CUT
- RIVER ISLANDS ROADWAY**

Source: Data provided by Carlson, Barbee & Gibson 2002

Proposed Project Development Phases

River Islands at Lathrop
CITY OF LATHROP

G-1T013.01 9/02



NORTH



Project elements associated with Phases 1a, 1, and 2 are described in more detail below. As described previously in Chapter 1, project elements in Phase 1 are analyzed in this SEIR at a “project” level of detail. A majority of project elements under Phase 2 are also analyzed at the same project level of detail. No further CEQA analysis is anticipated for these activities. Because methods to address treatment of wastewater generated by Phase 2 and storage and disposal of recycled water during this phase of development have not been as fully defined, these activities are receiving a “programmatic” level of CEQA analysis. The following City of Lathrop entitlements, listed previously in section 1.4, “Agency Roles and Responsibilities,” would be completed before initiation of project construction (i.e., beginning of Phase 1a):

- ▶ certification of this SEIR,
- ▶ amendments to the Lathrop General Plan,
- ▶ amendments to the WLSP and zoning code,
- ▶ amendments to the development agreement issued for the Califia project,
- ▶ Urban Design Concept,
- ▶ Preliminary Development Plan,
- ▶ amendment to the Bicycle Master Plan,
- ▶ Neighborhood Design Review,
- ▶ Vesting Tentative Map (Phase 1),
- ▶ Large Lot Tentative Map (Phase 2), and
- ▶ Williamson Act cancellation.

Several of these entitlements apply to both Phase 1 and Phase 2 or are not anticipated to be needed for Phase 2 (e.g., Williamson Act cancellation). However, the following entitlements would have to be done specifically for Phase 2 before construction of this phase is initiated:

- ▶ Preliminary Development Plan,
- ▶ Neighborhood Design Review, and
- ▶ Vesting Tentative Map (Phase 2).

As also described in section 1.4, “Agency Roles and Responsibilities,” multiple federal, state, and local agency permits and approvals would be required before implementation of various elements of the proposed project. Some of these would be required before any ground disturbance could be initiated (e.g., San Joaquin Valley Air Pollution Control District authority to construct); others may not be needed until a particular impact occurs but would address all development phases once applied for (e.g., USFWS Endangered Species Act consultation); and others may require separate applications for Phase 1 and Phase 2 activities (e.g., U.S. Coast Guard permit for individual bridges). Permits, approvals, and authorizations required for development will be obtained in accordance with the timing requirements of the applicable regulation.

PHASE 1A

Phase 1a focuses on development of up to 800 housing units along the eastern edge of the RID Area in portions of the Town Center, East Village, and Old River Road Districts. Full buildout of Phase 1a is anticipated to be complete by 2007.

Sufficient fill would be placed in the Phase 1a area to create approximately 415 acres of “high ground” above the 1-in-200-AEP flood elevation. Included with creation of the high ground would be construction of the Lathrop Landing back bay, one back bay on the San Joaquin River, and one back bay near the head of the Old River (Exhibit 3-15). The timing of development during Phase 1a would be market driven. Up to 800 single-family-detached housing units, school facilities, an interim fire station, and associated roads and infrastructure could be constructed on the high ground during Phase 1a. The Lathrop Landing area and a portion of the Town Center would be graded as part of the high-ground construction; however, only approximately 5 acres of this area would be expected to be developed during Phase 1a. If demand exists, temporary school facilities would likely be constructed within this 5 acres to accommodate students until the Town Center school is completed in Phase 1.

Primary access during construction, and for residents of the 800 units, would be provided by Stewart and Manthey Roads, as described in section 3.4.3, “Traffic and Access,” above. Access from Paradise Road and the Mossdale/Manthey Interchange would also be possible. The proposed improvements to the at-grade railroad crossing would be completed to maintain emergency road access above the 1-in-200 AEP floodplain.

As described above in the “Utilities” section, electrical service for roughly the first 600 units would be provided by existing 12-kV transmission lines in the RID Area. However, the proposed connection to the Manteca-Kasson 115-kV line would need to be constructed before Phase 1a was completed. The 4-inch natural gas pipeline would be bored under the San Joaquin River to service the Phase 1a (as well as Phase 1) development and necessary water, wastewater, and recycled water lines would be constructed consistent with the Master Plan and the WRP #1 Phase 1 Expansion Project.

PHASE 1

Phase 1 involves development in the eastern portion of the RID Area, levee work and other flood control measures surrounding the development area, and various infrastructure elements to support project land uses. Full buildout of most of Phase 1 is anticipated to be complete by 2015.

Implementation of Phase 1 includes development of the Town Center, East Village, Old River Road, and Lake Harbor Districts, and the Employment Center (Exhibit 3-15). A planned 2,431 single-family housing units, 229 town houses, and 600 apartment units would be added to the 800 single-family units constructed during Phase 1a. Specific facilities to be constructed would include the Town Center school and community park; Lathrop Landing; a permanent fire station (likely in the Employment Center); two additional back bays along Old River; the Animal Campus; approximately 200 acres of the internal lake; and various parks, trails, and paseos.

Approximately 17 acres of wetlands would be created along the border of the internal lake to treat stormwater and support lake water quality. The intake along Old River and the Paradise Cut outfall would be installed to pump water between the lake and the external river system to allow management of lake levels.

Offsite electricity and natural gas delivery infrastructure sufficient to support Phase 1 would have been completed previously as part of Phase 1a. The internal delivery system for these utilities would be constructed as development proceeds. Water, wastewater, and recycled water systems (pipelines, pumps, storage tanks) would be constructed as needed, consistent with the Master Plan, the WRP #1 Phase 1 Expansion Project, and the City Wellfield Expansion Project. This would include recycled water storage and disposal facilities (ponds and spray fields) in the remaining agricultural land on the project site. It is assumed that the SSJID SCSWSP project would be completed by this time and would be delivering water to the City.

Levee work and implementation of the PCIP, as described above in section 3.4.2, "Flood Protection," also would be completed as part of Phase 1. Activities would include:

- ▶ construction of the Paradise Cut setback levee,
- ▶ breaching of the existing Paradise Cut levee,
- ▶ partial excavation of the area to become the Paradise Cut boat channel,
- ▶ reinforcing the Old River and a portion of the San Joaquin River levees,
- ▶ extending the high-ground corridors along a portion of Old River,
- ▶ constructing setback levees to create two additional back bays along Old River,
- ▶ constructing the cross levee,
- ▶ lowering the earthen bench near the Paradise Weir,
- ▶ using soil from the bench to reinforce a nearby segment of the Paradise Cut levee,
- ▶ constructing the setback levee between the eastern UPRR tracks and I-5, and
- ▶ installing the removable levee segment and pump platform to serve Remaining Stewart Tract.

The partial excavation of the Paradise Cut boat channel would involve removing sufficient soil from the area to increase flood capacity in Paradise Cut. This area would then be used for agricultural production. The channel would be excavated further during Phase 2 (see below) to create a permanent water-filled channel to allow boat traffic.

The transportation elements to be completed as part of Phase 1 include:

- ▶ extending Louise Avenue, via the River Islands Parkway, to the San Joaquin River,
- ▶ constructing the first two-lane Bradshaw's Crossing bridge over the San Joaquin River, and
- ▶ completing the internal circulation system elements necessary to support the Town Center, East Village, Lake Harbor, Old River Road, and Employment Center districts.

Although much of the Employment Center infrastructure would be constructed as part of Phase 1, the level of actual development in the Employment Center during this period would be dependent on market

factors and the rate that businesses move facilities into the area. It is estimated that approximately 35% of the roughly 305 developable acres would be occupied by completion of Phase 1 in 2015 (EDAW 2002).

Habitat restoration activities would be initiated during Phase 1 in several areas. These activities would include restoring riparian habitat on the remnants of the original Paradise Cut levee, planting native vegetation on the river banks and back bay levee remnants, restoring riparian brush rabbit habitat on the earthen bench in the PCIP Area after it is lowered, and creating riparian brush rabbit habitat on the roughly 1 acre of reinforced levee surface in the PCIP Area.

PHASE 2

Phase 2 would involve developing the remaining project elements not included in Phases 1a and 1. Buildout of Phase 2 is anticipated to be complete by 2025.

Implementation of this phase would involve development of the West Village, Lakeside, and Woodlands Districts. Parks, trails, paseos, and other facilities associated with these areas also would be constructed. Up to 4,740 single-family-detached homes, 1,400 senior housing units, 200 townhouses, and 600 apartments would be constructed as part of Phase 2. Occupation of the Employment Center would continue through Phase 2 at a rate dependant on market demands. The two proposed golf courses and associated clubhouses and lakes and water features would be developed during this phase, as well as one or more fire stations and the two remaining school campuses and community parks.

During Phase 2, as development proceeds and traffic demand increases, an additional two-lane bridge would be constructed adjacent to the two-lane Bradshaw's Crossing bridge completed during Phase 1. Each bridge would then carry two lanes of River Islands Parkway traffic in one direction. Golden Valley Parkway also would be constructed in Phase 2, including four bridge lanes over Paradise Cut and the San Joaquin River and the extensions to I-5 and I-205. The project's internal circulation system would be constructed as development proceeds through the Phase 2 area.

Offsite electricity delivery infrastructure sufficient to support Phase 2 would have been completed previously as part of Phase 1a. A 6-inch natural gas pipeline would be incorporated into the Bradshaw's Crossing bridge design to provide sufficient natural gas (in conjunction with the 4-inch line installed during Phase 1) to support Phase 2 buildout. The internal delivery system for electricity and natural gas would be constructed as development proceeds. Water, sewer, and recycled water systems would be constructed as needed, consistent with the Master Plan. Additional water treatment and recycled water disposal facilities would be constructed consistent with the options available in the Master Plan (e.g., WRP #1 expansion, WRP #3 construction, river disposal, offsite storage/disposal of recycled water).

The setback levee along Paradise Cut and levees along Old River that were improved during Phase 1 would be converted to high-ground corridors during Phase 2, assuming market conditions showed sufficient demand for housing on high-ground corridors. Up to four additional back bays would also be constructed along Old River.

**4 AFFECTED ENVIRONMENT, ENVIRONMENTAL
CONSEQUENCES, AND MITIGATION MEASURES**

4 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION MEASURES

4.1 APPROACH TO THE ENVIRONMENTAL ANALYSIS

Sections 4.2 through 4.17 of this Draft Subsequent Environmental Impact Report (SEIR) present a discussion of existing conditions, environmental impacts associated with implementation of the proposed project, mitigation measures to reduce the level of impact, and residual significant impacts. Issues evaluated in these sections consist of a full range of environmental topics originally identified for review in the notice of preparation (NOP) and initial study (IS) prepared for the project. The NOP is included as Appendix A. Sections 4.2 through 4.17 each include the following components.

- ▶ **Regulatory Background:** This subsection presents information on the laws, regulations, plans, and policies that relate to the issue area being discussed. Regulations originating from the local, state, and federal levels are each discussed as appropriate.
- ▶ **Existing Conditions:** This subsection presents the existing environmental conditions on the project site and in the surrounding area as appropriate, in accordance with the California Environmental Quality Act Guidelines (State CEQA Guidelines) §15125. The discussions of the environmental setting focus on information relevant to the issue under evaluation.
- ▶ **Environmental Impacts:** This subsection identifies the impacts of the proposed project on the existing environment, in accordance with State CEQA Guidelines §15143. Before presenting an evaluation of impacts, the section describes the analysis methodology used, summarizes the West Lathrop Specific Plan Environmental Impact Report (WLSP EIR) analysis for the particular issue area, and makes a determination on whether the WLSP EIR analysis may be used for this SEIR or whether a new, independent analysis is required. The thresholds of significance used to identify impacts are then listed. Project impacts are identified alphanumerically and sequentially throughout this section. For example, impacts in section 4.4 are identified as 4.4-a, 4.4-b, and so on. An impact statement precedes the discussion of each impact and provides a summary of the impact and its level of significance. The discussion that follows the impact statement includes the evidence on which a conclusion is made regarding the level of impact. The discussions of cumulative impacts and growth-inducing impacts are presented in Chapter 5 and Chapter 6, respectively.
- ▶ **Mitigation Measures:** This subsection identifies mitigation measures to reduce significant and potentially significant impacts of the proposed project to the extent feasible, in accordance with the California Code of Regulations §15002(a)(3), §15021(a)(2), and §15091(a)(1). Each mitigation measure is identified alphanumerically to correspond with the number of the impact being reduced by the measure. For example, impact 4.3-a would be mitigated with mitigation measure 4.3-a. This subsection also describes whether the mitigation measures would reduce impacts to less-than-significant levels. Significant and unavoidable impacts are identified as

appropriate in this subsection, as well as in the “Residual Significant Impacts” subsection described below. Significant and unavoidable impacts are also summarized in Chapter 7.

- ▶ **Residual Significant Impacts:** This section identifies any significant impacts that would remain significant following implementation of the mitigation measures.

4.2 LAND USE

4.2 LAND USE

This section includes a description of the existing land use plans and policies that apply to the River Islands project site and a description of existing land uses in the project area. It also includes an analysis of the proposed project's relationship to these plans and policies. A discussion of land use planning and zoning would not benefit from a phase-by-phase analysis because such an analysis would lead to a redundant presentation of the same impacts during the different phases; therefore, this discussion does not individually evaluate the two phases of the proposed project. Instead, this section presents an analysis of all land use and zoning issues related to the proposed project as a whole, and sufficient detail is provided to analyze these issues at a project level of detail for the entire project.

4.2.1 REGULATORY BACKGROUND

CITY OF LATHROP GENERAL PLAN

A city's or county's general plan functions as a "constitution" regarding all future physical development in an area. All other city or county implementing plans and ordinances that relate to the area governed by the general plan must be consistent with it. The general plan is a comprehensive, long-term, and general document that describes proposals for the physical development of the city or county and of any land outside its boundaries that in the city's or county's judgment bears relation to its planning (California Government Code §65300 et seq.). It is comprehensive in that it addresses a broad range of aspects of the community's existing and future physical development, including, at a minimum, land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support the city's or county's vision for the area. The general plan is a long-range document in that it typically addresses the physical character of an area over a 20-year period. Finally, although the general plan serves as a blueprint for future development and identifies the overall vision for the planning area, it remains general enough to allow for flexibility in the approach taken to achieve the plan's goals.

The City of Lathrop General Plan (General Plan) was adopted in December 1991 and has been amended seven times, most recently in June 2002. One of the primary goals of the General Plan relates to the urban development of Stewart Tract as a means of achieving long-term community, economic, and other benefits. When the document was prepared, the project envisioned for Stewart Tract, known as Califia/Gold Rush City, was an entertainment-oriented complex that included at least one theme park; resort lodging; commercial uses; other associated entertainment-oriented uses; and a variety of recreation-oriented housing types, including retirement homes, time-share single-family units, and condominiums, and second homes. One of the residential elements envisioned for the project site in the 1991 General Plan was a village concept, under which three or four villages, each made up of two or more neighborhoods, would each be served by a village center with a neighborhood shopping center and community services, one or more elementary schools, and parks.

Specific land use designations for Stewart Tract are presented in the General Plan map. Most of the project site is designated as Recreational Residential and allows resort housing and golf courses (Exhibit 4.2-1). A large portion of the site, roughly occupying the center of Stewart Tract, is designated as Recreational Commercial, a category that includes a wide variety of commercial recreation and

entertainment-related uses. The edge of most of the site is designated as Landscaped Open Space Corridor. The remaining land use designations are Village Center in the northwestern portion of the site and Fire Station and Transit Station near the Southern Pacific Railroad (SPRR) tracks (now owned by the Union Pacific Railroad [UPRR]).

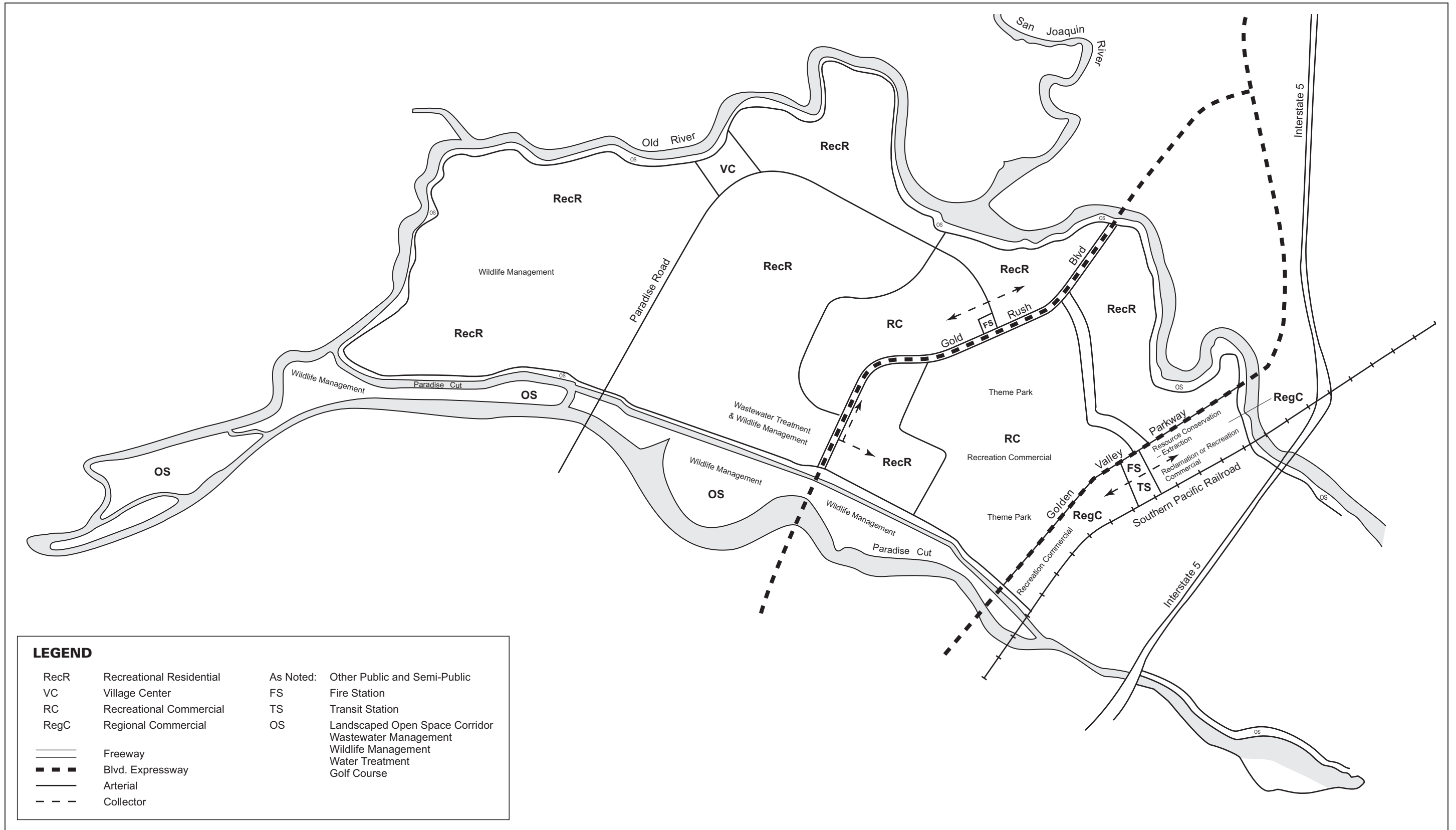
The General Plan does not specifically identify any goals or objectives related to land use. Section A of the Community Development Element of the General Plan sets forth the policies and proposals that provide the basis for the zoning and development of all available public and private land in the community. The discussion is divided according to the three sub-plan areas that make up the General Plan planning area. The portion of the planning area on Stewart Tract is identified as Sub-plan Area #3. The section also establishes the various land uses and land use standards, primarily building and population densities, associated with the project proposed for Stewart Tract. Because land use-related goals and objectives are not identified in the General Plan, goals and objectives of the General Plan are not discussed further in this section.

WEST LATHROP SPECIFIC PLAN

The West Lathrop Specific Plan (WLSP), adopted by the City in February 1996, and as amended by Measure D in 2002, was prepared in anticipation of the WLSP area's annexation into the City of Lathrop and the area's future development (City of Lathrop 1996). With the exception of the Pishos property, the plan area was annexed into the City in 1997 (see section 3.2.1, "Stewart Tract Planning History"). Refining and expanding on the vision presented in the General Plan, the WLSP provides considerably more detail on the Mossdale Village and Stewart Tract communities proposed for the West Lathrop area. Because these two communities would be so closely related, they are addressed together in the WLSP to ensure compatible development throughout West Lathrop. As described in the WLSP, both communities are anticipated to add substantially to the City's economic vitality by providing more local jobs, attractive recreation areas, and revenue-generating uses.

As proposed in the WLSP, Mossdale Village, located northeast of Stewart Tract, is an approximately 1,160-acre residential development with an associated village center, service commercial, and highway commercial uses. An application has been submitted to the City, and a Draft EIR has been prepared to examine the Urban Design Concept (UDC) for Mossdale Landing, a residential and mixed-use commercial development that encompasses approximately half of the Mossdale Village area.

Like the General Plan, the WLSP identifies various land use designations for Stewart Tract. The primary land use designation in the area proposed for the River Islands project is Recreational Residential (Exhibit 4.2-2), which includes low-, medium-, and high-density residential uses, all of which are oriented to major recreational facilities, such as golf courses, lakes, or marinas. The western side of the site and a smaller area in the northeastern portion of the site are designated as Recreation Commercial, which allows theme parks and resort hotels. A large area in the center of Stewart Tract is designated as Mixed Use, which allows a variety of uses, including theme parks and related entertainment activities and resort hotels. An area in the northeastern portion of the project site is designated as Regional Commercial, which allows region-serving shopping/entertainment centers. The southern edge of the project site, in Paradise Cut, is designated as Resource Conservation/Open Space.



Source: City of Lathrop 1997

Land Use Designations at the Project Site under the 1991 Lathrop General Plan

River Islands at Lathrop
CITY OF LATHROP
G 1T013.01 10/02

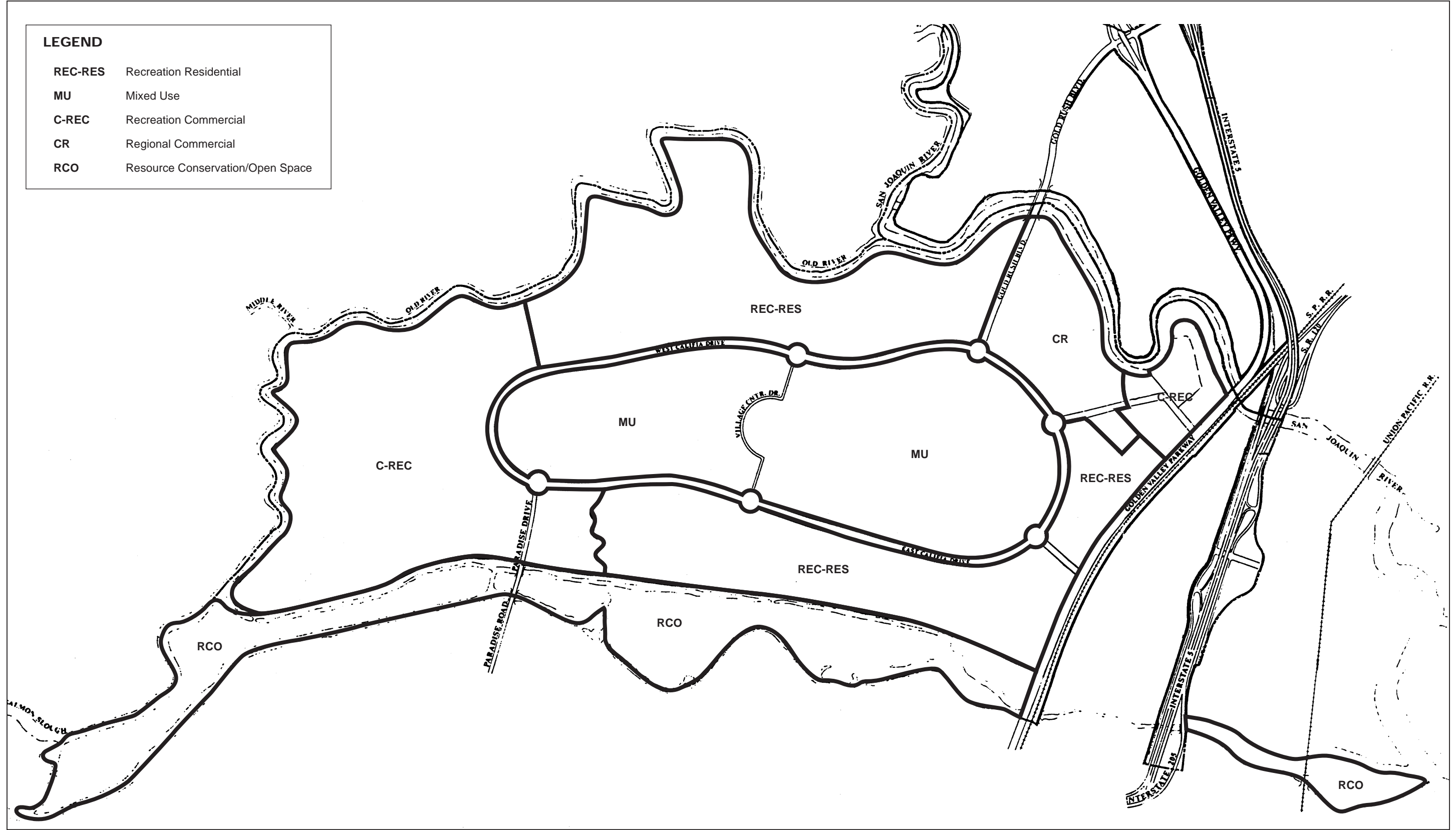
EXHIBIT 4.2-1



EDAW

LEGEND

- REC-RES Recreation Residential
- MU Mixed Use
- C-REC Recreation Commercial
- CR Regional Commercial
- RCO Resource Conservation/Open Space

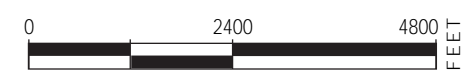


Source: City of Lathrop 1996

**Land Use Designations at the Project Site
under the 1996 West Lathrop Specific Plan**

River Islands at Lathrop
CITY OF LATHROP
JN 11T013.01 9/02

EXHIBIT 4.2-2



The determination of which WLSP objectives were relevant to the land use discussion was guided by consideration of an environmental impact report's (EIR's) fundamental purpose: to address a project's physical impacts on the environment. Objectives were considered only if actions inconsistent with them could lead to adverse physical impacts on the environment. Inconsistency with the following land use objectives from the WLSP could lead to physical impacts on the proposed project site:

Objective 3C: Link all key activities such as schools, parks and retail with landscaped parkways or pedestrian-oriented corridors which encourage non-vehicular travel.

Objective 3E: Focus neighborhoods around local schools and parks that are linked along a network of non-vehicular rights-of-way.

Objective 3J: Create a West Lathrop park and open space system that is linked to citywide and capable of linkage to regional open space and trails systems.

In addition, like the General Plan, the 1996 WLSP envisions a village system of neighborhoods served by a village center, one or more elementary schools, and parks.

ZONING UNDER THE LATHROP CITY ZONING ORDINANCE AND THE WLSP

Zoning of the proposed project site under the 1999 Lathrop City Zoning Ordinance is presented generally in the ordinance and, for the most part, restates the land uses shown in the General Plan map. The 1996 WLSP designates specific plan land uses that also were adopted as zoning districts. Because the zoning ordinance and WLSP follow the same approach and present zoning maps that are essentially the same, the discussion that follows combines information from the two maps to avoid redundancy. The current zoning districts identified for the proposed project site are as follows (Exhibit 4.2-3):

- ▶ **R-REC-ST (Recreation Residential [Stewart Tract]):** This zoning district allows a variety of recreational oriented housing types, in addition to some neighborhood-serving commercial uses.
- ▶ **C-REC-ST (Commercial Recreation [Stewart Tract]):** This zoning district encompasses a variety of commercial uses, including resort, theme park, specialty lodging, typical highway-oriented uses, and recreational related uses. Such a variety of uses requires special attention as to their design to ensure proper integration and compatibility. As a result, more discretion is given to the designers and architects of these developments through the UDC review process and through the Design Review Board (DRB).
- ▶ **MU-ST (Mixed Use [Stewart Tract]):** This zoning district encompasses a variety of commercial uses, including resorts, theme parks, specialty lodging, recreational related uses, as well as a range of residential development. Such a variety of uses requires special attention as to their design to ensure proper integration and compatibility. As a result, more discretion is given to the designers and architects of these developments through the UDC review process and through the DRB.

- ▶ **CR-ST (Regional Commercial [Stewart Tract]):** This zoning district allows large-scale retail uses that draw from a large regional market area. This zoning district also allows uses that are similar to those located in other planning areas of the City. However, a higher degree of flexibility in the development regulations and guidelines for design of the uses will accommodate the unique nature of the development of Stewart Tract.
- ▶ **RCO-ST (Resource Conservation/Open Space [Stewart Tract]):** This zoning district is intended to provide for permanent open spaces in areas of the community that exhibit significant vegetation or wildlife, wetlands, bodies of water or water courses, mineral resources, scenic qualities, or recreation potential and that are designated as open space, as school or college sites, or as agriculture by the General Plan. In 1999, the City Council adopted an ordinance that expanded the permitted uses for this zoning district to include public and quasi-public utility and service structures and facilities (Ordinance No. 99-182).

SAN JOAQUIN COUNTY MULTI-SPECIES HABITAT CONSERVATION AND OPEN SPACE PLAN

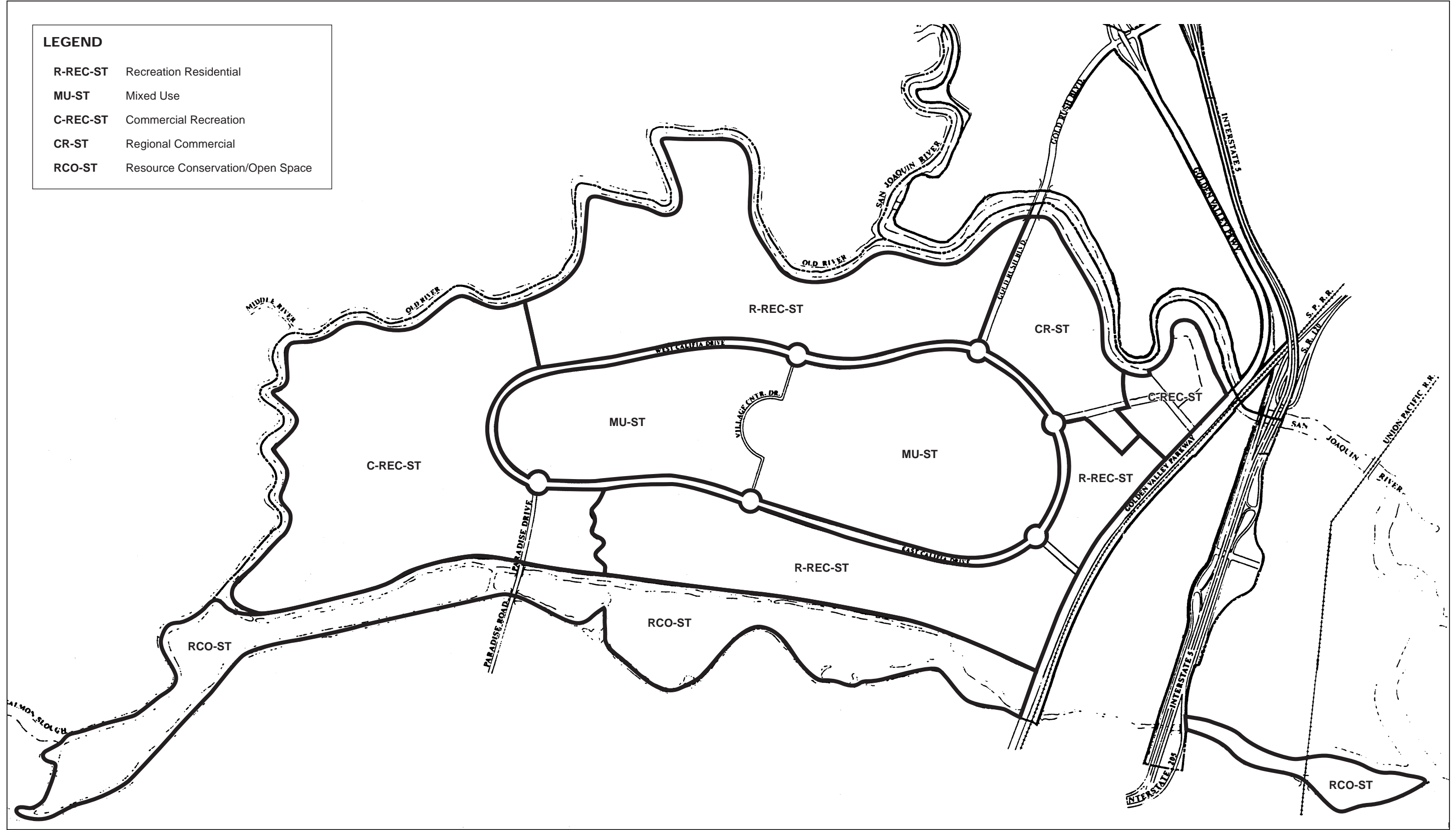
The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) is a 50-year plan to provide a strategy for balancing the desires to conserve open space in San Joaquin County, maintain the agricultural economy, and allow development of more than 109,300 acres of open space (San Joaquin County 2000). The City of Lathrop adopted the SJMSCP on January 16, 2001, and has signed the implementation agreement. Among other purposes, the SJMSCP addresses potential impacts on nearly 100 special-status plant, fish, and wildlife species in 52 vegetative communities scattered throughout San Joaquin County. Projects that would cause impacts associated with these resources are required to implement mitigation measures to avoid or lessen the impacts and provide compensation through payment of fees (or in-lieu land dedication) for conversion of open space lands. These fees are to be used to fund the purchase of conservation easements on agricultural lands and the preservation and creation of natural habitats to be managed in perpetuity through the establishment of habitat preserves. Paradise Cut has been identified in the SJMSCP as a potential preserve area where conservation easements may be purchased or property may be purchased in fee title for addressing impacts on some of the biological resources located elsewhere in San Joaquin County. If Paradise Cut were an SJMSCP conservation area, existing agricultural activities may be maintained and habitat restoration and enhancement activities may be implemented in the cut. Final management of SJMSCP conservation areas is determined by the San Joaquin Council of Governments.

WEST LATHROP SPECIFIC PLAN HABITAT MANAGEMENT PLAN AND SECTION 2081 MANAGEMENT AGREEMENT FOR SWAINSON’S HAWK

The West Lathrop Specific Plan Habitat Management Plan and Section 2081 Management Agreement for Swainson’s Hawk (HMP) was prepared in 1995 to address adverse impacts on the Swainson’s hawk attributable to buildout of the WLSP. The Swainson’s hawk is state listed as a Threatened species. The document is intended for use by the City of Lathrop for submission to the California Department of Fish and Game (CDFG) in application for a California Endangered Species Act §2081 Management

LEGEND

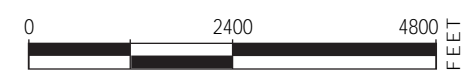
- R-REC-ST Recreation Residential
- MU-ST Mixed Use
- C-REC-ST Commercial Recreation
- CR-ST Regional Commercial
- RCO-ST Resource Conservation/Open Space



Source: City of Lathrop 1996

Zoning at the Project Site under the 1997 Lathrop City Zoning Ordinance and the 1996 West Lathrop Specific Plan

EXHIBIT 4.2-3



Agreement. Regarding the proposed project, the management agreement authorizes the City, in cooperation with Stewart Tract applicants, to manage habitat for Swainson's hawk in conjunction with development of the WLSP (Sycamore Environmental Consultants 1995). A §2081 permit was issued by CDFG to the City in 2002.

Under the HMP, nearly 540 acres of existing nesting and foraging habitat would be preserved and managed on Paradise Cut for the benefit of Swainson's hawks, more than 240 acres of walnut orchards on Paradise Cut would be converted to suitable foraging habitat and would be preserved and managed for the benefit of the hawk, and approximately 120 acres of jurisdictional riverine wetlands on Paradise Cut not suitable foraging habitat also would be preserved as Resource, Conservation, and Open Space lands in accordance with the WLSP (Sycamore Environmental Consultants 1995).

4.2.2 EXISTING CONDITIONS

The proposed project site encompasses approximately 4,905 acres on Stewart Tract and Paradise Cut, in the West Lathrop portion of the City of Lathrop, in San Joaquin County. Stewart Tract is an inland island in the Sacramento–San Joaquin River Delta, and Paradise Cut is a flood control bypass connecting the San Joaquin River and Old River. The project site consists of three areas in these locations: the River Islands Development Area (RID Area), Paradise Cut Conservation Area (PCC Area), and Upper Paradise Cut Improvement Project Area (PCIP Area) (Exhibit 3-5). The RID Area, the portion of the project site to be developed, is bordered generally on the west by Old River, on the north by Old River and the San Joaquin River, on the east by UPRR tracks (formerly owned by SPRR), and on the south by Paradise Cut. The PCC Area is located south of the RID Area, in the area contained within the Paradise Cut levees, between Old River and the UPRR tracks. The PCIP Area is located in Paradise Cut, southeast of Interstate 5 (I-5). The remainder of Stewart Tract, located southeast of the UPRR tracks and north of Paradise Cut, is not part of the proposed project. In this SEIR, it is referred to as Remaining Stewart Tract.

The RID and PCC Areas are both currently in agricultural production and produce a variety of crops, including melons, tomatoes, alfalfa, corn, and safflower. In 2001, the combined acreage in agricultural production in these two areas was greater than 4,000 net acres. Farmsteads and associated outbuildings are located in the RID Area. There are numerous easements (utility, road) across the site. The PCIP Area is not in active use.

The land uses surrounding the project site are also primarily agricultural. Northwest of the site, the agricultural land is interspersed with farming structures. Northeast of the site, the land is currently in agricultural production but is the proposed future site of the Mossdale Village portion of the incorporated City. Further east, across I-5, lies the developed portion of the City of Lathrop. East of the UPRR tracks that provide the eastern boundary of the RID Area, in the Remaining Stewart Tract, is more agricultural land, I-5, another set of UPRR tracks, and a sand mining facility. South and west of the site, beyond Paradise Cut, is agricultural development interspersed with rural residences and farming structures.

4.2.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

The information presented in this section is based on review of relevant literature and adopted plans, including the General Plan and associated EIR, the WLSP and associated EIR, the Lathrop City Zoning Ordinance, the SJMSCP, and the HMP.

This analysis of land use and zoning addresses the project as a whole rather than evaluating each phase independently. Although Phase 2 of the proposed project is less specifically defined than Phase 1 in some respects, a project-level analysis of land use has been conducted for the project as a whole because the land uses and zoning for the entire proposed project site have already been identified, allowing a determination of impacts.

PRIOR WLSP EIR ANALYSIS

The approach used in the WLSP EIR to analyze land use impacts treated these impacts as functions of other topics analyzed as part of the EIR. The document does not include a separate discussion of land use impacts.

Land use conditions evaluated in the WLSP EIR differ in many respects from conditions under the proposed project. The land uses described for the River Islands project differ considerably from those described for the project site in the WLSP, so the land use designations and zoning under the proposed project differ from those identified in the WLSP. In addition, the SJMSCP was not available when the WLSP EIR was prepared. For these reasons, an independent analysis of land use is included in this SEIR.

THRESHOLDS OF SIGNIFICANCE

The River Islands project would cause a significant impact on land use if it would:

- ▶ physically divide an established community;
- ▶ conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect; or
- ▶ conflict with any applicable habitat conservation plan or natural community conservation plan.

IMPACT ANALYSIS

The proposed project would be located in an underdeveloped area southwest of the developed City of Lathrop and the planned Mossdale Village. On all but the northeastern side of the project site, the River Islands project would be surrounded by agricultural land. It would be separated from the developed city by I-5, but the proposed project itself would not create a division in a community. The project would

establish a new community in the WLSP area. Because the proposed project would not divide an established community, this impact threshold was not evaluated further.

Because it would be located in San Joaquin County, the River Islands project would fall in the area covered by the SJMSCP. Participation in the SJMSCP is voluntary; therefore, the City's and project applicant's decision on whether or not to use the SJMSCP for this project (although each is expected to do so) does not determine consistency with the plan. Paradise Cut is one of the areas identified in the SJMSCP as a potential conservation area for addressing impacts on biological resources located elsewhere in San Joaquin County. Under the proposed project, Paradise Cut would remain as Resource Conservation, providing potential habitat for various special-status species identified in the SJMSCP, including the riparian brush rabbit, western pond turtle, and Swainson's hawk. Thus, the project is consistent with the SJMSCP goal of using this location as a conservation area. Because the proposed project would not conflict with the SJMSCP, this impact threshold was not evaluated further.

The River Islands project site is located in the area addressed by the HMP. Under the proposed project, Paradise Cut would remain as Resource Conservation, providing potential permanent nesting and foraging habitat for the Swainson's hawk. The proposed project therefore is consistent with the HMP's goal of using this location as Swainson's hawk habitat. Because the project would not conflict with the HMP, this impact threshold is not evaluated further.

Impact
4.2-a

Land Use - Conflict with the Lathrop General Plan and West Lathrop Specific

Plan. *The proposed project would not be entirely consistent with the General Plan and the WLSP, but this inconsistency by itself would not cause any environmental impacts. Both planning documents envision the Califia/Gold Rush City project, an entertainment-oriented, theme park-centered development. The proposed project is a mixed-use residential/commercial development, which is inconsistent with the land use objectives and designations identified for the project site in the General Plan and the WLSP. However, this land use inconsistency does not, by itself, conflict with any City of Lathrop environmental plans, goals, or regulations adopted for the purposes of avoiding or mitigating an environmental effect. Therefore, this impact is considered **less than significant**.*

The River Islands project differs substantially from the entertainment-oriented, theme park-centered development envisioned in the General Plan and the WLSP. The proposed project is a mixed-use residential/commercial development with no theme parks, no resort hotels, approximately 2,500 more housing units than previously approved, and a 300-acre business park/employment center. It also lacks the village concept described in both the General Plan and the WLSP; the project would include a single town center to serve approximately 30,000 residents rather than several smaller village centers serving 7,000–10,000 residents each. (For detailed descriptions of the land uses proposed under the River Islands project, see Chapter 3, “Description of the Proposed Project.”) The physical impacts of these changes are addressed throughout this SEIR; however, these changes do not conflict with specified City environmental goals. Various entitlements are included in the proposed project, including General Plan and WLSP amendments to ensure that the documents reflect the new vision for development on Stewart Tract.

The proposed project is consistent with the phasing requirements of the General Plan. Chapter II of the General Plan identifies annexation through phased development as one of the major policies and proposals of the document. As stated in the General Plan, “The annexation of lands to the outer boundaries of urbanization depicted in the General Plan Diagram is to be pursued through development phasing which seeks to avoid a disjointed pattern of urbanization, to avoid creating unnecessary conflicts with continuing agricultural operations, and to avoid adverse impacts on the provision and maintenance of public services and facilities.” Development of the proposed project would be divided into two primary phases: Phase 1 and Phase 2. Phase 1, anticipated to be completed by 2015, includes the Town Center, Employment Center, East Village, Lake Harbor, and Old River Road districts and various flood control and other project features. Phase 1 includes a subphase, Phase 1a, that is scheduled for completion in 2007. The primary component of Phase 1a is the placement of fill in the southeastern section of the RID Area to create approximately 415 acres of “high ground.” Up to 800 housing units and associated roads and infrastructure would be constructed on the high-ground area. The remainder of the project, which would be constructed as part of Phase 2, is planned for completion by 2025. Because the proposed project is consistent with this phasing requirement, there would be no environmental impact.

The proposed project is consistent with Objective 3C of the WLSP (“Link all key activities such as schools, parks and retail with landscaped parkways or pedestrian-oriented corridors which encourage non-vehicular travel”). To encourage travel by foot or bicycle at the River Islands project site, the proposed project includes an extensive system of trails and paseos to link the neighborhoods, schools, and other uses. The City does not propose to revise this objective. For more information on the proposed trail system, see Chapter 3, “Description of the Proposed Project,” and section 4.12, “Recreation.” Because the proposed project is consistent with this objective, there would be no environmental impact.

The proposed project is partially inconsistent with Objective 3E of the WLSP (“Focus neighborhoods around local schools and parks that are linked along a network of non-vehicular rights-of-way”). Although the proposed project is consistent with Objective 3E’s emphasis on nonvehicular travel, all neighborhoods are not focused around local schools and parks under the proposed project. The River Islands project proposes two possible school systems: a nontraditional magnet school system, which is the preferred system, and a more traditional school system. Under the magnet school system, three campuses would each house all grade levels, and each would offer a particular educational focus. The traditional system would have seven or eight campuses spread throughout the site. The proposed project includes a system of trails and paseos that would provide pedestrians and bicyclists easy access to the campuses, regardless of which system is chosen. The neighborhoods would not, however, be focused around the schools. For more information on the school system proposed for the River Islands project, see Chapter 3, “Description of the Proposed Project,” and section 4.10, “Public Services.” The River Islands project proposes numerous parks of various sizes throughout the project site. Under the nontraditional school system, the largest parks would be associated with the three campuses. This acreage would remain designated as parkland if the traditional school system is adopted. As with the school system, the network of trails and paseos would provide pedestrians and bicyclists easy access to these parks. The neighborhoods are not focused around the parks, however. For additional information on the proposed park system, see Chapter 3, “Description of the Proposed Project,” and section 4.12, “Recreation.” Thus, the proposed project would be partially inconsistent with this objective. If the

proposed project is adopted, the City proposes to revise the WLSP objective so that it reads: “*In Mossdale Village, focus neighborhoods around local schools and parks that are linked along a network of non-vehicular rights-of-way.*” With this change, the proposed project would no longer be inconsistent with Objective 3E. Although the proposed project is not entirely consistent with the original objective, the project’s system of trails and paseos would encourage nonvehicular travel to these locations, which is consistent with the objective’s fundamental purpose, so implementation of the project would not result in physical impacts that would otherwise be avoided by strict compliance with this goal. The partial inconsistency would not be expected to encourage vehicular travel to these locations. For this reason, this impact is considered less than significant.

The proposed project is consistent with Objective 3J of the WLSP (“Create a West Lathrop park and open space system that is linked to citywide and capable of linkage to regional open space and trails systems”). As discussed in greater detail in Chapter 3, “Description of the Proposed Project,” and section 4.12, “Recreation,” the River Islands project proposes a park system with nearly 275 acres of parkland and four categories of parks: community parks, river vista parks, lakefront parks, and neighborhood parks. The parks would range in size from less than an acre to nearly 40 acres (Central Lake Community Park) and would be located throughout the project site. They would be linked to neighborhoods and other uses with the extensive trail system mentioned above, so the proposed project would be consistent with this objective. The City proposes to revise the language of the objective, but only to clarify the phrasing that appeared in the 1996 WLSP. The revised objective would read: “Create a West Lathrop park and open space system that is linked to citywide *systems* and *is* capable of linkage to regional open space and trails systems.” Because the proposed project is consistent with this objective, there would be no environmental impact.

The land use designations and zoning identified for the proposed project differ substantially from those under the existing General Plan and WLSP. Amendment of City documents to reflect the land uses and zoning under the proposed project would involve updating the land use and zoning maps associated with the General Plan, the Lathrop Zoning Ordinance, and the WLSP. Because the updated versions of these maps are so similar, they are presented in this SEIR as a single exhibit (Exhibit 4.2-4).

The zoning districts identified for the River Islands project are described below. All districts include associated lake, park, or waterway areas.

- ▶ **RL/RM/RH-RI (Residential Low [3-9 dwelling units per net acre]/Medium [6-20 dwelling units per net acre]/High [15-40 dwelling units per net acre] [River Islands]):** The residential areas of River Islands shall be zoned according to the residential density intended therein. There is intentional overlap in the number of dwelling units for the different residential densities to encourage the development of varied housing types and sizes in each River Islands neighborhood. Given the nature of the River Islands development concept, most of the residential development is to be designed with and oriented toward major recreation amenities, such as lakes, rivers, golf courses, or harbors. A maximum of 11,000 units of all densities is permitted, along with supporting neighborhood-serving convenience retail. Parks are permitted uses in all residential areas. Development in this district shall be based on a UDC recommended by the Stewart Tract Design Review Board and approved by the City of Lathrop.

- ▶ **EC-RI (Employment Center [River Islands]):** The Employment Center will be an amenitized business park, with a range of offices, research and development, and administrative offices and supporting uses, such as banks or cafes. The Employment Center is expected to provide approximately 17,000 new jobs at buildout (30-50 employees per acre). Highway commercial uses, such as retail or motels, which may be appropriate along the edge of Golden Valley Parkway, also are permitted in this district. Development in this district shall be based on a UDC recommended by the Stewart Tract Design Review Board and approved by the City of Lathrop.

- ▶ **TC-RI (Mixed Use Town Center [River Islands]):** A mixture of retail, personal services, restaurants, entertainment, offices, and higher density residential development ranging from 600 to 1,220 units is permitted in this zoning district. A K-12 magnet school on 30-40 acres or traditional schools will be part of this district. These uses are to be located at the eastern end of a grand canal and are to be arranged compatibly with more water-oriented uses in an adjoining Lathrop Landing harbor. Development in this district shall be based on a UDC recommended by the Stewart Tract Design Review Board and approved by the City of Lathrop.

- ▶ **NR-RI (Neighborhood Retail [River Islands]):** This district is intended for retail and personal services for nearby residents. Development in this district shall be based on a UDC recommended by the Stewart Tract Design Review Board and approved by the City of Lathrop.

- ▶ **RCO-ST (Resource Conservation/Open Space [Stewart Tract]):** The Paradise Cut area is designated for resource conservation and open space. The cut will act as a seasonal floodway and wildlife habitat. Agricultural uses will occur on the land surface exposed most of the time. Some areas will be dedicated solely for wildlife habitat, and public access will be limited to passive recreation and to designated trails. Elsewhere, nature observation will be encouraged. Along some of the waterways in the cut, boating will be allowed.

If the proposed project is approved by the City, the General Plan and WLSP and their associated zoning maps will be revised to accommodate the project, so all conflicts and inconsistencies between the existing documents and the River Islands project would be resolved before the project is implemented.

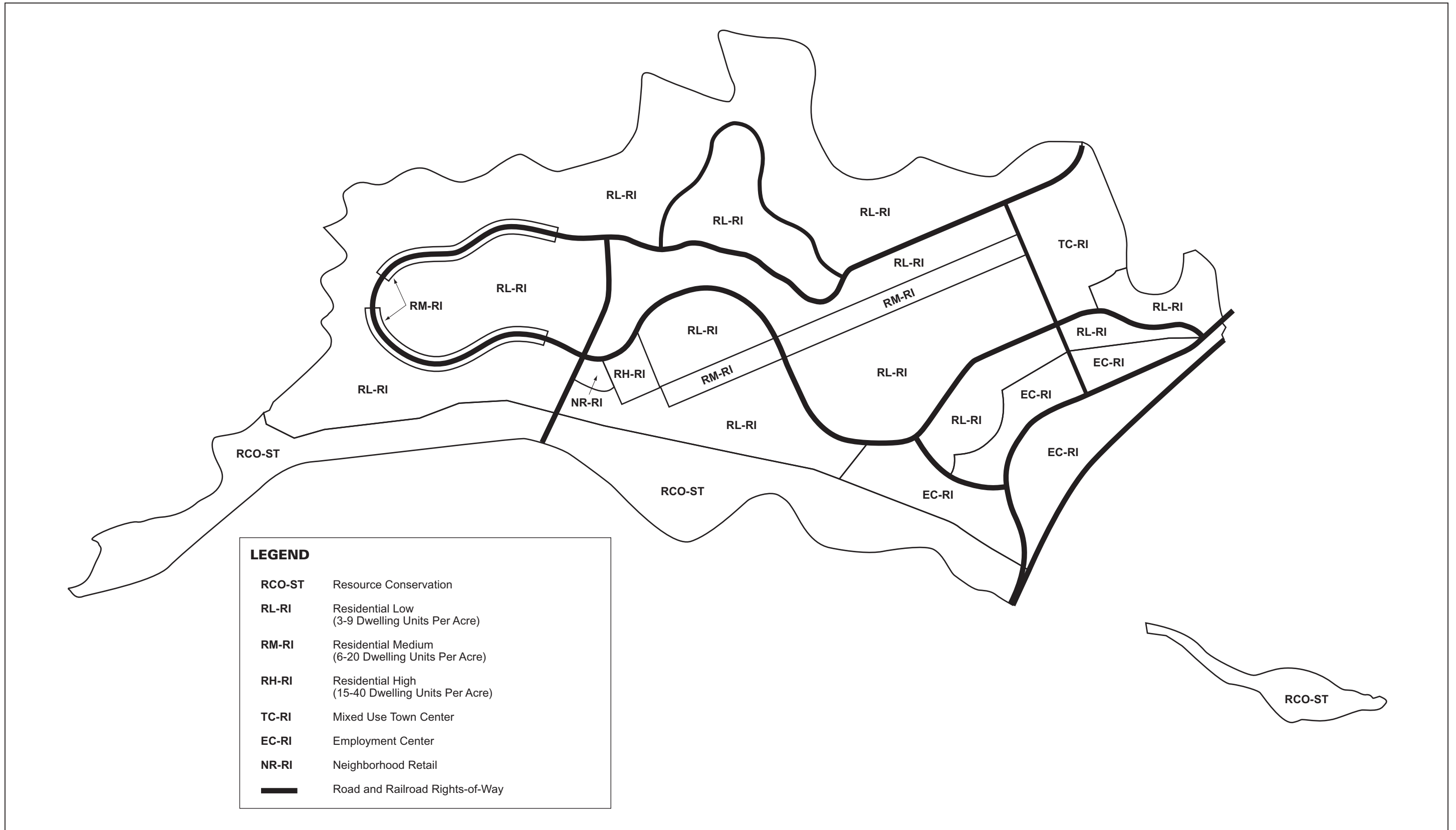
The land use and zoning revisions described for the General Plan and WLSP and the associated maps are not themselves considered environmental impacts. For an analysis of the environmental impacts related to the physical changes associated with implementing these land use and zoning changes, see the remaining sections in Chapter 4.

4.2.4 MITIGATION MEASURES

No significant land use impacts would occur under the proposed project, so no mitigation measures would be required.

4.2.5 RESIDUAL SIGNIFICANT IMPACTS

Because no significant land use impacts would occur under the proposed project, no residual significant land use impacts would remain.



Source: Data provided by The SWA Group 2002

Land Use Designations and Zoning at the Project Site under the Amended Lathrop General Plan, Amended Lathrop Zoning Ordinance, and Amended West Lathrop Specific Plan

EXHIBIT 4.2-4



4.3 POPULATION, EMPLOYMENT, AND HOUSING

4.3 POPULATION, EMPLOYMENT, AND HOUSING

This section of the SEIR documents the existing population, employment, and housing conditions in the City of Lathrop and San Joaquin County and presents estimates of changes to those conditions that could be created with implementation of the proposed project. This section also characterizes the population, employment, and housing changes that could trigger adverse physical environmental effects in the City or the region. Sufficient detail is provided in this section to analyze issues related to population, employment, and housing at a project level of detail for both Phase 1 and Phase 2 of the proposed project.

4.3.1 REGULATORY BACKGROUND

CITY OF LATHROP GENERAL PLAN

The City of Lathrop General Plan (General Plan) includes the following elements related to housing and relevant to this analysis:

Housing Goal No. 3: To develop a balanced residential environment with access to employment opportunities, community facilities, and adequate services.

Housing Goal No. 5: To promote efficient use of land available for housing.

Housing Policy No. 1: Low and moderate income housing sites should be selected so as to avoid excessive concentrations of such housing within any of the residential neighborhoods of the City.

Housing Policy No. 3a: The promotion of housing sites for the elderly and handicapped which are within reasonable proximity to transportation services, medical facilities, recreation areas, conveniences and shopping facilities, and where reasonable security by police and fire protection services can be assured.

Housing Policy No. 3c: Encourage new housing units which are adaptable for handicapped households. This can be accomplished by City staff at the review stage by assuring the elimination of barriers and by provisions for special handicapped needs such as lowered switches and flush doorways.

Housing Implementation and Monitoring Policy No. 9: Based upon competent community-wide housing market analysis, the City will: maintain an adequate ratio of about 70% single family home to 30% non-single family, including apartments, to allow choice, affordability and availability in housing types....

Housing Implementation and Monitoring Policy No. 10: The development of single-family housing on small lots under 6000 sq. ft. in area can be considered as an alternative to meeting affordable housing needs otherwise requiring apartment development.

WEST LATHROP SPECIFIC PLAN

The City of Lathrop West Lathrop Specific Plan (WLSP) includes the following objectives pertaining to population, employment, and housing:

Objective 1A: Add to the economic vitality of Lathrop by providing more local jobs, homes and revenue-generating land uses.

Objective 2A: Provide diverse types of housing in West Lathrop that respond to the needs of a destination resort and associated employment as well as regional housing needs.

Objective 2B: Enhance the diversity of subregional labor market opportunities and job training capabilities.

4.3.2 EXISTING CONDITIONS

POPULATION

From 1990 to 2000, the population of the City of Lathrop increased from 6,841 to 10,445, or 53% over the 10-year period (U.S. Census Bureau 2002). The current population is estimated to be 11,586 (San Joaquin Council of Governments Research and Forecasting Center 2002) Population growth within the City and its Sphere of Influence is projected to continue; however, estimates of the future population in the City as forecast for different City planning processes and by the County vary widely depending on the assumptions used in the projections. Projected population estimates from various sources are presented in Table 4.3-1.

Table 4.3-1 Population Estimates for the City of Lathrop						
	Projection Year					
	2005	2010	2015	2020	2025	2030
San Joaquin County General Plan	--	29,100	--	--	--	--
San Joaquin Council of Governments	12,760	15,546	18,331	20,627		
City of Lathrop General Plan ¹	24,463	30,000	--	--	--	--
West Lathrop Specific Plan	--	13,575 ²	--	--	27,150	--
Lathrop Master Plan ³	30,400	47,200	55,100	60,700	63,100	65,400
¹ Does not include the WLSP area. ² Includes only the WLSP area. Assumes 50% of buildout capacity by 2010. ³ Water, Wastewater, and Recycled Water Master Plan.						
Sources: EDAW 2001, Nolte Associates 2001, San Joaquin Council of Governments Research and Forecasting Center 2000						

Some of the variation among population projections is attributable to the age of the projections. For example, the population projections contained in the City of Lathrop General Plan were prepared more than 11 years ago. As projections age, unforeseen circumstances typically decrease the accuracy of the projections over time. Additional variation results from projection methods. The San Joaquin Council of Governments (SJCOG) estimates (completed by the SJCOG Research and Forecasting Center) were based on extrapolations of historic growth trends and did not account for planned future projects in the City. Projections included in the City of Lathrop General Plan and WLSP are based on future projects planned in the City at the time each plan was prepared. It is also important to note that some of the population estimates presented in Table 4.3-1 are not for identical geographic areas. The population estimates provided in the San Joaquin County General Plan cover East Lathrop and West Central Lathrop south of Squires Road. The population estimates provided by the City of Lathrop General Plan cover Sub-Plan Areas #1 and #2. Stewart Tract is excluded from the City's General Plan population projections. The population estimates provided by the WLSP cover Stewart Tract and the south half of West-central Lathrop.

The Water, Wastewater, and Recycled Water Master Plan (Master Plan) population projections were prepared in 2001 and are based on existing General Plan land use densities and estimated maximum demand rather than on extrapolations of past population growth trends. The Master Plan projections are also based on a larger geographic area (the City's incorporated area and Sphere of Influence) than the General Plan or WLSP. As such, the population growth projections of the Master Plan are higher than the City's General Plan and WLSP projections. The Master Plan is also based on more current data than the General Plan or WLSP. For these reasons, the Master Plan projections are considered the City's most up-to-date population projections.

EMPLOYMENT

In 1990, employment in the City of Lathrop included approximately 5,600 jobs, with 2,720 in services, 2,780 in industries, and 100 in retail (City of Lathrop 1991). These employment data are the most recent accurate data available for the City. In 1990, the number of jobs in San Joaquin County totaled 182,237 (San Joaquin County 1991).

Similar to the population projections discussed above, estimates of the future employment in the City of Lathrop, as forecast during different planning efforts and by the County, vary widely depending on the age of the projections and the assumptions used. Projected employment estimates from various sources are presented in Table 4.3-2.

The most current employment projections were prepared by the SJCOG Research and Forecasting Center in 1999. However, these SJCOG estimates for the City of Lathrop are based on extrapolations of historic growth trends and do not reflect planned future projects (such as those in the WLSP) in the City. Projections in the Lathrop General Plan and WLSP are based on job generation expected from development projects included in those plans.

**Table 4.3-2
Employment Estimates for the City of Lathrop**

	Projection Year				
	2005	2010	2015	2020	2025
San Joaquin County General Plan	--	12,985	--	--	--
SJCOG Research and Forecasting Center	3,398	3,653	3,909	4,164	--
City of Lathrop General Plan	--	22,030	--	--	--
West Lathrop Specific Plan Draft EIR (Sub-Plan Areas #2 [partial] and #3)	--	10,325 ¹	--	--	18,850 ²
¹ Assumes 100% buildout and employment at Mossdale Village by 2010 and 50% of buildout employment in Stewart Tract. ² Assumes 100% buildout, 1,800 jobs in Mossdale Village, 17,050 in Stewart Tract.					
Source: EDAW 2001					

HOUSING

The U.S. Census Bureau reports that the number of housing units in the City of Lathrop have increased from 2,040 in 1990 to 2,991 in 2000. The City’s housing growth rate over these 10 years was nearly 47%. Based on the General Plan, the number of housing units is anticipated to increase in East Lathrop and West-central Lathrop to approximately 10,210 by 2010 (City of Lathrop 1991). The General Plan also initially projected approximately 510 housing units for Stewart Tract; however, the City’s 2010 estimates increased to approximately 6,560 with the approval of the West Lathrop Specific Plan (City of Lathrop 1996). Combining the projected housing from the various areas covered in the General Plan and the WLSP, the total housing in the City is projected to reach approximately 16,230 in 2010 (EDAW 2001).

According to the California Department of Housing and Community Development (DHCD), a housing vacancy rate of 5% is considered normal (DHCD 2000). Vacancy rates below 5% indicate a housing shortage in a community. The U.S. Census Bureau reports that the City of Lathrop had a vacancy rate of 0.9% for owner-occupied units and 2.5% for rental units in 2000. Similarly, San Joaquin County had a vacancy rate of 1.2% for owner-occupied units and 3.8% for rental units in 2000. These vacancy rates indicate that both the City and the County currently experience housing shortages.

JOBS-HOUSING BALANCE

The jobs-housing balance concept is used to examine whether an area has a balance between its housing supply and employment base. An area that has too many jobs relative to its housing supply is likely to (absent offsetting factors) experience relatively rapid escalations in housing prices and intensified pressure for additional residential development. Conversely, if an area has relatively few jobs in comparison to employed residents, many of the workers are required to commute to jobs located outside

the area of residence. The resulting traffic patterns can lead to road congestion and reductions in both local and regional air quality (San Joaquin County 1991).

The simplest measure of jobs-housing balance is an index based on the ratio of employed residents to jobs in the area, with an index of 1.0 indicating a jobs-housing balance. An index below 1.0 indicates there are more jobs than employed residents and may suggest that many employees are commuting in from outside the community. An index above 1.0 indicates that there are more employed residents than jobs and may suggest that many residents are commuting to jobs located outside the community.

The jobs-housing balance index for San Joaquin County is shown in Table 4.3-3. It should be noted that jobs-housing indices are more useful for examining the potential for “self-containment” at the regional level than in determining whether this self-sufficiency actually exists in a given community. Even if communities have a statistical balance between jobs and housing, they are still very likely to experience in-commuting and out-commuting, given the variety and dispersed nature of employment and residential opportunities elsewhere in the region and the high level of mobility offered by automobiles.

Table 4.3-3 Jobs-Housing Balance for San Joaquin County					
	Year				
	1990	2000	2010	2015	2025
Employment (number of jobs)	182,237 ¹	201,671 ²	234,430 ²	250,810 ²	283,569 ²
Housing units	166,274 ³	189,160 ³	236,422 ²	262,311 ²	297,019 ⁴
Households	158,156 ³	181,629 ³	226,965 ²	251,819 ²	309,395 ⁴
Employed residents	214,969 ³	247,015 ⁵	308,672 ⁶	342,474 ⁶	420,777 ⁶
Jobs-Housing Balance Index ⁷	1.18	1.22	1.32	1.37	1.48
¹ Source: San Joaquin County Comprehensive Planning Program Draft EIR (December 1991). ² Source: San Joaquin Council of Governments Research and Forecasting Center 2000. ³ Source: U.S. Census Bureau 2000. ⁴ 2025 projection made by EDAW (Office Absorption Analysis, 2002). ⁵ U.S. Census 2000 data unavailable. Based on 1990 U.S. Census ratio of number of employees per household in the County (1.36). The 1990 ratio is expected to be similar to the 2000 ratio, given the average household size is similar between the two years (2.94 in 1990 and 3.00 in 2000). ⁶ Assumes ratio of number of employees per household would remain at 1.36 throughout 2025, as projected household size would remain between 2.91 and 3.10 (Source: EDAW, Office Absorption Analysis, 2002). ⁷ Jobs-Housing Balance Index = employed residents/number of jobs.					
Source: EDAW 2002					

As shown in Table 4.3-3, the jobs-housing indices for San Joaquin County have increased from 1.18 in 1990 to an estimated 1.22 in 2000. Therefore, the imbalance between housing and jobs in the County has increased from 1990 to 2000, with housing growth outpacing employment growth. These indices indicate that the County has more employed residents than jobs, that the County supports a net out-

commute population, and that the condition is intensifying. The jobs-housing indices for San Joaquin County are projected to steadily increase to 1.48 in 2025, indicating an increasing imbalance between housing and employment in the future and an increased expectation of residents commuting outside the County for employment.

4.3.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

The examination of population, employment, and housing conditions in this section of the SEIR is based on information obtained from (1) review of the plans for the proposed project; (2) review of available population, housing, and employment projections from the City of Lathrop, San Joaquin County, the U.S. Census Bureau, and other sources; and (3) review of applicable elements and policies from the City of Lathrop General Plan and WLSP.

A project-level analysis of population, employment, and housing was conducted for both Phase 1 and Phase 2 rather than a project-level analysis for Phase 1 and a separate program-level analysis for Phase 2. Although in some instances, Phase 2 project features are not as highly defined as those in Phase 1 (e.g., individual housing parcel sizes), sufficient information related to population, employment, and housing in Phase 2 is available to allow a project-level analysis equitable with the analysis of Phase 1.

PRIOR WLSP EIR ANALYSIS

The construction and operational impacts related to population and housing in the WLSP EIR were analyzed by referencing other impact sections of the EIR. The WLSP EIR concluded that if a jobs-housing imbalance were to occur, it could result in potentially significant cumulative impacts, including adverse impacts on government finance and services and on the local school system. Achieving a reasonable balance between jobs and the housing in the area, and in the costs and revenues associated with the developments in the WLSP area, would reduce adverse cumulative impacts. Specifically, the adverse impacts would be prevented or reduced by the estimated 7,050 jobs that would be generated by the Stewart Tract development and the proposed 8,500 housing units on the Stewart Tract that would accommodate onsite employees. Furthermore, the potential for adverse cumulative impacts was also considered lessened by the prospect that most of the jobs generated by the Stewart Tract development would likely be filled by residents of the subregion surrounding Lathrop rather than from outside the region.

Although the River Islands project also contains both jobs-generating elements and housing, the types and numbers of jobs and housing differ substantially from the project analyzed in the WLSP. Therefore, an independent analysis of population, employment, and housing is included in this SEIR.

THRESHOLDS OF SIGNIFICANCE

The proposed project would result in significant population, employment, and housing impacts if it would:

- ▶ induce substantial unplanned population growth in an area, either directly (by proposing new homes and businesses) or indirectly (through the extension of roads or other infrastructure);
- ▶ generate a substantial demand for new housing, the construction of which could cause significant environmental impacts;
- ▶ displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere; or
- ▶ result in employment or housing conditions inconsistent with goals, policies, or objectives in the City of Lathrop General Plan or the West Lathrop Specific Plan.

IMPACT ANALYSIS

Impact
4.3-a

Population, Employment, and Housing - Population Growth and Housing Demand

During Construction. *The proposed project would generate a temporary increase in employment in the City of approximately 300 construction jobs during the peak construction period. Existing construction personnel in the region are considered sufficient to meet demand associated with the proposed project; therefore, this temporary increase in employment is not expected to generate any substantial new population growth in the area or generate the need for substantial additional housing for construction workers. This impact is considered **less than significant**.*

Project construction activities would occur on-and-off throughout the planning horizon of the proposed project. It is estimated that on a peak construction day, up to 300 construction workers would be employed in the construction of proposed developments (Crane Transportation Group 2002). Fewer construction workers would be employed during nonpeak periods. According to the latest labor data available from the U.S. Census (1990), 236 residents in the City of Lathrop and 15,301 residents in San Joaquin County are employed in the construction industry (U.S. Census 2002). This existing number of residents in the City and County who are employed in the construction industry would likely be sufficient to meet the demand for construction workers that would be generated by the proposed project. Because construction workers serving the proposed project can be expected to come from the City of Lathrop itself and from nearby communities in the County, substantial population growth or increases in housing demand in the region as a result of these jobs is not anticipated. Furthermore, even if some construction workers from outside the region were employed at the project site, construction workers typically do not change residences when assigned to a new construction site, and it is not anticipated that there would be any substantial permanent relocation of these construction workers to the City of Lathrop. The proposed project would therefore not be expected to generate the need for substantial additional housing in the City during construction. Because of these conditions, impacts related to population growth and housing demand associated with project construction are considered less than significant.

Impact
4.3-b

Population, Employment, and Housing - Population Growth. The proposed project would develop new homes, which would result in direct increases in population. The estimated increases in population exceed planned growth anticipated in the General Plan, the WLSF, and the Master Plan. However, inconsistencies solely between planned and anticipated population growth as described here would not cause significant environmental effects. Direct impacts associated with development needed to accommodate increased population growth are evaluated in appropriate sections of this SEIR. This impact is considered **less than significant**.

The proposed project includes proposals for new housing that would result in direct increases in population at the project site. In Phase 1a of the proposed project, 800 single-family housing units would be developed. As shown in Table 4.3-4, these houses are estimated to generate 2,560 new residents in the City by 2007. In Phase 1 of the project (excluding Phase 1a development), 2,431 single-family housing units and 829 multifamily housing units would be developed by 2015, generating an estimated 9,852 additional new residents in the City (12,412 total residents). In Phase 2 of the project, an additional 4,740 single-family housing units, 1,400 active adult housing units, and 800 multifamily housing units would be developed by 2025. These 6,940 housing units would generate an estimated 19,268 new residents in the City, for a total of 31,680 project residents.

**Table 4.3-4
River Islands Residential Population**

	Dwelling Unit	Persons per DU ¹	Residents
Phase 1a (2007)			
Single-family dwelling unit	800	3.2	2,560
Multifamily dwelling unit	0	2.5	0
Active adult dwelling unit	0	1.5	0
Phase 1 subtotal	800	--	2,560
Phase 1 (excluding Phase 1a) (2015)			
Single-family dwelling unit	2,431	3.2	7,779
Multifamily dwelling unit (apartments/townhouses)	829	2.5	2,073
Active adult dwelling unit	0	1.5	0
Phase 1 (excluding Phase 1a) subtotal	3,260	--	9,852
Phase 2 (2025)			
Single-family dwelling unit	4,740	3.2	15,168
Multifamily dwelling unit (apartments/townhouses)	800	2.5	2,000
Active adult dwelling unit	1,400	1.5	2,100
Phase 2 subtotal	6,940	--	19,268
Total (all phases) (2025)	11,000	--	31,680

¹ Source: Data provided by the City of Lathrop 2002

Source: EDAW 2002

The General Plan projects that between 2005 and 2010, the City as a whole would grow by 5,537 people to 30,000 residents (Table 4.3-1). The General Plan does not include population projections beyond 2010. Development of Phase 1a of the River Islands project would generate 2,560 new residents in the City between 2005 and 2007. Assuming a consistent population growth rate during the Phase 1 buildout of approximately 1,231 residents a year over 8 years (2007–2015 buildout period with 9,852 total residents), roughly 3,694 additional residents would be added by 2010, for a total of 6,254 new residents by 2010. As stated above, the General Plan projects that between 2005 and 2010, there would be an increase of 5,537 residents in the City. As such, the proposed project alone would generate population growth exceeding increases projected for the City as a whole in the General Plan.

The WLSP projects that the Stewart Tract planning area would accommodate 9,905 residents by 2010 (Table 4.3-5). It is estimated that the River Islands project would generate approximately 6,254 residents by this time. Therefore Phase 1a of the River Islands project would not exceed population estimates in the WLSP. Although the WLSP does not contain a population projection for 2015, assuming a consistent population growth rate between 2010 and 2025, the estimated 2015 population would be 13,206. The projected 2015 River Islands population would be 12,412. Therefore, Phase 1 of the River Islands project would not exceed population estimates in the WLSP. The WLSP projects 19,810 residents on Stewart Tract after full buildout of the land uses described in the plan. The River Islands project site comprises most of the Stewart Tract planning area and would result in a residential population of 31,680. As such, the proposed project at full buildout would generate population growth that exceeds by almost 60% the growth planned for in the WLSP.

	Projection Year			
	2010	2015	2020	2025
West Lathrop Specific Plan	9,905 ¹	--	--	19,810
Water Master Plan	20,400	23,200	25,900	26,000
River Islands project ²	6,254	12,412	--	31,680
¹ Assumes 50% of buildout capacity by 2010. ² River Islands project site includes most but not all of Stewart Tract.				
Sources: EDAW 2001, Nolte Associates 2001				

Full buildout of the proposed project would also exceed the population growth projections for Stewart Tract included in the Master Plan. Although for Phase 1a and Phase 1, population generated by the proposed project would be less than projections in the Master Plan (Table 3.4-5, 2010 and 2015 projection years), by full buildout in 2025, the estimated project population of 31,680 exceeds the Master Plan projected population of 26,000 residents on Stewart Tract by approximately 22%.

Because the proposed project generates population growth that substantially exceeds estimates in existing planning documents for the City of Lathrop, the project would cause substantial unplanned population growth in the area. Population growth by itself is not considered a significant environmental impact. However, development of housing, infrastructure, and facilities and services to accommodate this growth can have significant impacts on the environment through land conversions and other mechanisms. Direct impacts associated with development needed to accommodate increased population are evaluated in appropriate sections in this SEIR (e.g., section 4.4, “Traffic”; section 4.10, “Public Services”; section 4.11, “Public Utilities”; section 4.13, “Agricultural Resources”; section 4.14, “Terrestrial Biology”). Potential inconsistencies with local planning documents (General Plan, WLSP) that may lead to significant environmental effects are also evaluated in each section. However, inconsistencies solely between planned and anticipated population growth as described here would not cause significant environmental effects. Therefore, this impact is considered less than significant.

Impact
4.3-c

Population, Employment, and Housing - Housing Demand from Project

Development. *Development of the proposed project would increase the number of housing units and jobs. At buildout of Phase 1, the jobs-housing balance index for the project would be 0.62, and at full buildout the index would be 0.76, indicating that the proposed development would be job-rich and therefore could generate demand for new housing in the region for onsite employees. However, because of the existing and projected regional jobs-housing imbalance that is jobs-poor, the jobs generated by the proposed project are expected to be filled in large part by the existing labor pool in the region. The project is therefore not expected to induce substantial new housing demand. This impact is considered **less than significant**.*

Development of the proposed project would result in 16,751 jobs and 11,000 housing units at full buildout. As shown in Table 4.3-6, the jobs-housing balance index would be 0.76, which indicates that the project is job-rich. Development under Phase 1a of the proposed project would result in approximately 50 jobs and 800 housing units, and the jobs-housing balance index would be 20.88, which indicates that Phase 1a is exceedingly housing rich. This is to be expected given that Phase 1a includes 800 housing units and little other development. However, this period of imbalance would be short term and temporary, would decline as job-generating uses (Employment Center, Town Center) are developed during Phase 1, and would not generate new housing demand since new housing exceeds demand generated by new jobs. Therefore, this Phase 1a imbalance is considered less than significant. By the end of Phase 1, the jobs-housing balance would be 0.62 (Table 4.3-6), indicating a job-rich condition. Through Phase 2, housing is anticipated to increase slightly more rapidly than jobs, resulting in the index of 0.76 at full project buildout.

Most of the workers on the project site could be supported by the proposed onsite housing units. However, at full buildout the proposed project is estimated to generate 5,001 jobs beyond the ability of housing on the project site to accommodate these workers. It is estimated that these 5,001 workers would generate demand for 3,830 offsite housing units. If these workers do not currently live in the County or cannot be accommodated by the existing housing units in the County, then new offsite housing units would be needed to meet the housing demand generated by the proposed jobs. However, as discussed above, the project site is located in a “job-poor” and “housing-rich” County, and at least 45,344 County

residents currently commute to jobs located outside the County. By 2025, the number of out-commuters is estimated to increase to 137,208 County residents. Given these conditions, jobs generated by the proposed project (during Phase 1 and Phase 2) are expected to be filled in large part by the existing resident labor pool in the region. If only 3.7% of the anticipated 2025 out-commuting workers were to take the jobs generated by the proposed project, then jobs associated with the proposed project would cause no offsite housing demand. Because the project is anticipated to generate little to no demand for new housing this impact is considered less than significant.

Table 4.3-6 Jobs-Housing Balance for River Islands Project			
	Phase		
	1a/2007	1/2015	Full Buildout/2025
Employment (number of jobs)	50	8,525	16,751
Housing units	800	4,060	9,740 ¹
Households ²	768	3,898	9,350
Employed residents ³	1,044	5,301	12,716
Jobs-housing balance index ⁴	20.88	0.62	0.76

¹ Excludes 90% of 1,400 active adult housing units (assumes these residents are retired).
² Assumes 1 housing unit = 0.96 household (Source: U.S. Census 2000 data for San Joaquin County) to account for unoccupied housing units.
³ Based on 1990 U.S. Census ratio of number of employees per household in the County (1.36). U.S. Census 2000 data unavailable. The 1990 ratio is expected to be similar to the 2000 ratio, given the average household size is similar between the two years (2.94 in 1990 and 3.00 in 2000).
⁴ Jobs-Housing Balance Index = employed residents/number of jobs.

Source: EDAW 2002

**Impact
4.3-d**

Population, Employment, and Housing - Housing Displacement. Existing residents in the RID Area would be displaced by the proposed project. However, there are only a small number of existing residences in this agricultural area, and most are already owned by the project applicant. This impact is considered **less than significant**.

The project site is currently used for agricultural production and contains fewer than 10 existing farm-related residences. Several of these are used as temporary migrant housing rather than as full-time residences. Most of the onsite residences are also already owned by the project applicant. As such, development of the project site would result in only minimal housing displacement. This impact is considered less than significant.

**Impact
4.3-e**

Population, Employment, and Housing - Inconsistency with Housing Policies. The General Plan contains various policies and implementation guidelines related to the provision of affordable housing, housing for the elderly and handicapped, and non-single family housing

*(e.g., apartments). Although the proposed project may not meet the desired availability and ratio of these housing elements at all times, overall the project is considered consistent with housing policies in the General Plan. This impact is considered **less than significant**.*

Housing Policies 1 and 3a in the General Plan discuss the provision of low-income housing and housing for the elderly and handicapped in the City (see section 4.3.1, “Regulatory Background,” above). Housing Implementation and Monitoring guideline #9 calls for maintaining a citywide ratio of 70% single-family residences to 30% non-single-family residence.

Phase 1a of the proposed project includes 800 single-family housing units that would not necessarily be considered housing designed specifically for the elderly, handicapped persons, or lower income households. No multifamily units are proposed for Phase 1a. However, Housing Implementation and Monitoring Policy No. 10 states that single-family housing on small lots under 6,000 square feet can be considered as an alternative to meeting affordable housing needs otherwise requiring apartment development. Of the 800 housing units proposed for Phase 1a, 394 (49%) would be on lots smaller than 6,000 square feet. Assuming that at least a portion of these lots would qualify under Housing Implementation and Monitoring Policy No. 10, Phase 1a of the proposed project would be consistent with housing policies in the General Plan.

Phase 1 of the proposed project includes 229 townhouses and 600 apartments. Both categories are considered multifamily housing units that could accommodate households in the lower income range. During Phase 1, these multifamily housing units would be located in the East Village district and the Town Center, both of which would also contain single-family housing units. The multifamily housing would be built near commercial uses and/or major roadways to increase the accessibility to these housing units. Phase 1 includes 3,231 single-family housing units. Among these units, 2,039 (63%) are planned on lots under 6,000 square feet and could qualify as affordable housing under Housing Implementation and Monitoring Policy No. 10. As such, Phase 1 would be considered consistent with the City’s housing policies.

After completion of Phase 2 (full buildout), the proposed project would include 1,200 apartments and 429 townhouses (multifamily units) dispersed over the project site in the East Village, West Village, and Town Center districts. Up to 1,400 active adult units also would be constructed in either the Lakeside or Woodlands district in what is anticipated to be a gated community with amenities and conveniences desirable to the resident population. Up to 4,740 single-family housing units would be constructed as part of Phase 2. The size of the lots for these units is unknown at this time; however, the percentage of lots potentially qualifying under Housing Implementation and Monitoring Policy No. 10 of the General Plan (under 6,000 square feet) is expected to be similar to that under Phase 1a and Phase 1. As such, the project at full buildout is considered to be consistent with the City’s housing policies.

Although the proposed project may not meet the City’s desired availability and ratio of multifamily and affordable housing elements during Phase 1a, overall the project is considered consistent with the City’s housing policies. This impact is considered less than significant.

4.3.4 MITIGATION MEASURES

All impacts identified for population, employment, and housing are considered less than significant. Therefore, no mitigation measures are necessary for any of the following impacts.

- 4.3-a Population Growth and Housing Demand during Construction
- 4.3-b Population Growth
- 4.3-c Housing Demand from Project Development
- 4.3-d Housing Displacement
- 4.3-e Inconsistency with Housing Policies

4.3.5 RESIDUAL SIGNIFICANT IMPACTS

All impacts associated with population, employment, and housing are considered less than significant. Therefore, there are no residual significant impacts.

4.4 TRAFFIC

4.4 TRAFFIC

This section is a synopsis of the traffic analysis prepared for the project by Crane Transportation Group. The full analysis is contained in Appendix B of this SEIR. The full analysis extensively details road conditions, intersection/freeway geometrics, project impacts by roadway and phase, and mitigation measures. Because of its length, the analysis is summarized here. Readers desiring detailed discussion and substantiation are encouraged to review Appendix B. A full set of capacity analysis worksheets is on file at the City of Lathrop.

The project would not be built out until 2025, more than 20 years from today. The West Lathrop Specific Plan (WLSP), other areas of the City of Lathrop, and cities and communities throughout San Joaquin County are expected to experience significant growth over this period. Major projects have been entitled for development throughout the region. As projects develop, traffic would increase on local and regional roadways and freeways. As regional development proceeds, transportation system improvements would be provided through local and regional funding programs, individual project mitigation, and improvements funded by the California Department of Transportation (Caltrans). These improvement programs are discussed in the analysis in this section.

Although there is a reasonable expectation that future roadway systems would be provided as planned, they remain largely dependent on fees generated by the development that would affect the roadways. The likelihood that planned developments would proceed can be forecasted but not predicted with certainty. The same is true of the timing of these developments. Consequently, this traffic analysis evaluates development impacts under two scenarios:

1. The project is evaluated against a backdrop of existing environmental conditions; that is, the impacts and mitigation measures for the project are evaluated against the existing roadway system with existing traffic volumes. This is referred to as the “baseline” analysis.
2. The project is evaluated against a backdrop that assumes an improved roadway system, based on regional plans, fee programs, and commitments. This “base case” analysis is also an analysis of cumulative development impacts.

These two scenarios represent the range of possible roadway conditions that could be in place as the project develops over time. Both scenarios are evaluated at the end of Phase 1a (2007), Phase 1 (2015), and buildout (2025). The discussion also includes a description of improvements that are not planned but that would be needed to provide an efficient transportation system in the absence of the project (i.e., improvements are needed even if the project does not proceed).

The City of Lathrop adopted the WLSP in 1996. Although the WLSP provided an analysis of the traffic impacts of proposed development within the WLSP area, and the land area proposed for development has not increased, the land uses proposed for Stewart Tract have changed. In addition, the character of the project and the intensity of its development have changed. The project would create a broader range of jobs and housing and would reduce the higher peak traffic flows that would have been experienced with the original theme park-oriented plan. Although traffic impacts would be less than under the original

plan, traffic projections within the County and the anticipated timing of development have been updated and the regional improvements assumed to be in place have changed. For these reasons, a reanalysis of the traffic impacts of development of Stewart Tract is included in this SEIR.

4.4.1 REGULATORY BACKGROUND

The following reflects the traffic level of service (LOS) policies of relevant agencies. LOS criteria are defined beginning on page 4.4-9.

Caltrans freeways are subject to the following minimum acceptable operations criterion:

- ▶ Interstate-5 (I-5), I-205, and State Route 120 (SR 120): LOS D or better

Lathrop surface streets are subject to the following minimum acceptable operations criteria:

- ▶ signalized and all-way-stop intersections: LOS D or better
- ▶ intersections with side street stop-sign control: LOS E or better

Tracy surface streets along the I-205 corridor are subject to the following minimum acceptable operations criterion:

- ▶ signalized and all-way-stop intersections: LOS D or better

San Joaquin County surface streets are subject to the following minimum acceptable operations criterion:

- ▶ signalized, all-way-stop and side street stop sign-controlled intersections or rural roadways: LOS C or better.

CITY OF LATHROP GENERAL PLAN

The Transportation and Circulation Element of the City of Lathrop General Plan (General Plan) provides policies supporting Goal No. 6, Transportation and Circulation.

Goal No. 6 states:

It is a goal of the General Plan to guide and provide for the development of an integrated system of transportation and internal circulation, and to provide access to other parts of San Joaquin County and the region. This goal is intended to benefit all citizens of Lathrop, including the young, the elderly and the physically handicapped, by seeking the following:

- ▶ Increased transportation safety.
- ▶ The efficient movement of people and goods.
- ▶ Lower vehicle operating costs.

- ▶ Lower vehicle miles traveled with consequent reduction in vehicle emissions.
- ▶ Economy in street construction and maintenance.
- ▶ A circulation system correlated and consistent with the land use patterns fostered by the General Plan.
- ▶ Avoidance of the disruption of residential areas caused by through traffic on minor streets.
- ▶ Protection of rights-of-way needed for future Arterial and Collector street widening in developed areas.
- ▶ Access to boat launching and docking facilities.

The General Plan provides specific policies for the four categories of roadways addressed in the plan: freeways, expressways and arterial streets, collector streets, and minor streets. Many of these policies relate specifically to roadway design elements, such as numbers of lanes, landscaping, types of pedestrian corridors, spacing between intersections, and presence/absence of on-street parking. General Plan policies that relate to circulation and traffic patterns, roadway improvements to accommodate anticipated increases in traffic, and methods to minimize traffic impacts are listed below. Specific roadway improvements anticipated in the General Plan also are described.

Freeway Policies

Policy 1: The City should protect the through traffic functions of Interstate and State Route Freeways serving the Lathrop area by planning expressway and arterial street alignments which will avoid the need or desire to utilize freeway sections for short, local area interval trips as if they were elements of the local expressway/arterial system.

Policy 2: Land use designations along freeway sections should take into consideration the visual and noise impacts associated with existing and future traffic levels on these major traffic carrying facilities.

Policy 3: Freeway interchanges should be improved to carry the demands of traffic generated by development in Lathrop in keeping with the principle that responsibility for improvements must reflect the fair apportionment of traffic to existing and future regional demands vs. local demand.

The General Plan assumes that only existing interchanges (with some improvements) would be required on I-5 and SR 120. Expansion of the existing partial interchange at Yosemite Avenue would be needed to serve the considerable industrial growth envisioned along the north-south corridor framed by the railroads. The General Plan states that this improvement is planned by the California Department of Transportation (Caltrans). At least one new interchange would be required along I-205 to accommodate traffic generated by Gold Rush City. The most likely scenario was conversion of the grade separation at Paradise Road to a full interchange.

Expressways and Arterial Street Policies

Policy 1: Expressways constructed to boulevard standards are to be the principal carriers of north-south traffic through Sub-Plan Areas #2 and #3.

The General Plan includes a proposal for a north-south expressway (designated Stanford Boulevard on the Plan Diagram, now called Golden Valley Parkway) west of I-5 extending south from Lathrop Road on an alignment generally parallel to I-5 to avoid pressure to use I-5 for local traffic movement. This expressway eventually would cross the San Joaquin River, extending into Gold Rush City (i.e., part of the current proposed project site), with eventual connection to one or more interchanges with I-205 farther west.

Another expressway is proposed in the General Plan to eventually enter the Gold Rush City site by crossing the San Joaquin River as an extension of Louise Avenue. Neither of these expressways to Gold Rush City was anticipated to be needed until substantial commercial development occurred on the site. It was anticipated that in the interim (for 5-10 years), Manthey Road (with some improvements) would continue to provide access to Stewart Tract from the north.

The General Plan also included proposed improvements to existing expressways and arterial streets in Lathrop east of I-5. These improvements would permit east-west traffic desiring access to I-5 to be diverted around the existing developed area of Lathrop, thus reducing traffic impacts on the Lathrop Road and Louise Avenue interchanges and on freeway sections between Roth Road on the north and the I-5/SR 120 merge on the south. The following expressway and arterial street proposals were expected to achieve volume-to-capacity ratios on all street sections at level of service (LOS) C and on all interchange ramps at LOS D.

- ▶ Improve Roth Road to six traffic lanes between I-5 and Airport Way, along with railroad separation structures.
- ▶ Improve Airport Way to six traffic lanes from Roth Road to SR 120.
- ▶ Improve Yosemite Avenue to six traffic lanes from SR 120 to the Manteca City limits.
- ▶ Improve Lathrop Road and Louise Avenue to four traffic lanes between I-5 and the Manteca City limits; provide railroad separation structures along Lathrop Road.
- ▶ Construct an at-grade crossing of the Souther Pacific Railroad (SPRR) (now Union Pacific Railroad [UPRR]) from the Crossroads Industrial Park along the line of Vierra Avenue and curving south to Yosemite Avenue.

Collector Street Policies

Policy 3: The high costs of converting a deficient Collector street to the appropriate standards required for existing and projected traffic should be limited to only those streets where either: (a) high current and projected volumes of traffic are involved; (b) joint funding is possible; (c)

significant contributions of private or assessment district funds are involved as part of the cost of developing adjacent lands; or (d) where the rate of serious accidents has been high and where hazards to public safety are great.

No specific proposals to improve or modify existing collector streets are included in the General Plan.

Minor Street Policies

Policy 3: In view of deficiencies in existing Minor streets, the City should consider forms of funding which include direct public sources (e.g., through redevelopment or assessment districts) as a means of overcoming minor street deficiencies. Curb, gutter, sidewalk and paving needs along Minor streets might alternatively be made the responsibility of affected property owners. Under this approach, the City could assume responsibility for engineering services and additional costs occasioned by higher standards of street construction and drainage than were involved at the time of original street construction. The City might also share equally in total costs where a majority of property owners are willing to accept assessment proceedings or another appropriate method of collective project financing.

Policy 4: Policies for Minor streets are intended to reflect options for reducing through traffic on minor streets between intersections with Arterials. This policy seeks to eliminate the use of Minor streets as thoroughfares through residential areas where they extend parallel to nearby Arterials or Collectors for many blocks and are often used as substitutes for Arterials and Collectors.

No specific proposals to improve or modify existing minor streets are included in the General Plan.

WEST LATHROP SPECIFIC PLAN

The West Lathrop Specific Plan (WLSP) contains four objectives intended to implement General Plan Goal No. 6, Transportation and Circulation:

Objective 6A: Provide a circulation system that accommodates necessary vehicular trips but emphasizes the ease and convenience of pedestrian, bicycle, boat, and public transit.

Objective 6B: Create a safe and efficient network of major and minor streets within West Lathrop, connecting it to surrounding areas and supplementing the regional circulation system.

Objective 6C: Participate in planning for circulation and/or transportation improvements that benefit West Lathrop and surrounding communities.

Objective 6D: Allow for the efficient movement of goods and people but minimize traffic disruptions of peaceful residential areas.

The WLSP assumed that several roadway improvements would be developed as part of the projects included in the plan. The Louise Avenue interchange would be improved to provide more on- and off-ramp lanes and additional lanes in the underpass. Golden Valley Parkway would be extended north of the intersection at Gold Rush Boulevard (now called River Islands Parkway) beyond the WLSP area to Lathrop Road when traffic warrants indicate through the ongoing traffic monitoring program. The City would participate on a “fair-share” basis with Caltrans, the County, and the City of Stockton to extend Golden Valley Parkway north to the City of Stockton as a parallel facility to I-5 so as to further the purposes of preserving the freeway for through traffic functions. The timing of this improvement would be determined by traffic monitoring and policy agreements among the local jurisdictions affected.

Golden Valley Parkway would also be extended south and then west of Stewart Tract as an expressway parallel to I-205, with a new interchange connection to I-205 at Paradise Road/Chrisman Road. This facility would be available when needed (as determined by traffic monitoring) to ease traffic demands on the Louise Avenue/I-5 interchange. Paradise Road would be improved to a four-lane median-divided arterial to provide an additional roadway connecting Stewart Tract to I-205.

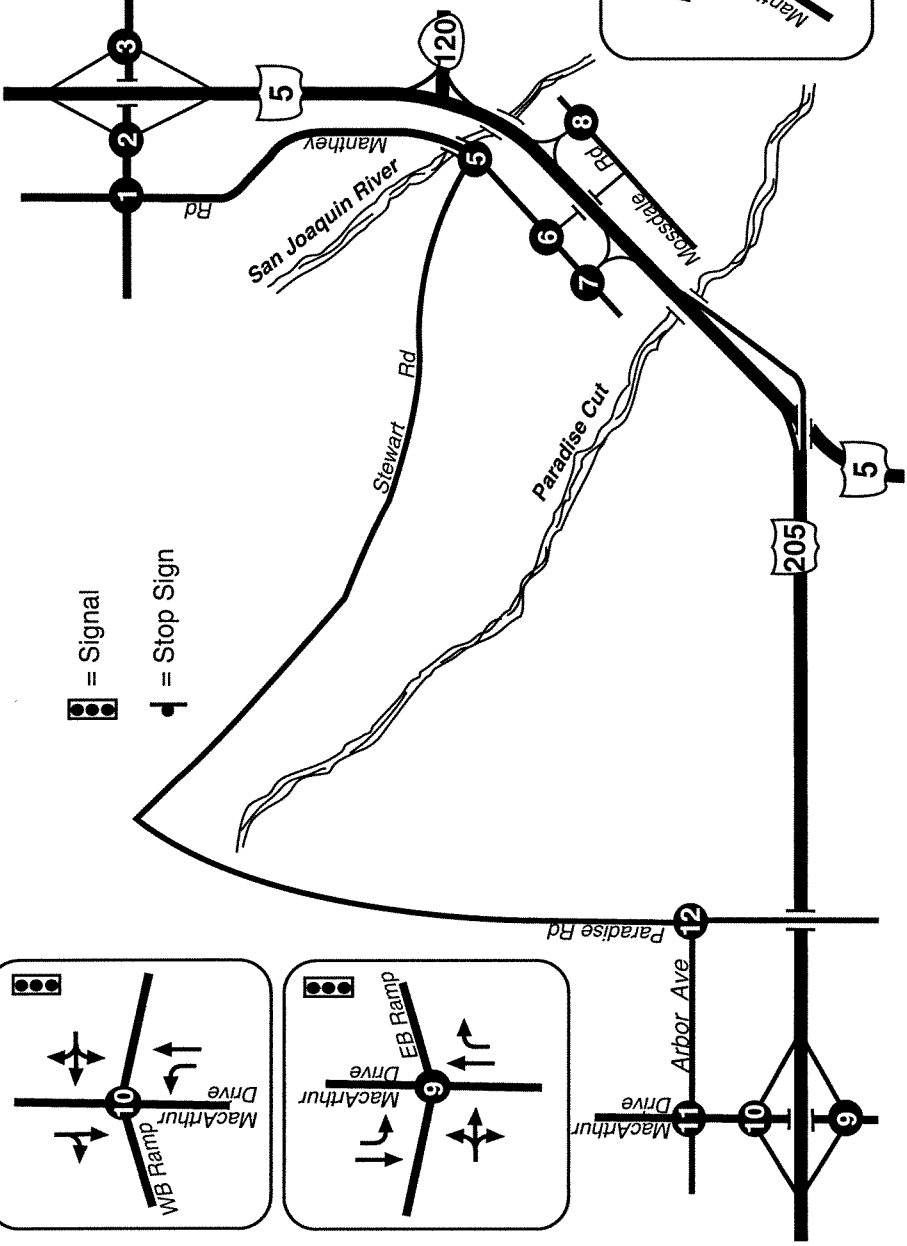
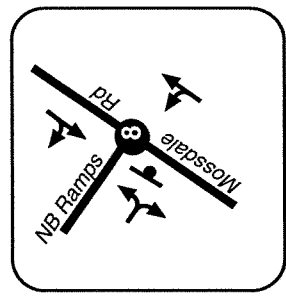
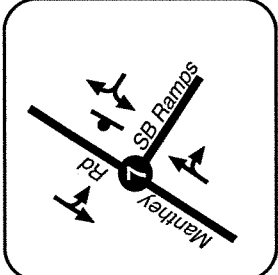
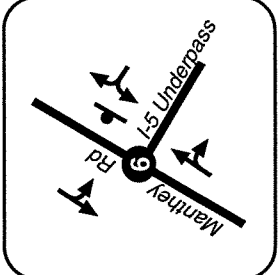
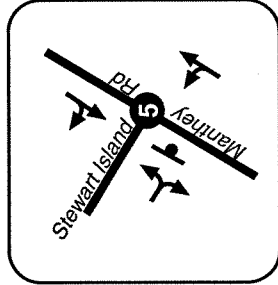
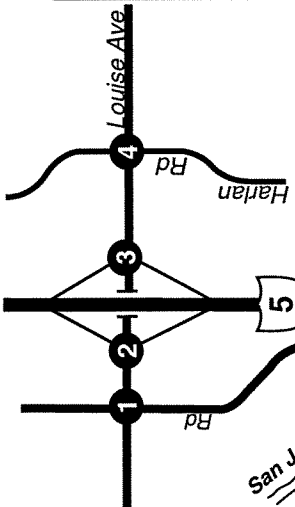
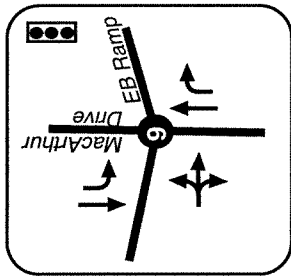
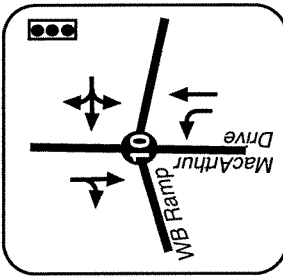
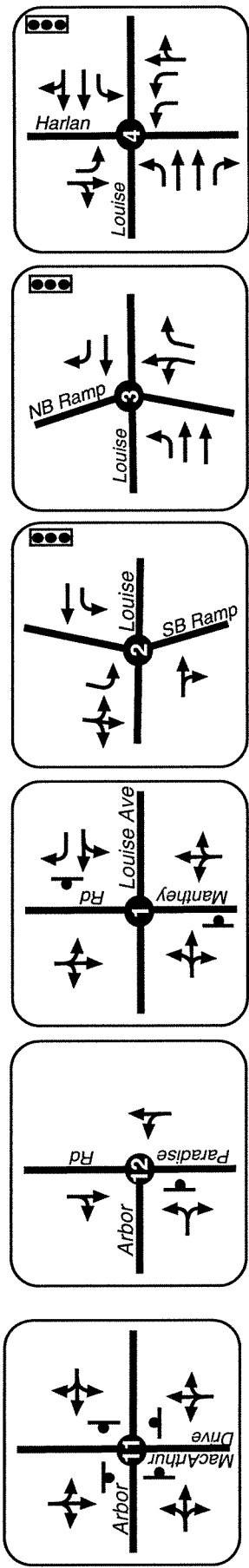
4.4.2 EXISTING CONDITIONS

ROADWAYS

Regional freeway access to the Lathrop area is provided by I-5, I-205, and SR 120. Local access is provided by Louise Avenue and Manthey Road to the north and west of the project site and by Paradise Road, Arbor Avenue, and MacArthur Drive to the south and west of the project site. See Exhibit 3-3. Each freeway or roadway is briefly described below. Existing intersection geometrics and controls are depicted in Exhibit 4.4-1.

I-5 is a major north-south thoroughfare in the City of Lathrop. It continues north of Lathrop to Stockton, Sacramento and Oregon and south of Lathrop through the San Joaquin Valley to Los Angeles and San Diego. In the project vicinity, it has three travel lanes in each direction and interchanges with Louise Avenue (directly east of the site), Lathrop Road (approximately 1 mile north of Louise Avenue), and Manthey Road and Mossdale Road (buttonhook ramps approximately 2.5 miles south of Louise Avenue). The Louise Avenue interchange is a tight diamond design with the north and southbound ramps signal controlled at their surface street intersections. Both off-ramps have two travel lanes in the vicinity of their surface street intersections. The southbound on-ramp has a single travel lane near Louise Avenue while the northbound on-ramp has two travel lanes near Louise Avenue. The posted speed limit on I-5 at the Louise Avenue interchange is 70 miles per hour (mph).

I-5 connects to SR 120 and I-205 approximately 1.5 and 4 miles south of the Louise Avenue interchange, respectively. I-205 extends westerly and provides access to/from the Bay Area, while SR 120 extends easterly and provides access to Manteca and State Route 99 (SR 99). I-5 has a minimum of five southbound and four northbound travel lanes between its connections to I-205 and SR 120.



= Signal
 = Stop Sign

Source: Crane Transportation Group 2002

Existing Intersection Geometrics and Control

River Islands at Lathrop
 CITY OF LATHROP
 G-11013.01 9/02

I-205 extends west from I-5 (just south of the City of Lathrop) to the City of Tracy and a connection with I-580. I-580 then continues westward across the Altamont Pass and into the Bay Area. I-205 has two travel lanes in each direction between I-5 and the 11th Street interchange in west Tracy and three travel lanes between 11th Street and I-580. The I-205 connection to I-5 allows eastbound I-205 to northbound I-5, and southbound I-5 to westbound I-205 movements only; there are no freeway-to-freeway ramps providing eastbound I-205 to southbound I-5, or northbound I-5 to westbound I-205 movements. The first interchange along I-205 west of I-5 is at MacArthur Drive, approximately 4.5 miles from the I-5/I-205 connection. The posted speed limit near I-5 is 70 mph. The MacArthur Drive interchange is a tight diamond design with the east and westbound ramps signal controlled at their surface street intersections. All on- and off-ramps have single travel lanes.

SR 120 is a four-lane freeway extending easterly from I-5 in the southern section of the City of Lathrop to the City of Manteca and a connection with SR 99. The posted speed limit is 65 mph.

Louise Avenue is an arterial roadway that extends west of I-5 almost to the San Joaquin River and east of the freeway through Lathrop to the City of Manteca. It has two lanes west of the freeway, four lanes in its underpass of I-5 between the north and southbound ramps intersections, and four lanes to the east of the freeway (to Howland Road, where it narrows to two lanes). In its 64-foot-wide (curb-to-curb) underpass of the freeway it has two eastbound lanes, one westbound lane and back-to-back left-turn pockets for turn movements to both the north and southbound freeway on-ramps.

Manthey Road is a two-lane local frontage road running in a north-south direction immediately west of I-5. It extends north to Stockton and south through Lathrop across the San Joaquin River. It ends near a set of single lane on- and off-hook ramps connecting to the southbound I-5. Left-turn lanes are not provided on the approaches to any intersection on Manthey Road. Pavement condition is good. Observed vehicle speeds ranged from 45 to more than 60 miles per hour in the project vicinity. Manthey Road has a bridge crossing of the San Joaquin River that contains two 13-foot travel lanes but no shoulder areas.

MacArthur Drive is a four-lane arterial roadway extending southerly of I-205 into Tracy and serving primarily industrial and commercial uses. North of the interchange it is a two-lane rural road (with minimal or no paved shoulders) serving agricultural uses and intermittent single family housing. Pavement condition is poor north of I-205. It has a three-lane underpass of I-205 with single north and southbound through lanes and back-to-back left turn lanes serving east and westbound on-ramp traffic. There is an additional 26 feet of pavement in the underpass that is now striped to preclude use by drivers, but which could eventually be used to provide two additional travel lanes.

Stewart Road is a poorly paved, two-lane rural road extending westerly from Manthey Road across the Stewart Tract. It is stop sign controlled at Manthey Road. The roadway ultimately connects to Paradise Road near the west end of the Stewart Tract. Stewart Road has numerous sharp horizontal curves as well as an at-grade crossing of a single track Union Pacific Railroad line near Manthey Road. The crossing is protected by gates and flashing lights. Much of the center portion of the road is closed to through traffic due to poor road conditions.

Paradise Road is a 21- to 22-foot-wide, two-lane rural roadway extending northerly onto the west end of the Stewart Tract via two bridges over Paradise Cut and southerly to Grant Line Road near Tracy. The roadway is lined by agricultural fields and intermittent residential units or farming operations, such as a dairy just north of Arbor Avenue. It has a two-lane overpass of I-205, although no ramps are provided at this location. North of Arbor Avenue there are no paved shoulders and pavement surface condition is adequate. However, some sections of the roadway are beginning to experience subsurface settlement which leads to a rolling sensation when driving. Slow-moving and oversize agricultural equipment uses Paradise Road on a regular basis. There are intermittent horizontal curves where reduced speed limits (as low as 30 mph) have been posted. There are no posted speed limits along the straight sections of the roadway north of I-205.

Mossdale Road is a two-lane frontage road extending along the east side of I-5 between the San Joaquin River and Paradise Cut. It provides access to single lane on- and off-hook ramps that connect to northbound I-5. Mossdale Road and Manthey Road are connected via a two-lane roadway in an underpass of I-5.

Arbor Avenue is a level and straight, 21- to 23-foot-wide two-lane rural roadway extending westerly from Paradise Road through an all-way-stop intersection with MacArthur Drive and into the City of Tracy. It runs parallel to and about a quarter-mile north of I-205. The roadway is also stop sign controlled at Paradise Road. Arbor Avenue has minimal to no paved shoulders and the condition of the pavement surface is generally adequate. However, subsurface settlement in a few areas does lead to a rolling sensation when driving. Slow moving and oversized agricultural equipment uses Arbor Avenue on a regular basis.

TRAFFIC VOLUMES

Weekday AM and PM peak period turn movement traffic counts (5:30-8:30 am and 4:00-6:00 pm) were conducted by Crane Transportation Group in June and August 2001 at four intersections in the study area:

- ▶ Louise Avenue/Manthey Road,
- ▶ Louise Avenue/I-5 southbound ramps,
- ▶ Louise Avenue/I-5 northbound ramps, and
- ▶ Louise Avenue/Harlan Road.

Weekday AM and PM peak period counts (5:30-8:30 AM and 4:00-6:00 PM) were also conducted by Crane Transportation Group in March 2002 at the following intersections:

- ▶ MacArthur Drive/I-205 eastbound ramps,
- ▶ MacArthur Drive/I-205 westbound ramps,
- ▶ MacArthur Drive/I-205 Arbor Avenue,
- ▶ Arbor Avenue/Paradise Road,
- ▶ Manthey Road/I-5 southbound hook ramps,
- ▶ Mossdale Road/I-5 northbound hook ramps, and
- ▶ Manthey Road/I-5 underpass connection to Mossdale Road.

In addition, weekday AM and PM peak period counts of I-5 (between the Lathrop Road and Louise Avenue interchanges and to the south of I-205), SR 120 (between I-5 and the Yosemite Avenue interchange), and I-205 (just west of I-5) were conducted by Crane Transportation Group in June or August 2001. All intersection and freeway counts differentiated between autos and trucks. Intersection volumes are presented in Appendix B.

The AM peak traffic hours along Louise Avenue varied by intersection between Manthey Road and Harlan Road. Peaks ranged between 6:45-7:45 and 7:15-8:15 AM. A 7:00-8:00 AM system peak captures the overlapping peaks and was used for evaluation purposes. At the I-205/MacArthur Drive interchange, the 7:00-8:00 AM period was also the highest hour of traffic during the AM commute. The local freeway network was observed to experience three AM commute peaks. An early morning (4:45-5:45 AM) peak occurs on westbound I-205 which also causes congestion on the southbound I-5 and westbound/southbound SR 120 approaches to the I-205 diverge from I-5. However, other than these early morning commuters to the Bay Area, observations indicate minimal surface street traffic and low reverse flow traffic on any local freeway during this period. The second highest directional flows on the local freeways were observed to occur between 6:30 and 7:30 AM on southbound I-5 and on both westbound I-205 and SR 120 (when local area land uses begin to have their overall highest trip generation of the morning). However, the highest two-way flows on I-5 occurred generally between 7:00 and 8:00 AM, after most of the Bay Area commute was completed, but in the middle of reverse-direction commutes toward Stockton and the SR 99 corridor. Because the 6:30-7:30 AM peak hour also produces capacity-constrained operation along I-205 and begins to overlap the times of peak AM congestion on the local surface street network, volumes from this period were used for morning commute freeway analysis. It should also be noted that the regional traffic model's AM peak-hour projections reflect conditions during a 6:30-8:30 AM period, and not a highly one directional peak between 4:30 and 5:30 AM. The PM peak traffic hour at both the Louise Avenue and MacArthur Drive interchanges and along most locations on the local freeway network was 4:30 to 5:30.

The June and August 2001 peak period freeway counts were conducted on Thursdays. While historical count data indicates that Thursdays typically have slightly higher traffic levels than average weekday volumes, the Thursday counts were used to provide a conservative analysis. Adjustments were made to June and August volumes, however, to reflect annual average traffic levels as determined through the relationship between June and August versus annual average daily traffic for I-5, I-205, and SR 120 in the project area.

INTERSECTION OPERATION

Methodology

Signalized Intersections

Intersections, rather than roadway segments between intersections, are almost always the capacity-controlling locations for any circulation system. Signalized intersection operation is graded based upon two different scales. The first scale employs a grading system called level of service (LOS), which ranges from LOS A, indicating uncongested flow and minimum delay to drivers, down to LOS F,

indicating significant congestion and delay on most or all intersection approaches. The LOS scale is also associated with a control delay tabulation (year 2000 Transportation Research Board (TRB) *Highway Capacity Manual* [HCM] operations method) at each intersection. The control delay designation allows a more detailed examination of the impacts of a particular project. Greater detail regarding the LOS/control delay relationship is provided in Appendix B, Appendix Table 1.

Unsignalized Intersections

Unsignalized intersection operation is also typically graded using the LOS A through F scale. LOS ratings for all-way stop intersections are determined using a methodology outlined in the year 2000 TRB *Highway Capacity Manual*. Under this methodology, all-way stop intersections receive one LOS designation reflecting operation of the entire intersection. Average control delay values are also calculated. Intersections with side streets only stop-sign control (two-way stop control) are also evaluated using the LOS and average control delay scales using a methodology outlined in the year 2000 TRB *Highway Capacity Manual*. However, unlike signalized or all-way stop analysis where the LOS and control delay designations only pertain to the entire intersection, in side street stop-sign control analysis LOS and delay designations are computed for only the stop-sign controlled approaches or individual turn and through movements. Appendix Tables 2 and 3, in Appendix B, provide greater detail about unsignalized analysis methodologies.

Acceptable Intersection Level of Service Operating Standards

- The City of Lathrop uses LOS D as the poorest acceptable operation at signalized intersections.
- However, it has no minimum published standard for all-way-stop or side street stop-sign controlled intersections. City staff (Batista, pers. comm., 2001) has indicated that the City equates all-way-stop minimum standards to signalized standards of LOS D, while the minimum LOS for movements at side street stop-sign controlled intersections is considered LOS E.

The City of Tracy uses LOS D as the poorest acceptable operation at signalized and all-way-stop intersections along the I-205 corridor (Sharma, pers. comm., 2002). San Joaquin County uses LOS C as the poorest acceptable operation at signalized, all-way-stop and side street stop sign controlled intersections as well as along two-lane rural roads (Karam, pers. comm., 2002).

Existing Intersection Level of Service

Table 4.4-1 shows that all analyzed intersections are currently operating at good to acceptable levels of service during both the AM and PM commute peak traffic hours.

**Table 4.4-1
Intersection Level of Service
Existing**

Intersection	AM Peak Hour	PM Peak Hour
Manthey Road/I-5 southbound hook ramps (Off-Ramp Stop Sign Controlled)	A-0.0 ¹	A-0.0
Mosssdale Road/I-5 northbound hook ramps (Off-Ramp Stop Sign Controlled)	A-8.6 ¹	A-9.1
Manthey Road/I-5 underpass from Mosssdale Road (Underpass Stop Sign Controlled)	A-8.8 ²	A-8.9
Manthey Road/Stewart Island Road (Stewart Island Stop Sign Controlled)	A-8.6 ³	A-8.7
Manthey Road/Louise Avenue (Louise Avenue Stop Sign Controlled)	A-9.7/A-8.5/A-9.1 ⁴	B-10.8/A-9.0/B-10.2
Louise Avenue/I-5 southbound ramps (Signal)	B-16.0 ⁵	B-19.1
Louise Avenue/I-5 northbound ramps (Signal)	B-13.2 ⁵	A-9.7
Louise Avenue/Harlan Road	B-16.0 ⁵	B-17.5
MacArthur Drive/I-5 westbound ramps	B-12.6 ⁵	B-14.1
MacArthur Drive/I-5 eastbound ramps	A-7.5 ⁵	A-6.8
MacArthur Drive/Arbor Avenue	A-7.5 ⁶	A-7.6
Arbor Avenue/Paradise Road	A-8.6 ⁷	A-8.7

- ¹ Unsignalized level of service—average control delay in seconds—Off-ramp stop sign controlled approach.
- ² Unsignalized level of service—average control delay in seconds—Underpass stop sign controlled approach to Manthey Road.
- ³ Unsignalized level of service—average control delay in seconds—Stewart Island Road stop sign controlled approach to Manthey Road.
- ⁴ Unsignalized level of service—average control delay in seconds—Louise Avenue westbound stop sign controlled through-left turn/right turn/Louise Avenue eastbound stop sign controlled approach.
- ⁵ Signalized level of service—control delay in seconds.
- ⁶ All way stop level of service—average control delay in seconds.
- ⁷ Unsignalized level of service—average control delay in seconds. Arbor Avenue stop sign controlled approach to Paradise Road.

Year 2000 Highway Capacity Manual Operations Methodology
Source: Crane Transportation Group

VEHICLE QUEUES AT INTERSECTIONS

Methodology

Vehicle queuing on the Louise Avenue approaches to the I-5 north and southbound ramp intersections and on the approaches to the nearby Manthey Road intersection as well as queuing on the MacArthur Drive approaches to the I-205 east and westbound ramp intersections was observed by Crane Transportation Group staff during recent traffic counts. In addition, at Caltrans' request, existing (theoretical) and expected future condition queuing at these locations was projected.

Existing Queuing

While all intersections analyzed for this study are currently operating acceptably from a LOS standpoint, field observations indicate that westbound vehicles on Louise Avenue turning left to the southbound I-5 on-ramp occasionally back out of the 190-foot-long westbound left-turn pocket, primarily during the AM peak hour and only infrequently during the PM peak hour. As shown in Table 4.4-2, the queuing evaluation does not predict an existing demand greater than available storage for the westbound Louise Avenue left turn movement to the I-5 southbound on-ramp during either the AM or PM peak hour. However, the analysis assumes interconnected synchronized signal operation between adjacent intersections, which is not currently the case at the Louise Avenue intersections with the north and southbound freeway ramps.

At the MacArthur Drive/I-205 interchange there were no vehicle queues observed exceeding the available length of turn pockets or through lanes in the MacArthur Drive underpass of the freeway. Table 4.4-2 also shows that the queuing evaluation predicts an existing demand less than available storage along MacArthur Drive at both the east and westbound I-205 ramp intersections.

INTERSECTION SIGNALIZATION NEEDS (WARRANTS)

Methodology

Traffic signals are used to provide an orderly flow of traffic through an intersection. Many times they are needed to offer side street traffic an opportunity to access a major road where high volumes and/or high vehicle speeds block crossing or turn movements. They do not, however, increase the capacity of an intersection (i.e., increase the overall intersection's ability to accommodate additional vehicles) and, in fact, often slightly reduce the number of total vehicles that can pass through an intersection in a given period of time. Signals can also cause an increase in traffic accidents if installed at inappropriate locations.

There are eleven possible tests for determining whether a traffic signal should be considered for installation. These tests, called "warrants," consider criteria such as actual traffic volume, pedestrian volume, presence of school children, and accident history. Usually, two or more warrants must be met before a signal is installed. In this report, the test for Peak-hour Volumes (Warrant #11) has been

**Table 4.4-2
Vehicle Queues¹ & Available Storage
Existing**

Intersection	# Approach Lanes	Total Storage Distance Per Lane: Feet/ (Vehicles) ²	AM Peak Hour		PM Peak Hour	
			Vehicle Queue Per Lane: ² Feet/ (Vehicles)	Does Available Storage Accommodate Demand? (Yes/no)	Vehicle Queue Per Lane: ² Feet/ (Vehicles)	Does Available Storage Accommodate Demand? (Yes/no)
Louise Avenue/U.S.101 Northbound Ramps (Signal) EB Through EB Left	2	390'/(15)	159/(7)	Yes	157/(7)	Yes
	1	100'/(4)	3/(1)	Yes	6/(1)	Yes
Louise Avenue/U.S.101 Southbound Ramps (Signal) WB Through WB Left EB Through/Right	1	390'/(15)	30/(2)	Yes	59/(3)	Yes
	1	190'/(7)	41/(2)	Yes	0/(1)	Yes
	1	190'/(7)	35/(2)	Yes	84/(4)	Yes
Louise Avenue/Manthey Road (Louise Avenue Stop Sign Control) WB Through/Left WB Right	1	185'/(7)	5/(1)	Yes	6/(1)	Yes
	1	50'/(2)	5/(1)	Yes	0/(1)	Yes
MacArthur Dr./I-205 WB Ramps (Signal) NB Left NB Through	1	110'/(4)	3/(1)	Yes	6/(1)	Yes
	1	230'/(9)	10/(1)	Yes	12/(1)	Yes
MacArthur Dr./I-205/ EB Ramps (Signal) SB Left SB Through	1	70'/(3)	0/(1)	Yes	2/(1)	Yes
	1	230'/(9)	12/(1)	Yes	46/(2)	Yes

¹ 95th Percentile Maximum Queue Demand Based upon SYNCHRO Year 2000 Highway Capacity Manual Intersection and Queuing Analysis Methodology.

² Distance reflects 25 feet per vehicle.

SYNCHRO Year 2000 Highway Capacity Manual Analysis Methodology at all intersections.

Source: Crane Transportation Group

applied. In communities with less than 10,000 people, or along roadways where speeds on the uncontrolled intersection approaches are greater than 40 miles per hour, a rural, rather than urban warrant is applicable. Rural warrants only require 70 percent of the volume levels of urban warrants. When Warrant 11 is met there is a strong indication that a detailed signal warrant analysis covering all possible warrants is appropriate.

Existing Need for Signalization

Currently, none of the unsignalized intersections analyzed for this study have AM or PM peak-hour volumes close to meeting peak-hour signal warrant criteria levels.

FREEWAY MAINLINE OPERATION

Methodology

Freeway operation has been evaluated based upon methodology contained in the year 2000 TRB Highway Capacity Manual. Operating conditions are reported as a LOS, vehicle speed and density of traffic per lane, and are based upon number of lanes, volumes, percent trucks, percent recreational vehicles and terrain.

Acceptable Standards

Caltrans uses LOS D (Yamzon, pers. comm., 2001) as the poorest acceptable operation for freeways in the Lathrop/Tracy area.

Existing Freeway Operation

Table 4.4-3 shows that during the AM peak hour all local freeway segments along I-5, I-205 and SR 120 are operating at acceptable levels of service with the following exception: westbound I-205 west of I-5 is currently operating at LOS E. It should also be noted that congestion on westbound I-205 can back traffic up along southbound I-5 on the two lanes leading to I-205. This produces LOS D to LOS E operation along these two lanes, while the three lanes leading to I-5 south of the I-205 diverge experience LOS A operation. Table 4.4-3 also shows that during the PM peak hour all local freeway segments are operating at acceptable levels of service with the following exception: eastbound I-205 west of I-5 is currently operating at LOS E. It should be noted, however, that on the sections of I-205 theoretically projected (by volume levels) to be operating at LOS E, observed speeds are more reflective of LOS F operation.

RAMP MERGE/DIVERGE OPERATION WITH FREEWAY MAINLINE

Methodology

An analysis has been conducted of operating conditions at freeway off-ramp diverge and freeway on-ramp merge locations with the freeway mainlines. Year 2000 TRB Highway Capacity Manual software

**Table 4.4-3
Freeway Segment Level of Service
Existing**

Location	Direction	# Lanes	AM Peak Hour	PM Peak Hour
I-5 North of Louise Avenue interchange	NB	3	A	C
	SB	3	C	B
I-5 Between Louise Avenue & SR120	NB	3	A	C
	SB	3	C	B
I-5 Between SR120 and Manthey/Mosssdale hook ramps	NB	4	A	C
	SB	5	B*	B
I-5 Between Manthey/Mosssdale hook ramps and I-205	NB	5	A	C
	SB	5	B*	B
I-5 just south of I-205	NB	2	A	B
	SB	3	A	A
I-205 between I-5 and MacArthur Drive interchange	EB	2	A	E
	WB	2	E	C
I-205 west of MacArthur Drive	EB	2	A	D
	WB	2	D	B
SR120 just east of I-5	EB	2	A	C
	WB	2	C	B

* Congestion on westbound I-205 can produce slow moving traffic that extends back into these two freeway segments. Operation of the two southbound lanes on I-5 leading to I-205 can be more reflective of LOS E operation, while operation of the three lanes nearest the median leading to I-5 south of the I-205 diverge is more reflective of LOS A operation.

Year 2000 Highway Capacity Manual Analysis Methodology
Source: Crane Transportation Group

was used for the analysis. Operating conditions are presented as a level of service and consider density (passenger cars per lane per mile). The Louise Avenue/I-5 interchange ramps, the MacArthur Drive/I-205 interchange ramps, the Manthey Road/I-5 hook ramps, the Mosssdale Road/I-5 hook ramps, and future Paradise Road-Chrisman Road/I-205 interchange ramps have been evaluated. The Paradise Road/Chrisman Road/I-205 interchange is planned by the City of Tracy to accommodate growth primarily south of I-205 between 2015 and 2025, or whenever the MacArthur Drive interchange is unable to accommodate future growth.

Merge/Diverge Acceptable Standards

Caltrans uses LOS D as the poorest acceptable operations for freeway merge/diverge locations in the Lathrop/Tracy area.

Existing Freeway Ramp Merge/Diverge Operation

Table 4.4-4 shows that all freeway ramp/freeway mainline merge/diverge locations at the Louise Avenue, Manthey Road, Mossdale Road and MacArthur interchanges are operating acceptably during both AM and PM peak-hour traffic conditions with four exceptions. During the AM peak hour the merge from the Manthey Road southbound hook on-ramp to southbound I-5 operates at LOS E conditions and the westbound I-205 diverge operates unacceptably at LOS E. Likewise, during the PM peak hour the eastbound I-205 diverge to the MacArthur Drive off-ramp operates unacceptably at LOS E, while the MacArthur Drive eastbound on-ramp merge also operates unacceptably at LOS F.

Table 4.4-4 Freeway Ramp Merge/Diverge Level of Service Existing						
Interchange	Ramp	Condition	Ramp Lanes	Freeway Lanes	AM Peak Hour	PM Peak Hour
I-5/Louise Avenue	NB Off	Diverge	1	3	B	C
	NB On	Merge	1	3	B	C
	SB Off	Diverge	1	3	C	B
	SB On	Merge	1	3	C	B
I-5/Manthey Road	SB Off	Diverge	1	5	D	B
	SB On	Merge	1	5	E	B
I-5/Mossdale Road	NB Off	Diverge	1	5	B	C
	NB On	Merge	1	4	A	B
I-205/MacArthur Drive	EB Off	Diverge	1	2	B	E
	EB On	Merge	1	2	B	F
	WB Off	Diverge	1	2	E	C
	WB On	Merge	1	2	D	C
<i>Year 2000 Highway Capacity Manual Analysis Methodology</i> <i>Source: Crane Transportation Group</i>						

FREeway WEAVING OPERATION

During a 3-year time span (ending in late 2007), the proposed project's first 800 residential units would be gaining access from Manthey Road in close proximity to the Manthey Road and Mossdale Road hook ramps with I-5. The majority of project traffic would be using these ramps and a component of the traffic using the ramps would be conducting weaving movements across portions of the freeway-to-freeway connections between I-5/SR 120 and I-5/I-205.

Caltrans has requested evaluation of the maximum project weaving impact to the north and south of each hook ramp connection to I-5 as part of this SEIR. Therefore, existing weaving conditions between the I-5/SR 120, and I-5/I-205 freeway-to-freeway connections are described here. From an operations point of

view, weaving can more easily be understood by viewing a section of freeway that has two interchanges that are located very close to one another. To understand this better, assume, for example, that the first interchange allows traffic to enter the freeway only from the left (near the median) and that the second interchange allows traffic to exit the freeway only to the right. If a motorist enters from the first interchange and then wishes to exit at the next interchange, he or she must first merge with the traffic in the lane nearest the median, and then repeatedly change lanes until reaching the lane nearest the right. When a vehicle enters from one side (left) and needs to exit to the other side (right), this is considered a weaving movement. If the volume of traffic on the freeway is high, and the distance between the interchanges is short, weaving can be a concern.

Methodology

At Caltrans District 10 Operations staff direction, the Leish weaving evaluation methodology has been used for this analysis. The details of this methodology is contained in *Procedure for Analysis and Design of Weaving Sections—A User’s Guide*, by Jack E. Leish & Associates, 1985. The Caltrans LOS D analysis methodology was not considered applicable for use in this SEIR given the lane configurations of the I-5/SR 120 and I-5/I-205 freeway-to-freeway merges and diverges and the distances between the hook ramps and the freeway-to-freeway interchanges. Both the Leish and Caltrans methodologies use LOS to define operations.

Weaving Acceptable Standards

Caltrans uses LOS D as the poorest acceptable operation for freeway weaving sections in the Lathrop/Tracy area.

Existing Weaving Operation

For use of the **Leish Method**, both the north and southbound I-5 segments have been divided into the following two-sided weaving sections:

1. Northbound
 - a. I-5/I-205 merge to the Mossdale Road NB off-ramp.
 - b. Mossdale Road NB on-ramp to I-5/SR 120 diverge

2. Southbound
 - a. I-5/SR 120 merge to the Manthey Road SB off-ramp.
 - b. Manthey Road SB on-ramp to I-5/I-205 diverge.

For each of the segments upstream of the hook off-ramps (1.a. and 2.a.), the weaving movement takes place when vehicles on I-5 chose to take the hook off-ramps. The I-5 lanes are adjacent to the median while the SR 120 and I-205 lanes are adjacent to the outside shoulder and therefore to the off-ramps. The only weaving movement to either the Manthey Road or Mossdale Road off-ramps would come from I-5 traffic. Any driver along I-5 desiring to weave across the incoming traffic from I-205 or SR 120 lanes to access either hook off-ramp would begin their weave immediately after the I-5/I-205 or I-5/SR 120

merges. Thus, each of these weaving drivers would encounter the full volume of traffic entering the merge areas on I-205 or SR 120.

For each of the segments downstream of the hook on-ramps (1.b. and 2.b.), the weaving movement takes place when vehicles entering the freeway from the hook ramps chose to continue on I-5 rather than to take the next off-ramp at I-205 or SR 120. The I-5 lanes are adjacent to the median while the lanes leading to I-205 (westbound) and SR 120 (eastbound) are adjacent to the outside shoulder and therefore to the on-ramps. The only weaving movement from either the Manthey Road or Mossdale Road hook on-ramps would go to the I-5 lanes. Any hook on-ramp driver wishing to weave across the freeway lanes leading to I-205 or SR 120 in order to reach the I-5 lanes would also act in a manner that can be evaluated using a two-sided weaving section. The assumption is that any weaving vehicle would encounter the full volume of traffic exiting the freeway-to-freeway diverge areas on I-205 or SR 120.

Table 4.4-5 shows that during the AM peak traffic hour, the northbound weave movements between the I-5 travel lanes and the Mossdale Road on-off hook ramps are operating at LOS A, while in the southbound direction the weave from I-5 to the Manthey Road off-ramp is operating at LOS C and the weave from the Manthey Road on-ramp to I-5 is operating unacceptably at LOS F. During the PM peak hour the southbound weave movements are operating acceptably at LOS A or C, while in the northbound direction the weave movements between I-5 and the Mossdale Road on-off hook ramps are both operating unacceptably at either LOS E or F.

TWO-LANE RURAL ROADWAY OPERATION

River Islands development would eventually begin to use Paradise Road for access to the central and western sections of the project site. Paradise Road, in conjunction with Arbor Avenue and MacArthur Drive, would provide access to I-205, initially via the existing MacArthur Drive interchange and ultimately via a new interchange with Paradise Road. All three facilities are two-lane rural roadways.

Methodology

The year 2000 Highway Capacity Manual two-lane highway analysis has been used to evaluate operating conditions on rural roadways likely to be affected by project traffic.

Acceptable Standards

San Joaquin County uses LOS C as the poorest acceptable operation for rural two-lane roads (Paradise Road and Arbor Avenue in the study area) (McDowell, pers. comm., 2002).

The City of Tracy uses LOS D as the poorest acceptable operation for rural two-lane roads in the vicinity of I-205 (MacArthur Drive between I-205 and Arbor Avenue) (Sharma, pers. comm., 2002).

Table 4.4-5 I-5 Weave Analysis Between SR 120 and I-205 (Caltrans Leish Method) Existing		
Northbound I-5		
Location	AM Peak Hour LOS	PM Peak Hour
	LOS	LOS
From I-205 Merge to Mossdale Road Off-Ramp Diverge (3,160 feet) I-5 NB Weave to Off-Ramp	A	F
From Mossdale Road On-Ramp Merge to SR120 Diverge (1,620 feet) On-Ramp Weave to I-5 NB	A	E
Southbound I-5		
Location	AM Peak Hour LOS	PM Peak Hour
	LOS	LOS
From SR120 Merge to Manthey Road Off-Ramp Diverge (2,200 feet) I-5 SB Weave to Off-Ramp	C	A
From Manthey Road On-Ramp Merge to I-205 Diverge (2,900 feet) On-Ramp Weave to I-5 SB	F	C
<i>Source: Crane Transportation Group</i>		

Existing Two-Lane Roadway Operation

Table 4.4-6 shows that Paradise Road, Arbor Avenue (between Paradise Road and MacArthur Drive) and MacArthur Drive (between I-5 and Arbor Avenue) are all currently operating at LOS B during the AM and PM peak traffic hours. However, none of the three roads meet minimum County or City standards of having 12-foot-wide travel lanes and four- to eight-foot-wide paved shoulders.

PUBLIC TRANSIT

The San Joaquin Regional Transit District (SJRTD) SMART Route 20 travels along I-5 in the Lathrop area and uses the Lathrop Road and Louise Avenue interchanges to access the Lathrop City street system east of the freeway. This route extends north to downtown Stockton and Lodi and south (and west) to Tracy. There are 12 buses each day both northbound and southbound. The first buses depart at about 5:45 a.m. and the last buses depart at about 6:15 p.m. Service runs seven days a week with the exception of six major holidays. There is also SJRTD SMART County Area Transit (CAT) fixed route service (no number) between Manteca, Lathrop and French Camp. The bus runs along Harlan Road and along Louise Avenue east of Harlan Road. There are five buses in each direction seven days a week. The first bus departs at 7:00 a.m. and the last bus departs at about 5:45 p.m.

Table 4.4-6 Rural Two-lane Highway Level of Service Existing		
Location	AM Peak Hour	PM Peak Hour
Paradise Road (Arbor Avenue to Paradise Cut)	B	B
Paradise Road (Arbor Avenue to I-205)	B	B
Arbor Avenue (Paradise Road to MacArthur Drive)	B	B
MacArthur Drive (Arbor Avenue to I-205)	B	B
<i>Year 2000 Highway Capacity Manual Analysis Methodology. Source: Crane Transportation Group</i>		

EXISTING IMPROVEMENT PROGRAMS

There are two existing programs for funding roadway improvements in Lathrop. The first is the City of Lathrop Capital Facility Fee (CFF) program. This CFF was last updated in 1995, before annexation of the WLSP. The program identified needed improvements in several categories: intersection widenings (six locations), traffic signals (five locations), other improvements (frontage improvements along Sharpe Depot, railroad grade separations and park-n-ride lot), and freeway interchanges (three locations). The fee is currently approved only for projects east of I-5. The fee program noted that it needed to be expanded west of I-5 after new areas are annexed. Specific improvements important to this project include interchange improvements at I-5/Louise Avenue. The fee is increased based on the construction cost index in the Engineering News Record (ENR). The ENR index for 1995 was 5439 and for 2002 is 6605, which represents an increase of 21% in the funds to be collected. The funds to be collected for the three interchanges identified and the approved traffic fee (including all categories of improvements) for different land uses are as follows:

Location	1995 estimate	2002 estimate (+21%)
I-5/Louise Avenue	\$5,716,500	\$6,942,000
I-5/Lathrop Road	\$7,016,500	\$8,521,000
I-5/Roth Road	\$2,200,000	\$2,672,000
Total	\$14,933,000	\$18,134,000

Land Use Category	1995 Fee	2002 Fee (*1.21)
Single-family unit	\$2,674	\$3,247
Multifamily unit	\$1,964	\$2,385
Commercial (1,000 sf)	\$3,651	\$4,434
Industrial (1,000 sf)	\$1,074	\$1,304

The costs for improvements to the interchanges included Stage I costs and a portion (32.11%) of the Stage II improvements for the Lathrop Road and Louise Avenue interchanges. Stage II improvements at Roth Road were not anticipated to be needed by 2010. The balance (67.89%) of the costs for Stage II improvements was anticipated to come from development on the west side of I-5. Without further refinement, this amounts to a 2002 fee of \$14,677,000 anticipated for the I-5/Louise Avenue interchange from development on the west side of I-5.

The second roadway fee program in Lathrop is the **West Lathrop Specific Plan Regional Transportation Fee** (Regional Transportation Fee). Subsequent to approval of the WLSP by the City of Lathrop, the San Joaquin Council of Governments (SJCOG) and Caltrans worked with the City of Lathrop to develop the Regional Transportation Fee in 1997. This regional fee was adopted as a mitigation program to calculate new development’s fair share of regional improvements needed in San Joaquin County, including improvements to mainline freeways, freeway interchanges, regional streets, the regional bicycle system, and the bus transit system, as well as rail corridor improvements. Caltrans determined the improvements needed in the County to provide acceptable operation of regional facilities. Caltrans and SJCOG provided cost estimates for the improvements. Mainline freeway improvements include expansion of State Routes (SR) 4, 12, 26, 88, and 99, as well as widening of SR 120 to six lanes, I-5 to eight lanes through Lathrop and to 12 lanes between SR 120 and I-205, I-205 to eight lanes and I-580 to six lanes. The Regional Transportation Fee also accounted for reasonable assumptions regarding anticipated federal and state funding, as well as local impact fee funding. The balance of approximately \$508 million was divided among the development projects anticipated within the County over the next 25 years. The result was the establishment of a fee for regional improvements. The calculated fee is as follows:

Single family	\$2,463 per single-family dwelling unit
Multifamily	\$1,611 per multifamily unit
Retail	\$2,097 per 1,000 square feet of floor space
Service uses	\$1,465 per 1,000 square feet of floor space

The fee for other land uses is dependent on the traffic generation of the land use. This fee was established as a mitigation measure to account for the fair share cost of these regional facilities. As such, payment of the Regional Transportation Fee into an account held by the City of Lathrop and used for construction of these regional improvements is anticipated to mitigate for the regional traffic impacts of the WLSP to these facilities. Under this program, the City of Lathrop decides the order and the timing of the construction of these facilities in its Sphere of Influence. The Regional Transportation Fee, adopted by the City of Lathrop as Ordinance No. 97-146 on September 16, 1997, applies to the entire WLSP area.

Specific improvements in the project area included in the Regional Transportation Fee are as follows:

Mainline Highway Improvements

<u>Facility</u>	<u>Limits</u>	<u>Improvement</u>	<u>Fee Contribution</u>
SR 120	I-5 to SR 99	Widen to six lanes	\$8,450,000
I-5	I-205 to SR 120	Widen to 12 lanes	\$11,505,000
I-5	I-205 to SR 120	Add southbound auxil. lane	\$6,500,000
I-5	SR 120 to French Camp	Widen to eight lanes	\$14,495,000
I-5	@ San Joaquin River	Add bridge over river	\$10,000,000
I-205	I-580 to I-5	Widen to eight lanes	\$27,950,000

Interchange Improvements

<u>Facility</u>	<u>Improvement</u>	<u>Fee Contribution</u>
SR 120 westbound @ I-5 northbound	Add branch connection	\$7,500,000
I-5 southbound to SR 120 eastbound	Add branch connection	\$7,500,000
I-5 @ Lathrop Road	Modify interchange	\$4,500,000
I-5 @ Lathrop Road	Add four lanes under I-5	\$660,000
I-205 @ Paradise/Chrisman	Add interchange	\$13,440,000
I-5 @ Louise Avenue	Included in Golden Valley Pkwy improvements below	

Regional Street Improvements

<u>Facility</u>	<u>Limits</u>	<u>Improvement</u>	<u>Fee Contribution</u>
Lathrop Road	I-5 to UPRR	Widen to four lanes	\$91,000
Golden Valley Pkwy	Mtn. House Pkwy to Paradise Road	Add six-lane road	\$18,655,000
Golden Valley Pkwy	Paradise Road to Lathrop Road	Add six-lane road	\$41,503,000
Golden Valley Pkwy	Lathrop Road to El Dorado (over I-5)	Add four-lane road	\$16,433,000

Bus Transit Improvements

<u>Facility</u>	<u>Limits</u>	<u>Improvement</u>	<u>Fee Contribution</u>
10 Dial-a-ride buses, 36 intercity buses, and 36 interregional buses			\$3,006,000

Rail Corridor Improvements

<u>Facility</u>	<u>Limits</u>	<u>Improvement</u>	<u>Fee Contribution</u>
Track work and Lathrop/Manteca/Tracy multi-modal stations			\$8,351,000

The total cost of these nearby improvements is more than \$200 million. However, the total Countywide funding from the Regional Transportation Fee is \$508 million. According to detailed estimates by Caltrans and SJCOG included in the Regional Transportation Fee program, this fee would leverage an additional \$863 million in other funds (including State STIP, federal bus and rail, Measure K, local impact fee, and other state and county transit funds) to fund \$1,371,000,000 in regional improvements in San Joaquin County. In other words, if all the other cities in San Joaquin County join with Lathrop to pay this fee for all new development, \$1,371,000,000 in regional improvements would be financed.

In addition to the funding programs noted above, there is a **Stewart Tract Traffic Mitigation Monitoring Program** in the existing Development Agreement by and between the City of Lathrop, Califia Development Group and Rudy Dell’Osso relating to Stewart Tract (Development Agreement). The River Islands at Lathrop project would be constructed over 25 years, so all the roadway improvements would not be built initially. This monitoring program is important because it establishes performance standards and the details of how the operation of the roadway system is to be monitored, as well as how improvements are to be scheduled for construction to avoid the roadway system falling below acceptable standards. General details of the existing program are found in Article 6 of the Development Agreement, “Commitments of City and Califia related to Public Improvements.” A summary follows.

Section 6.01.02, “Basic Requirement,” mandates that each Urban Design Concept (UDC) include infrastructure improvements designed based on appropriate traffic studies and other relevant information to satisfy the performance standards. Compliance with these performance standards is to be monitored annually, with noncompliance triggering a “remediation plan.”

Section 6.02, “Monitoring and Remediation,” states, “To ensure that the design solutions reflected in the UDCs shall satisfy the Performance Standards as actual development proceeds, the parties shall cooperate to monitor compliance with the Performance Standards and take steps to remedy any non-compliance as described below.” The City is required to conduct an annual evaluation of whether the project is in full compliance with the performance standards. This performance evaluation is conducted concurrently with “MMP Evaluation” and the “Development Agreement Review” as part of the “Annual Review” following procedures in Article 10. This performance evaluation includes analysis based on assumptions determined by the City, collection of other information, evaluation of the extent to which the project may generate the need for additional traffic improvements 2 years after the date of the performance evaluation (the “Two-Year Look”), and an evaluation of the extent to which the project may generate the need for additional traffic facilities 4 years after the date of the performance evaluation (the “Four-Year Look”). Caltrans shall be provided an opportunity to participate fully in the Two-Year Look and, insofar as it is concerned with traffic-related issues, the Four-Year Look.

Section 6.02.03, “Determination of Noncompliance,” mandates that if the annual performance evaluation results in identification that a performance standard is not being complied with, and if such noncompliance is attributable to the project, the City would notify the developer of the need for a remediation plan.

Section 6.02.04, “Preparation and Adoption of Remediation Plan,” mandates that the City develop and adopt a remediation plan to address such noncompliance. The remediation plan shall identify mitigation measures to address noncompliance. It also shall specify a schedule for implementing the mitigation measures, identify the security needed to secure the performance, identify actions to be taken by the owner of that portion of the project contributing to the noncompliance.

Section 6.02.05, “Imposition of Conditions on Subsequent Approvals,” allows the City to impose conditions on the approval of discretionary subsequent approvals to ensure the implementation of any resulting remediation plan.

The performance standards are located in Exhibit D of the Development Agreement, which is on file at the City of Lathrop.

In summary, the existing traffic mitigation monitoring program in the Development Agreement forces the City to (1) provide adequate improvements with each UDC to mitigate traffic impacts, (2) annually monitor existing performance of the roadway network and anticipated performance of the network 2 and 4 years in the future, (3) annually identify any current or anticipated noncompliance with the performance standards, (4) prepare a remediation plan to mitigate any unanticipated impacts, and (5) impose conditions on subsequent development approvals to ensure compliance with the remediation plan. The development agreement anticipated that any impact that was not foreseen would be identified and mitigated during these annual reviews.

A summary of improvements offered by the proposed project, as well as the improvements listed as recommended mitigation measures, is provided for the existing baseline plus project scenario (i.e., existing conditions and existing plus project) in Table 4.4-7. This table shows the existing improvements, and then two columns for each phase: the improvements offered by the project and then the improvements that have been identified as required mitigations. A similar summary is provided for the base case plus project scenario (i.e., cumulative conditions and cumulative plus project) in Table 4.4-8, although it includes an additional column to reflect the improvements that would be required to mitigate the general level of development in the area if there was no River Islands project. The improvements offered by the project are then listed in addition to what would have been required without the project. Finally, the required mitigation measures for the project (based on the impact analysis in section 4.4.3) are listed.

It is important to review the anticipated roadway network for the existing + project scenario to recognize the few key differences when compared to the base case + project scenario. First, Golden Valley Parkway exists only on Stewart Tract. Because there is no regional need for this roadway today, it would not be extended east to River Islands Parkway or west to Paradise Road. Second, there is no I-205/Paradise Road interchange, because the project alone does not warrant a new interchange. Instead,

Table 4.4-7

Roadway Incremental Improvements by Phase
Existing Baseline Plus Project, and Mitigations
River Islands at Lathrop

	Existing		Phase 1A		Phase 1		Build-Out		
	Lanes	@ I/S	Exist. Baseline Plus Project Lanes	@ I/S	Exist. Baseline Plus Project Lanes	@ I/S	Required Mitigation Lanes	@ I/S	Required Mitigation Lanes
Louise - River Islands Pkwy									
w/o Harlan	4	Signal							+4(8)
w/o NB Ramps	4	Signal					+2(6)		+4(8)
w/o SB Ramps	2	Signal					+1(7)		+2(8)
w/o Manthey	n/a	SS						Signal	Signal
w/o Mossdale	n/a	n/a	n/a	n/a	n/a	n/a			
w/o Silvera Access	n/a	n/a	n/a	n/a	n/a	n/a			
w/o Commercial St	n/a	n/a	+2(2)	SS	n/a	n/a	Signal		+2(4)
w/o Broad St	n/a	n/a	+2(2)	SS	n/a	n/a	Signal		+2(4)
w/o Lakeside Dr	n/a	n/a	n/a	n/a	n/a	n/a			+4(4)
@ Paradise Rd	n/a	n/a	n/a	n/a	n/a	n/a			+4(4)
South River Islands Pkwy									
w/o Golden Valley Pkwy	n/a	n/a	+2(2)	SS	n/a	n/a			+2(4)
w/o Commercial St	n/a	n/a	n/a	SS	n/a	n/a	Signal		+2(4)
w/o Lake Harbor Blvd	n/a	n/a	n/a	n/a	n/a	n/a	SS		+2(4)
@ Paradise Rd	n/a	n/a	n/a	n/a	n/a	n/a			+4(4)
Golden Valley Parkway									
s/o River Islands Parkway	n/a	n/a	n/a	n/a	n/a	n/a			n/a
s/o Main St	n/a	n/a	n/a	n/a	n/a	n/a			n/a
s/o River Edge Dr	n/a	n/a	n/a	n/a	n/a	n/a			n/a
w/o S. River Islands Pkwy							+2	SS	+2(4)
w/o Broad St	n/a	n/a	n/a	n/a	n/a	n/a	+2	Signal	+2(4)
w/o Lake Harbor Blvd	n/a	n/a	n/a	n/a	n/a	n/a	n/a	SS	n/a
@ Paradise Rd/Arbor Ave	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Paradise Road									
n/o EB ramps to I-205	2	n/a							
n/o WB ramps to I-205	2	n/a							
n/o Arbor/Golden Valley Pkwy	2	SS							+2(4)
n/o South River Islands Pkwy	2	n/a					+2(4)	Signal	Signal

Table 4.4-7

Roadway Incremental Improvements by Phase
Existing Baseline Plus Project, and Mitigations
River Islands at Lathrop

	Existing		Phase 1A		Phase 1		Build-Out	
	Lanes @ I/S	Exist. Baseline Plus Project Lanes @ I/S	Required Mitigation Lanes @ I/S	Exist. Baseline Plus Project Lanes @ I/S	Required Mitigation Lanes @ I/S	Exist. Baseline Plus Project Lanes @ I/S	Required Mitigation Lanes @ I/S	
@ North River Islands Pkwy	2	n/a		+2(4)		Signal		
MacArthur Drive								
n/o EB ramps to I-205	3					+2(5)		
n/o WB ramps to I-205	2					+2(4)		
n/o Arbor	2	SS					Signal	
Arbor Avenue								
w/o Paradise Rd	2	SS				+2(4)	Signal	
Stewart Road, w/o Manthey	2	SS			**			
NB I-5 Off Ramp @ Louise	2	Signal				+1(3)		
SB I-5 Off Ramp @ Louise	2	Signal				+1(3)		

* = Some realignment, reconstruction and widening
 ** = Additional realignment & widening
 @ I/S = Type of control at intersection
 SS = Addition of stop sign at intersection
 Signal = Addition of traffic signal at intersection
 +2(6) = Typical, represents an addition of 2 lanes, for a total of 6 lanes

the project uses and upgrades the existing I-205/MacArthur Drive interchange under this scenario. This, in turn, affects access to this interchange by affecting Arbor Avenue and MacArthur Drive as well. Third, improvements to the I-5/Louise Avenue interchange are reduced. Finally impacts on intersections are generally fewer.

When compared with the existing + project scenario, the base case + project scenario assumes that Golden Valley Parkway extends ultimately from River Islands Parkway to Paradise Road. The project would access a new interchange on I-205 at Paradise Road that would be built in cooperation with the City of Tracy, and improvements to the Louise Avenue/I-5 interchange are greater. Finally, more intersections are affected, and the need for added lanes and signalization is greater. Please see sections 4.4.3 and 4.4.4 for further discussion of project-related improvements and mitigation measures.

SUMMARY OF MODEL RUN PROCEDURES AND ASSUMPTIONS

The traffic analysis for this Project evaluates 10 different development scenarios with AM and PM peak-hour model runs for each scenario, for a total of 20 separate model runs. Every model run projected traffic volumes on existing and/or future streets, intersections and freeways. These volumes were used to analyze and predict roadway, intersection and freeway operating conditions in the future with and without project traffic.

Model runs reflect existing conditions (baseline), baseine plus project (years 2007, 2015, and buildout or 2025), future cumulative conditions (base case), and base case plus project (years 2007, 2015, and 2025).

Details concerning the modeling are provided in Appendix B. In summary, the model is based on an update to the San Joaquin Council of Governments (SJCOG) Regional Traffic Model analysis for 2001, as modified to reflect current street configurations in Lathrop, redefined/refined traffic analysis zones, updated traffic counts, and updated land use projections. The model was calibrated against the traffic counts. Improvements (not including mitigation measures) reflected in Tables 4.4-7 and 4.4-8 were added in to the model by phase.

The land use projections had to be updated to reflect both the proposed project and regional conditions. The SJCOG model is based on overall growth in the County. The model assumed only limited growth in Lathrop, despite the fact that the WLSP had been approved several years before the update to the model. In meetings and discussions with SJCOG and San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) staff, it was learned that the SJCOG model is based on expected total growth in the region and that the growth is then disaggregated by communities and other geographic areas. Members of SJCOG's and SJVUAPCD's staffs indicated that adding growth to one area would not change the overall expected growth in the County; rather, growth in one area would shift growth from another area. Per SJCOG and SJVUAPCD staff members, the expected availability of entitled land would exceed the amount of land needed to meet SJCOG projections, so the addition of more entitled land would similarly not change the projections. If the project is built as planned, it would increase the amount of growth in Lathrop over what was allocated to the model by SJCOG. Thus, SJCOG and SJVUAPCD staff members directed that growth needs to be shifted from other communities to Lathrop in the modeled analysis. (Chelsea, pers. comm., Jordan, pers. comm., Mitchell, pers. comm., 2001).

To add the River Islands project to the model without changing overall regional growth totals, land uses were shifted from Manteca, Tracy, Lodi, Stockton, and so on to Lathrop. The total shift, by 2025, is 9,107 single-family dwellings, 1,602 multifamily dwellings, and 17,023 jobs. This equals roughly 10% of the total regional growth in the County that would be shifted to Lathrop from the other communities. It is important to recognize that these are projections and that it is not known, and cannot be known, whether these shifts would occur at this magnitude. However, if they do not, then buildout of the proposed project would be expected to be drawn out further into the future, given that regional growth is not expected to change. In other words, total projected traffic in San Joaquin County is not expected to change by 2025 with the addition of the project (or, in the absence of the project, with prior development approvals in place for the site). However, the location where that traffic would occur shifts with the project.

Future Base Case (Without Project) Operating Conditions

Background (without project) operating conditions have been developed for the three horizon years of project analysis in this SEIR, year 2007 (Phase 1a), year 2015 (Phase 1) and 2025 (Project Buildout). Projections have first been developed of likely new (non-project) development and roadway improvements to be considered in place for each horizon year. AM and PM peak-hour traffic projections have then been produced using the SJCOG's countywide traffic model with refinements added to provide increased detail in the Lathrop and northeast Tracy areas. Table 4.4-8 (see base case no-project columns) lists roadway improvements assumed to be in place in the base case in 2007, 2015, and 2025. Exhibits 4.4-2, 4.4-3, and 4.4-4 depict intersection geometrics and controls in these same base case years.

YEAR 2007

Traffic Volumes

Year 2007 base case (without project) volumes were developed using the SJCOG traffic model with added traffic zones and roadway system detail provided in the Lathrop area. Resultant AM and PM peak-hour intersection volumes are presented in Appendix B, Exhibits B-8 and B-9, respectively, while AM and PM peak-hour freeway volumes are presented in Appendix B, Exhibit B-10. Also, see Tables B-7 through B-12 for detailed LOS data.

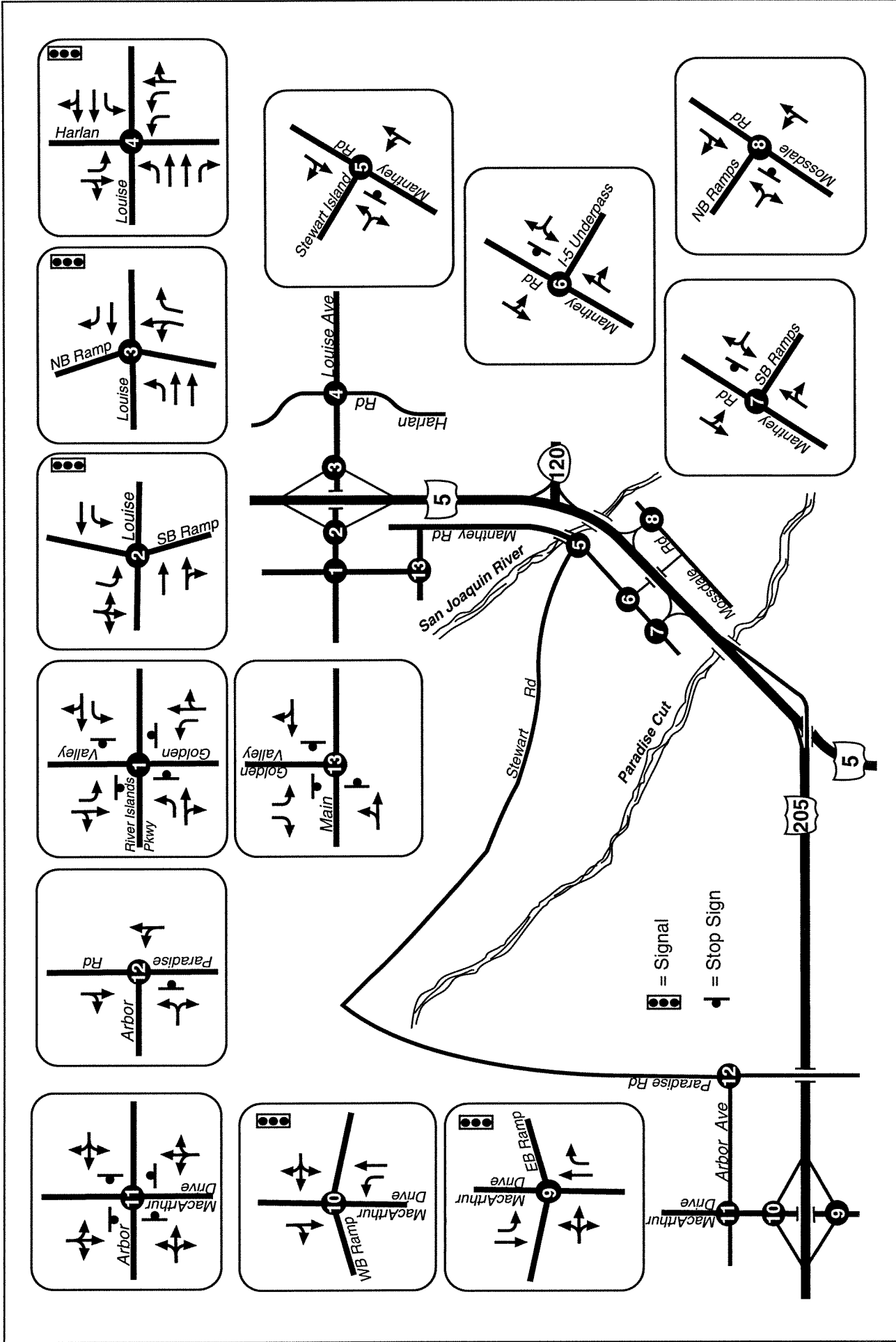
Intersection Operation

Level of Service

By 2007 all analyzed intersections would be operating at acceptable levels of service during the AM and PM peak traffic hours.

Signalization Requirements

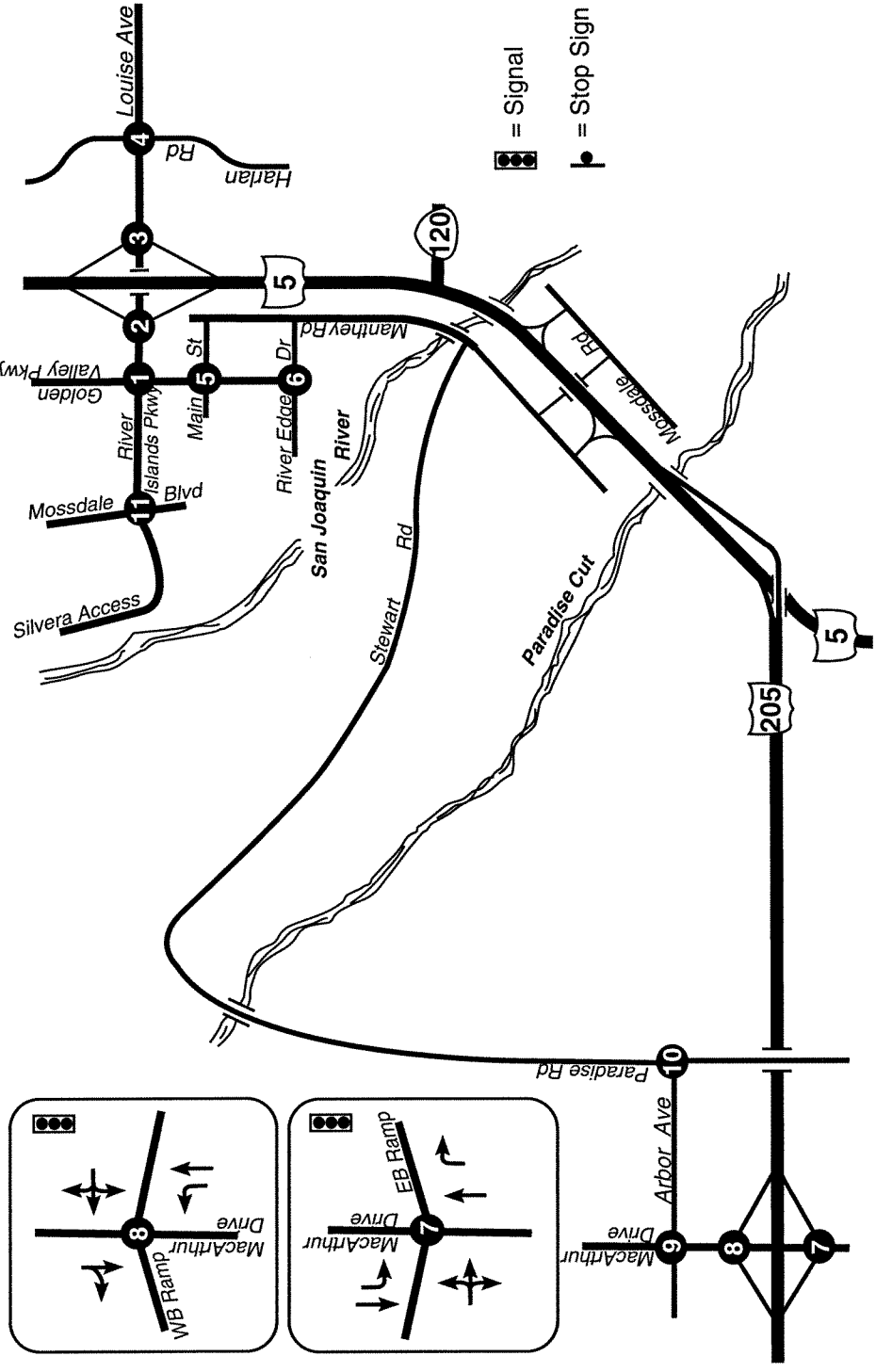
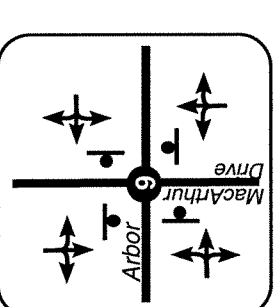
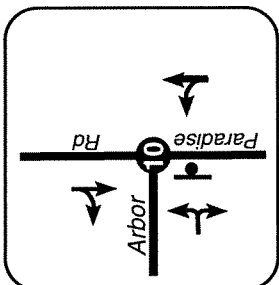
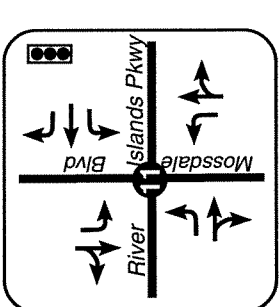
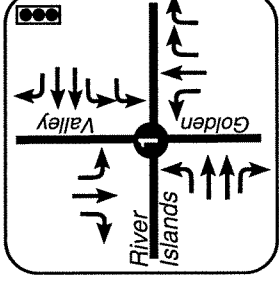
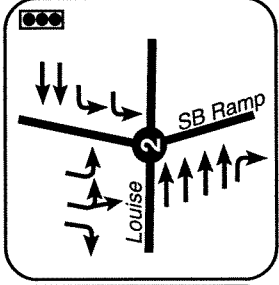
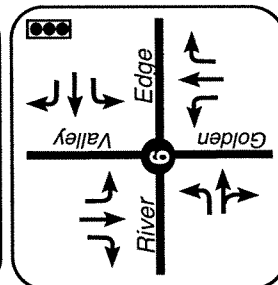
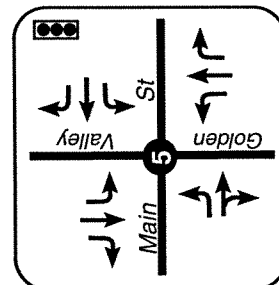
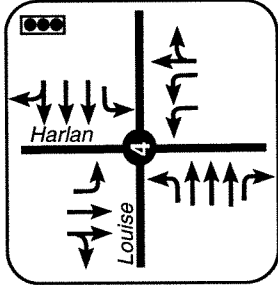
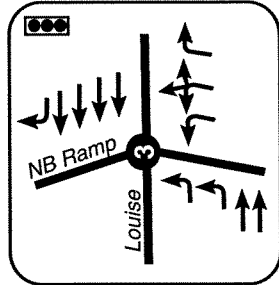
During the AM and PM peak hours all unsignalized intersections analyzed for the 2007 horizon year would have volumes below peak-hour signal warrant criteria levels.



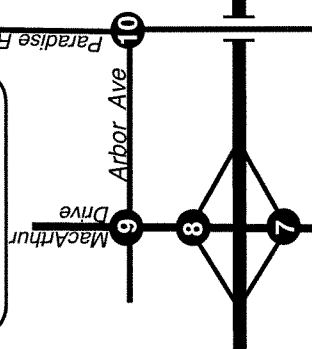
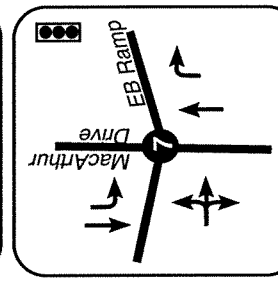
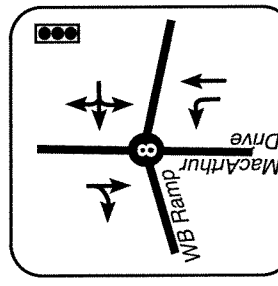
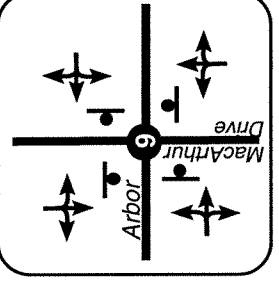
Source: Crane Transportation Group 2002

Year 2007 Base Case (without Project) Intersection Geometrics and Control

EXHIBIT 4.4-2



= Signal
 = Stop Sign



Source: Crane Transportation Group 2002

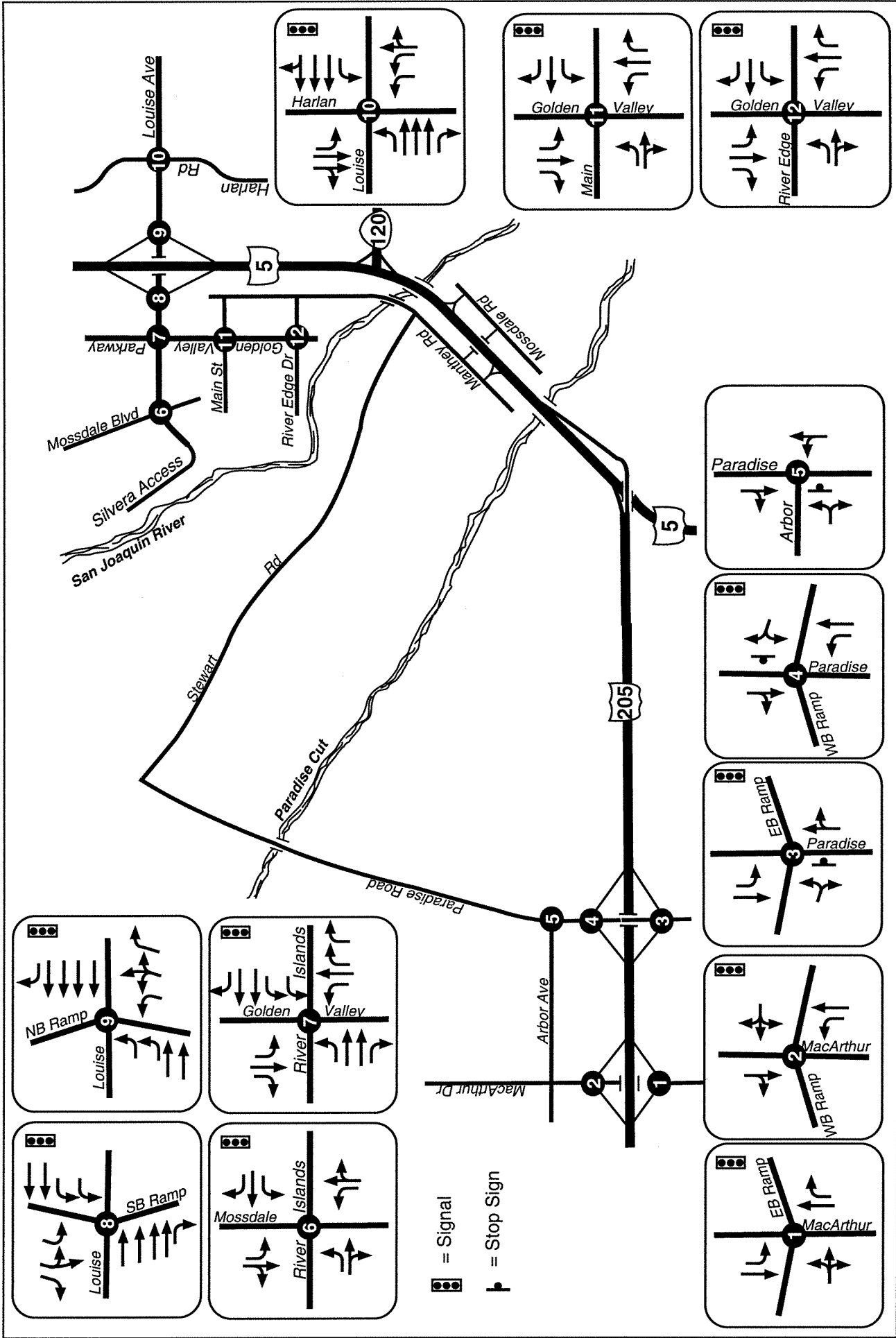
Year 2015 Base Case (without Project) Intersection Geometrics and Control

EXHIBIT 4.4-3

River Islands at Lathrop
 CITY OF LATHROP
 G 11T013.01 09/02

NO SCALE
 NORTH





Source: Crane Transportation Group 2002

Year 2025 Base Case (without Project) Intersection Geometrics and Control

EXHIBIT 4.4-4

River Islands at Lathrop
 CITY OF LATHROP
 G 11013.01 09/02

NO SCALE

EDAW

Vehicle Queuing

By 2007 available storage along Louise Avenue at its interchange with I-5 and along MacArthur Drive at its interchange with I-205 would be acceptable during the AM and PM peak traffic hours.

Freeway Mainline Operation

Level of Service

By 2007, and even with the widening of I-205 west of I-5 to six lanes, all analyzed segments of I-5, I-205, and SR 120 would be operating at unacceptable levels of service during both the AM and PM peak traffic hours in the peak flow directions.

AM Peak Hour

I-5 from north of Louise Avenue to SR 120	LOS E or F southbound operation
SR 120 east of I-5	LOS F westbound operation
I-205 west of I-5	LOS E westbound operation

PM Peak Hour

I-5 from south of I-205 to north of Louise Avenue	LOS E or F northbound operation
SR 120 east of I-5	LOS F eastbound operation
I-205 from west of MacArthur Drive to I-5	LOS E eastbound operation

Ramp Merge/Diverge Operation with Freeway Mainline

By 2007 the Louise Avenue interchange on-off ramp merge/diverge operations with the I-5 mainline would be operating at unacceptable levels of service (LOS E) in the southbound direction during the AM peak hour and in the northbound direction (LOS E) during the PM peak hour. At the MacArthur Drive/I-205 interchange the westbound off-ramp diverge would be operating unacceptably (LOS E) during the AM peak hour, while the eastbound off-ramp diverge and the eastbound on-ramp merge would be operating unacceptably (LOS F) during the PM peak hour. The Manthey Road southbound on-off ramp merge/diverge operation with I-5 would be operating unacceptably (LOS F) during the AM peak hour while the Mossdale Road northbound on-off ramp merge/diverge operation with I-5 would be operating unacceptably (LOS F) during the PM peak traffic hour.

Weaving

By 2007, the Mossdale Road and Manthey Road hook ramps with I-5 (between I-205 and SR 120) would be expected to maintain low volume levels during the AM and PM peak traffic hours (from 27 to 65 vehicles per hour using any one ramp: minor increases compared to existing conditions). A portion of the vehicles using each ramp and traveling from or destined to the I-5 travel lanes (adjacent to the median) would be required to weave across from one to three travel lanes of the I-205 or SR 120 mainlines located adjacent to the hook ramps. All weaving movements would be operating at acceptable levels of service during AM and PM peak-hour conditions, with the following exceptions.

AM Peak Hour

- ▶ I-5 southbound weave to Manthey Road off-ramp - LOS F
- ▶ Manthey Road on-ramp weave to I-5 southbound - LOS F

PM Peak Hour

- ▶ I-5 northbound weave to Mossdale Road off-ramp - LOS F
- ▶ Mossdale Road on-ramp weave to I-5 northbound - LOS F
- ▶ Manthey Road on-ramp weave to I-5 southbound - LOS E

Rural Two-Lane Roadway Operation

Paradise Road, Arbor Avenue and MacArthur Drive would operate acceptably at LOS B or LOS C during the AM and PM peak traffic hours.

YEAR 2015

Traffic Volumes

Year 2015 base case (without project) volumes were developed using the San Joaquin COG traffic model with added traffic zones and roadway system detail provided in the Lathrop area. Resultant AM and PM peak-hour intersection volumes are presented in Exhibits B-11 and B-12 of Appendix B, respectively, while AM and PM peak-hour freeway volumes are presented in Exhibit B-13 of Appendix B.

Intersection Operation

Level of Service

By 2015 all analyzed intersections would be operating at acceptable levels of service during the AM and PM peak traffic hours with the following exceptions.

PM Peak Hour

- ▶ Louise Avenue/I-5 Northbound Ramps (signal)–LOS F
- ▶ MacArthur Drive/Arbor Avenue (all-way-stop)–LOS E

Signalization Requirements

During the AM and PM peak hours all unsignalized intersections analyzed for the 2015 horizon year would have volumes below peak-hour signal warrant criteria levels.

Vehicle Queuing

By 2015 available storage along Louise Avenue between Golden Valley Parkway and Harlan Road and along MacArthur Drive at its interchange with I-205 would be acceptable during the AM and PM peak traffic hours with the following exceptions.

PM Peak Hour

- ▶ Louise Avenue through movement on the eastbound approach to the I-5 northbound ramps

Freeway Mainline Operation

Level of Service

By 2015 many analyzed segments of I-5, I-205, and SR 120 would be operating at overcapacity conditions (have a theoretical demand well above available capacity) during both the AM and PM peak traffic hours. Segments with unacceptable operation would be as follows.

AM Peak Hour

- ▶ I-5 Southbound (from north of Louise Avenue to I-205)–LOS E or F
- ▶ SR 120 Westbound (just east of I-5)–LOS F
- ▶ I-205 Westbound (from I-5 to just west of MacArthur Drive)–LOS F

PM Peak Hour

- ▶ I-5 Northbound (from south of I-205 to north of Louise Avenue)–LOS E or F
- ▶ I-205 Eastbound (from west of MacArthur Drive to I-5)–LOS F
- ▶ SR 120 Eastbound (east of I-5)–LOS F

Ramp Merge/Diverge Operation with Freeway Mainline

By 2015 several of the Louise Avenue freeway ramp merge/diverge locations with I-5 and several of the MacArthur Drive freeway ramp merge/diverge locations with I-205 would be operating at unacceptable levels during both the AM and PM peak traffic hours. Locations with unacceptable operation would be as follows.

AM Peak Hour

Louise Avenue/I-5 Interchange

- ▶ Southbound Off-Ramp Diverge–LOS E
- ▶ Southbound On-Ramp Merge–LOS F

MacArthur Drive/I-205 Interchange

- ▶ Westbound Off-Ramp Diverge–LOS F
- ▶ Westbound On-Ramp Merge–LOS F

Manthey Road/I-5 Southbound Ramps

- ▶ Southbound Off-Ramp Diverge–LOS F
- ▶ Southbound On-Ramp Merge–LOS F

PM Peak Hour

Louise Avenue/I-5 Interchange

- ▶ Northbound Off-Ramp Diverge–LOS F
- ▶ Northbound On-Ramp Merge–LOS E

MacArthur Drive/I-205 Interchange

- ▶ Eastbound Off-Ramp Diverge–LOS F
- ▶ Eastbound On-Ramp Merge–LOS F

Manthey Road/I-5 Southbound Ramps

- ▶ Southbound On-Ramp Merge–LOS E

Mossdale Road/I-5 Northbound Ramps

- ▶ Northbound Off-Ramp Diverge–LOS F
- ▶ Northbound On-Ramp Merge–LOS F

Rural Two-Lane Roadway Operation

By 2015 Arbor Avenue (between Paradise Road and MacArthur Drive) and Paradise Road (between River Islands and Arbor Avenue) would be operating acceptably at LOS B during both the AM and PM peak hours. MacArthur Drive between I-205 and Arbor Avenue would also be operating acceptably at LOS C and D during the AM and PM peak traffic hours, respectively.

YEAR 2025

Traffic Volumes

Year 2025 base case (without project) volumes were developed using the San Joaquin COG traffic model with added traffic zones and roadway system detail provided in the Lathrop area. Resultant AM and PM peak-hour intersection volumes are presented in Exhibits B-14 and B-15 of Appendix B, respectively, while AM and PM peak-hour freeway volumes are presented in Exhibit B-16 of Appendix B.

Intersection Operation

Level of Service

By 2025 all analyzed intersections would be operating at acceptable levels of service during the AM and PM peak traffic hours with the following exceptions.

AM Peak Hour

- ▶ River Islands Parkway/Golden Valley Parkway (signal)–LOS E

PM Peak Hour

- ▶ Louise Avenue/I-5 Northbound Ramps (signal)–LOS F
- ▶ Golden Valley Parkway/Main Street (signal)–LOS F
- ▶ Paradise Road/Arbor Avenue (stop sign)–LOS F

Signalization Requirements

During the AM and PM peak hours all unsignalized intersections analyzed for the 2025 horizon year would have volumes below peak-hour signal warrant criteria levels with the following exception.

PM Peak Hour

- ▶ Paradise Road/Arbor Avenue

Vehicle Queuing

By 2025 available storage along Louise Avenue between Golden Valley Parkway and Harlan Road, along MacArthur Drive at its interchange with I-205 and along Paradise Road-Chrisman Road at its interchange with I-205 would be acceptable during the AM and PM peak traffic hours with the following exceptions.

AM Peak Hour

- ▶ River Islands Parkway left turn on the westbound approach to Golden Valley Parkway
- ▶ MacArthur Drive left turn on the northbound approach to the I-205 westbound ramps

PM Peak Hour

- ▶ Louise Avenue through movement on the eastbound approach to the I-5 northbound ramps
- ▶ Louise Avenue through movement on the westbound approach to the I-5 southbound ramps

Freeway Mainline Operation

Level of Service

By 2025 many analyzed segments of I-5, I-205, and SR 120 would be operating at overcapacity conditions (have a theoretical demand well above available capacity) during both the AM and PM peak traffic hours. Segments with unacceptable operation would be as follows.

AM Peak Hour

- ▶ I-5 Southbound (from north of Louise Avenue to I-205)–LOS F
- ▶ SR 120 Westbound (just east of I-5)–LOS F
- ▶ I-205 Westbound (from I-5 to just west of MacArthur Drive)–LOS F

PM Peak Hour

- ▶ I-5 Northbound (from south of I-205 to north of Louise Avenue)–LOS F
- ▶ I-5 Southbound (from north of Louise Avenue to I-205)–LOS E
- ▶ I-205 Westbound (from I-5 to west of MacArthur Drive)–LOS F
- ▶ I-205 Eastbound (from west of MacArthur Drive to I-5)–LOS F
- ▶ SR 120 Westbound (east of I-5)–LOS F
- ▶ SR 120 Eastbound (east of I-5)–LOS F

Ramp Merge/Diverge Operation with Freeway Mainline

By 2025 several of the Louise Avenue freeway ramp merge/diverge locations with I-5 and several of the Paradise Road-Chrisman Road and MacArthur Drive freeway ramp merge/diverge locations with I-205 would be operating at unacceptable levels during both the AM and PM peak traffic hours. Locations with unacceptable operation would be as follows.

AM Peak Hour

Louise Avenue/I-5 Interchange

- ▶ Southbound Off-Ramp Diverge–LOS F
- ▶ Southbound On-Ramp Merge–LOS F

Paradise Road-Chrisman Road/I-205 Interchange

- ▶ Westbound Off-Ramp Diverge–LOS F
- ▶ Westbound On-Ramp Merge–LOS F

MacArthur Drive/I-205 Interchange

- ▶ Westbound Off-Ramp Diverge–LOS F
- ▶ Westbound On-Ramp Merge–LOS F

Manthey Road/I-5 Southbound Ramps

- ▶ Southbound Off-Ramp Diverge–LOS F
- ▶ Southbound On-Ramp Merge–LOS F

PM Peak Hour

Louise Avenue/I-5 Interchange

- ▶ Southbound On-Ramp Merge–LOS E
- ▶ Northbound Off-Ramp Diverge–LOS F
- ▶ Northbound On-Ramp Merge–LOS F

Paradise Road-Chrisman Road/I-205 Interchange

- ▶ Westbound Off-Ramp Diverge–LOS F
- ▶ Westbound On-Ramp Merge–LOS F
- ▶ Eastbound Off-Ramp Diverge–LOS F
- ▶ Eastbound On-Ramp Merge–LOS F

MacArthur Drive/I-205 Interchange

- ▶ Westbound Off-Ramp Diverge–LOS F
- ▶ Westbound On-Ramp Merge–LOS F
- ▶ Eastbound Off-Ramp Diverge–LOS F
- ▶ Eastbound On-Ramp Merge–LOS F

Manthey Road/I-5 Southbound Ramps

- ▶ Southbound Off-Ramp Diverge–LOS F
- ▶ Southbound On-Ramp Merge–LOS F

Mosssdale Road/I-5 Northbound Ramps

- ▶ Northbound Off-Ramp Diverge–LOS F
- ▶ Northbound On-Ramp Merge–LOS F

Rural Two-Lane Roadway Operation

By 2025 Arbor Avenue (between Paradise Road and MacArthur Drive) would be operating unacceptably at LOS D during both the AM and PM peak hours. All other nearby roads would be operating acceptably at LOS B or C.

Recommended Base Case (without Project) Improvements

As described above, a number of deficiencies would occur in the roadway system before the proposed project is added. This section describes improvements that would be needed to remediate base case traffic problems that existing fee/improvement programs would not resolve. This information is provided to show the types of improvements needed to resolve future roadway constraints and for context in considering project mitigation. It is not known if all or some of these improvements are feasible.

The following recommended base case (without project) improvements were not assumed to exist in the impact analysis; they would be required, in addition to the assumed base case improvements discussed above, to serve future 2007 and 2025 (without project) conditions.

YEAR 2007

Freeway Mainline

I-5, SR 120, and I-205 in the Lathrop and northeast Tracy areas would all require widening by one lane in each direction to provide acceptable operation. Resultant operation would be LOS D or better along all segments.

Freeway Ramp Merge/Diverge with Freeway Mainline

Required freeway widening listed above would result in acceptable freeway ramp merge/diverge operation at the Louise Avenue/I-5, MacArthur Drive/I-205, Manthey Road/I-5 and Mosssdale Road/I-5 interchanges.

YEAR 2015

Intersections

Louise Avenue/I-5 Northbound Ramps

- ▶ Provide an eastbound to northbound loop on-ramp in the southeast quadrant of the interchange to eliminate eastbound to northbound left turns (Exhibit 4.4-5).

Resultant Operation

AM Peak Hour: LOS A-5.4 seconds vehicle delay

PM Peak Hour: LOS B-14.5 seconds vehicle delay

MacArthur Drive/Arbor Avenue

- ▶ Provide an exclusive right turn deceleration lane on the eastbound intersection approach.

Resultant Operation

PM Peak Hour: LOS C-22.3 seconds vehicle delay

Vehicle Queuing Between Intersections

Louise Avenue/I-5 Northbound Ramps

- ▶ See previously listed intersection improvements (Exhibit 4.4-5).

Louise Avenue/I-5 Southbound Ramps

- ▶ Revise signal timing to coordinate with adjusted location of northbound off-ramp intersection and provision of loop ramp in southeast quadrant of interchange (Exhibit 4.4-5).

Freeway Mainline

All freeways in the Lathrop and north Tracy areas would require major lane additions in order to provide acceptable base case (without project) peak-hour operation. These are regional transportation improvements that are beyond the scope of any one project. Lane addition requirements to provide LOS D operation would be as follows:

I-5 (from north of Louise Avenue to SR 120)

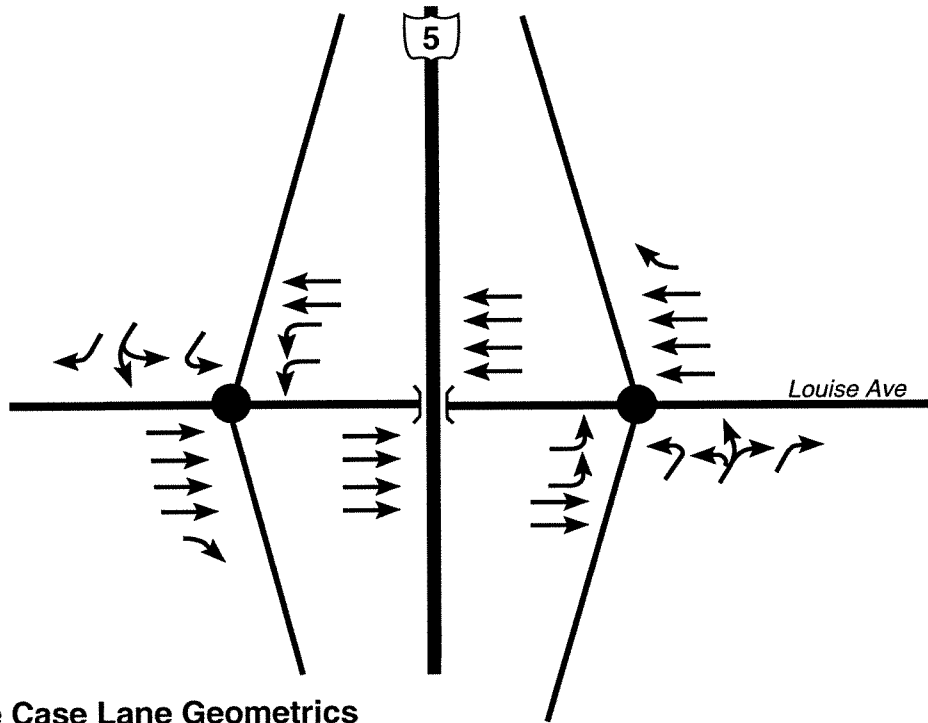
- ▶ Add 1 lane each direction-total 4 lanes each direction.

I-5 (from SR 120 to I-205)

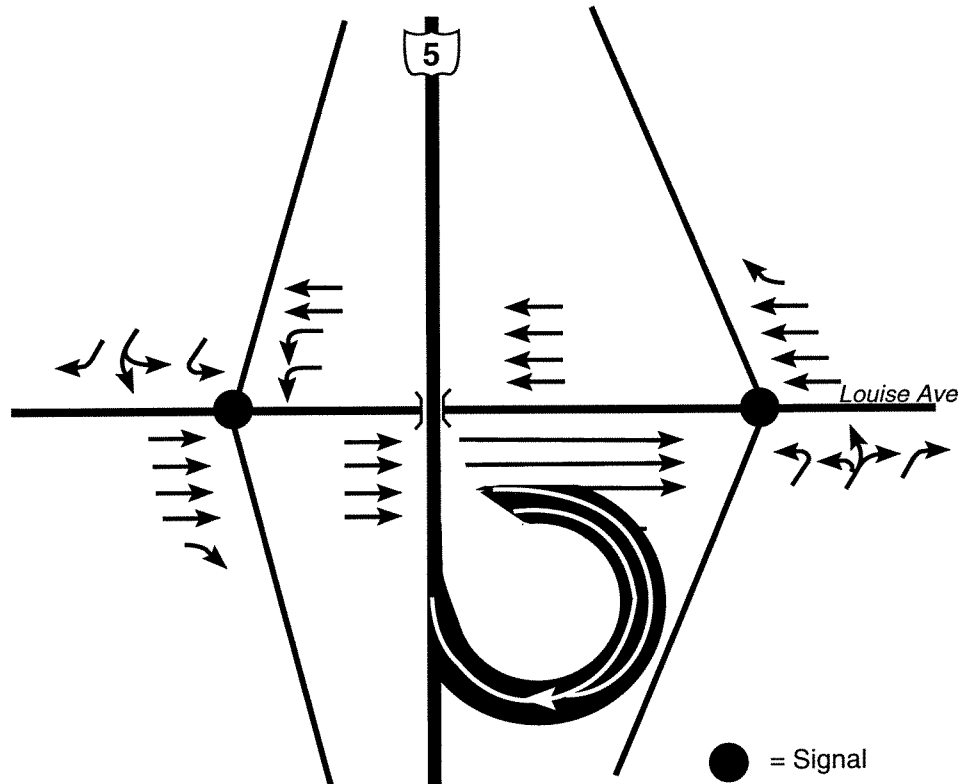
- ▶ Add 2 lanes each direction-total 7 lanes each direction. This would require two side-by-side freeways (3 to 4 lanes each) in the north and southbound directions.

I-5 (south of I-205)

- ▶ Add 1 lane northbound-total 3 lanes northbound.



Assumed Base Case Lane Geometrics



Required Base Case Mitigation Measures

- = Signal
- ↶ = Required Mitigation Measures

Source: Crane Transportation Group 2002.

**Year 2015 Base Case (without Project)
Improvements Needed along Louise Avenue Corridor**

EXHIBIT **4.4-5**

SR 120 (east of I-5)

- ▶ Add 2 lanes each direction—total 4 lanes each direction.

I-205 (I-5 to west of MacArthur Drive)

- ▶ Add 2 lanes each direction—total 5 lanes each direction.

Without these lanes, additional traffic diversion to already congested parallel surface street routes would occur as well as the spreading of the peak traffic periods to three or more hours.

Freeway Ramp Merge/Diverge with Freeway Mainline

Merge/diverge improvements would require the added freeway lanes listed above to provide acceptable (LOS C or D) operation.

Louise Avenue/I-5 Interchange

- ▶ Add 1 additional lane each direction to I-5 as listed above.

MacArthur Drive/I-205 Interchange

- ▶ Add 2 additional lanes each direction as listed above (Exhibit 4.4-6).

YEAR 2025

Intersections

Louise Avenue/I-5 Northbound Ramps

- ▶ Provide an eastbound to northbound loop on-ramp in the southeast quadrant of the interchange to eliminate eastbound to northbound left turns; add a fourth northbound off-ramp lane and stripe to allow right turns from three lanes (Exhibit 4.4-7).

Resultant Operation

AM Peak Hour: LOS A—2.3 seconds vehicle delay

PM Peak Hour: LOS C—22.4 seconds vehicle delay

River Islands Parkway/Golden Valley Parkway

- ▶ Provide a second left turn lane on the southbound Golden Valley Parkway intersection approach (Exhibit 4.4-7).

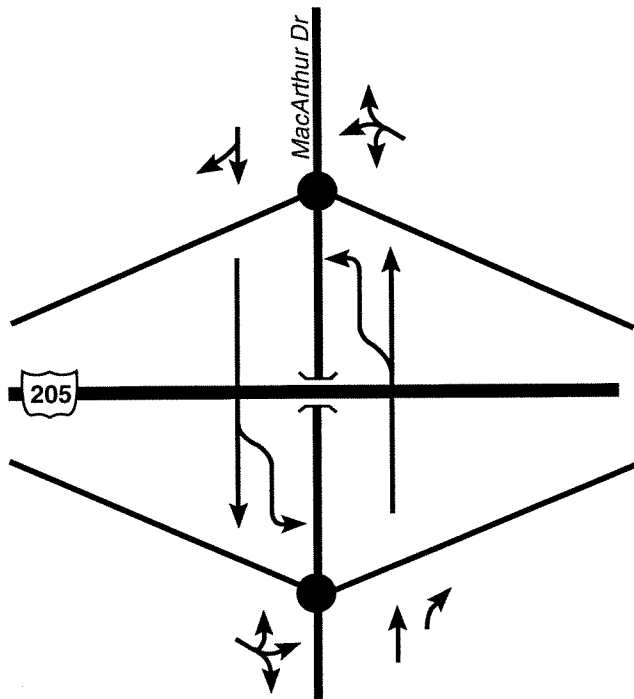
Resultant Operation

AM Peak Hour: LOS D—40.4 seconds vehicle delay

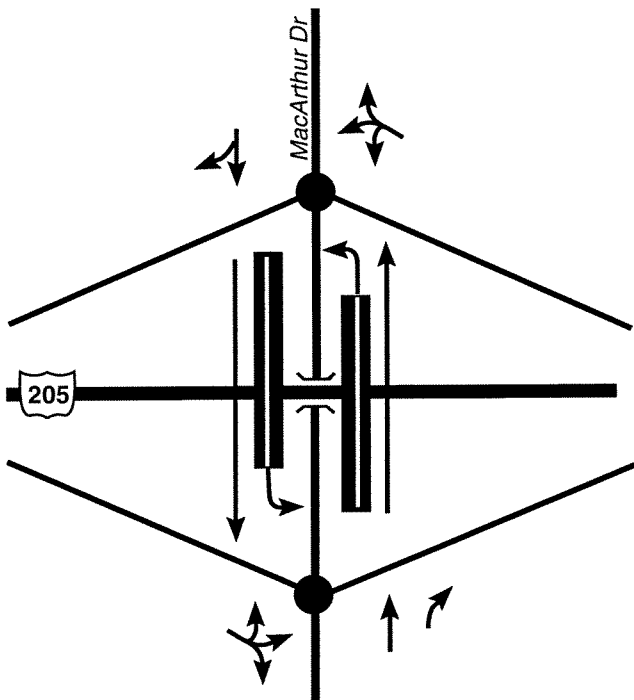
PM Peak Hour: LOS D—35.5 seconds vehicle delay


Golden Valley Parkway/Main Street


- ▶ Provide a second right turn lane on the westbound Main Street approach and a second through lane on the northbound Golden Valley Parkway approach.



Year 2015 Base Case Lane Geometrics



 = Required Mitigation Measures

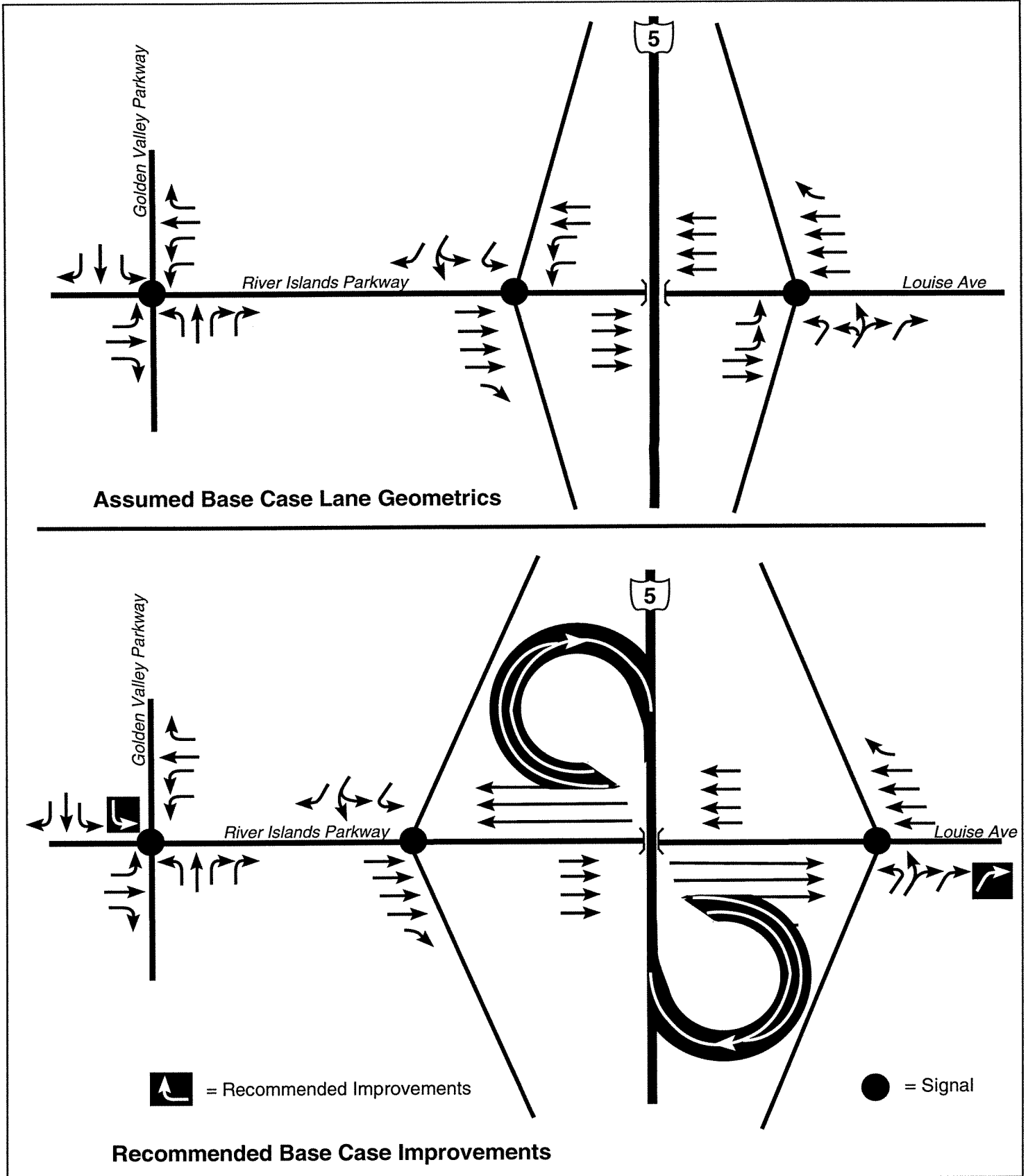
 = Signal

Required 2015 Base Case Mitigation Measures

Source: Crane Transportation Group 2002

**Year 2015 Base Case Improvements
Needed along MacArthur Drive Corridor**

EXHIBIT **4.4-6**



Source: Crane Transportation Group 2002

**Year 2025 Base Case Recommended Improvements
 along Louise Avenue/River Islands Parkway Corridor**

Resultant Operation

PM Peak Hour: LOS C–33.3 seconds vehicle delay

Paradise Road/Arbor Avenue

- ▶ Signalize when warranted and provide left or right turn deceleration lanes on each intersection approach.

Resultant Operation

PM Peak Hour: LOS B-18.0 seconds vehicle delay

Vehicle Queuing between Intersections

Louise Avenue/I-5 Northbound Ramps

- ▶ See previously listed intersection improvements (Exhibit 4.4-7).

Louise Avenue/I-5 Southbound Ramps

- ▶ Provide a westbound to southbound loop on-ramp in the northwest quadrant of the interchange to eliminate westbound to southbound left turns (Exhibit 4.4-7).

River Islands Parkway/Golden Valley Parkway

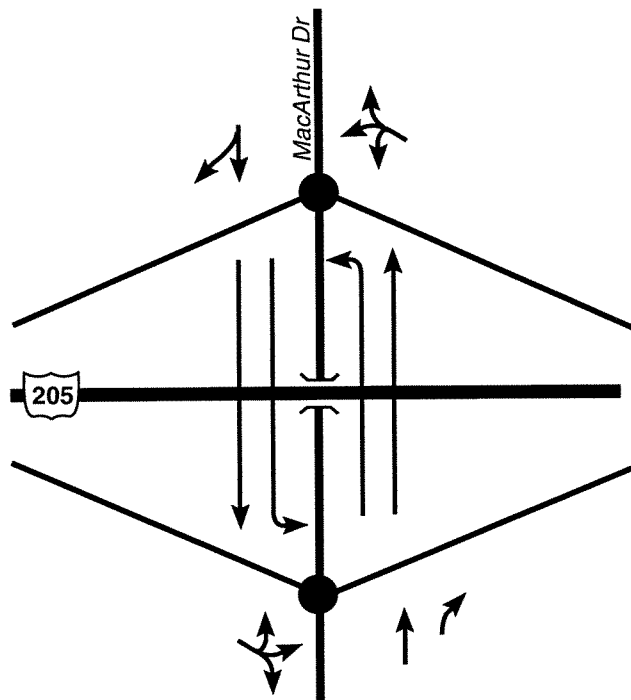
- ▶ See previously listed intersection improvements (Exhibit 4.4-7).

MacArthur Drive/I-205 Westbound Ramps

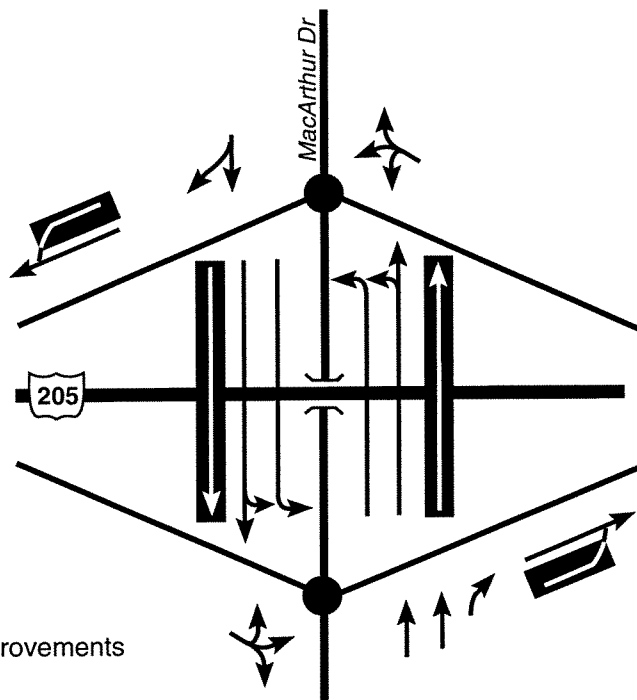
- ▶ Provide a second westbound off-ramp lane–stripe as one exclusive left turn lane and a combined left/through/right turn lane.
- ▶ Provide a second southbound through lane on MacArthur Drive between the west and eastbound ramps intersections.
- ▶ Stripe the northbound MacArthur Drive approach as one left, a shared left/through and one exclusive through lane.
- ▶ Provide a second westbound on-ramp lane near MacArthur Drive and then merge to a single on-ramp lane (Exhibit 4.4-8).

MacArthur Drive/I-205 Eastbound Ramps

- ▶ Provide a second eastbound off-ramp lane–stripe as one exclusive right turn lane and one combined left/through lane.
- ▶ Continue the second southbound through lane on MacArthur Drive through the intersection.
- ▶ Stripe the southbound MacArthur Drive approach as one left, a shared left/through and one exclusive through lane.
- ▶ Provide a second eastbound on-ramp lane near MacArthur Drive and then merge to a single on-ramp lane (Exhibit 4.4-8).



Assumed Base Case Lane Geometrics



Recommended Base Case Improvements

Source: Crane Transportation Group 2002

**Year 2025 Base Case Recommended Improvements
along MacArthur Drive Corridor**

Freeway Mainline

All freeways in the Lathrop and north Tracy areas would require major lane additions in order to provide acceptable base case (without project) peak-hour operation. These are regional transportation improvements that are beyond the scope of any one project. Lane addition requirements to provide LOS D operation would be as follows:

I-5 (from north of Louise Avenue to SR 120)

- ▶ Add 2 lanes each direction—total 5 lanes each direction.

I-5 (from SR 120 to I-205)

- ▶ Add 4 lanes each direction—total 9 lanes each direction. This would require two side-by-side freeways (4 to 5 lanes each) in the north and southbound directions.

I-5 (south of I-205)

- ▶ Add 1 lane northbound—total 3 lanes northbound.

SR 120 (east of I-5)

- ▶ Add 2 lanes each direction—total 4 lanes each direction.

I-205 (I-5 to Paradise Road and west of MacArthur Drive)

- ▶ Add 3 lanes each direction—total 6 lanes each direction.

I-205 (between Paradise Road and MacArthur Drive)

- ▶ Add 2 lanes each direction—total 5 lanes each direction.

Failure to provide these lanes would cause additional traffic diversion to already congested parallel surface street routes as well as the spreading of the peak traffic periods to four or more hours.

Freeway Ramp Merge/Diverge With Freeway Mainline

Merge/diverge improvements would require the added freeway lanes listed above plus a second on- or off-ramp lane at select locations in order to provide acceptable operation.

Louise Avenue/I-5 Interchange

- ▶ Add 2 additional lanes each direction to I-5 as listed above and add a second northbound off-ramp lane.

Paradise Road/I-205 Interchange

- ▶ Add at least 2 additional lanes each direction to I-205 as listed above and add a second westbound off-ramp lane.

MacArthur Drive/I-205 Interchange

- ▶ Add 2 to 3 additional lanes each direction as listed above.

Rural Two-Lane Roadway Operation

Arbor Avenue (Paradise Road to MacArthur Drive)

- ▶ Provide four 12-foot travel lanes, 8-foot paved shoulders, left turn lanes at intersections and left turn lanes at major driveways.

4.4.3 ENVIRONMENTAL IMPACTS

As discussed in the introduction, this section evaluates the traffic impacts associated with the addition of project traffic to the existing condition (i.e., existing baseline [2001] plus project) and the modeled base case (cumulative development) for each of the three anticipated phases of the project. The phase names and the year each phase is anticipated to be completed are Phase 1a (year 2007), Phase 1 (year 2015), and buildout (year 2025) horizons. For more information regarding traffic impacts associated with the project, see Appendix B, "Traffic Analysis - Expanded and Supporting Data, Tables, and Information," from which most of this traffic discussion has been summarized.

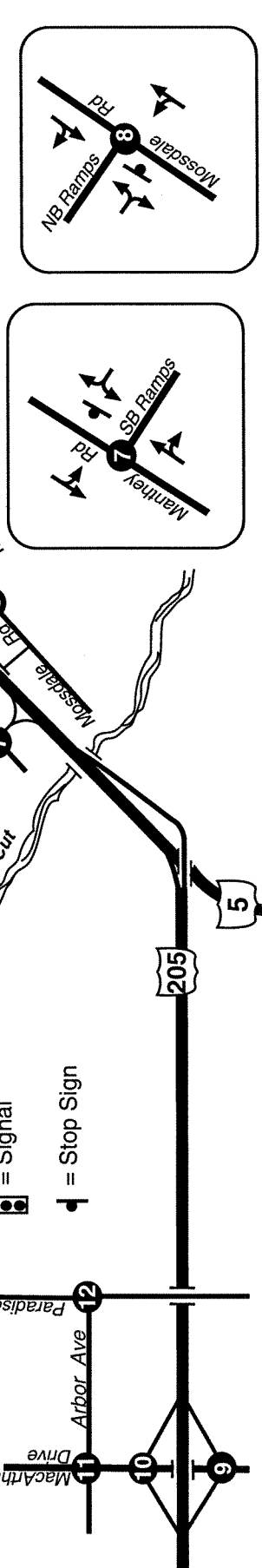
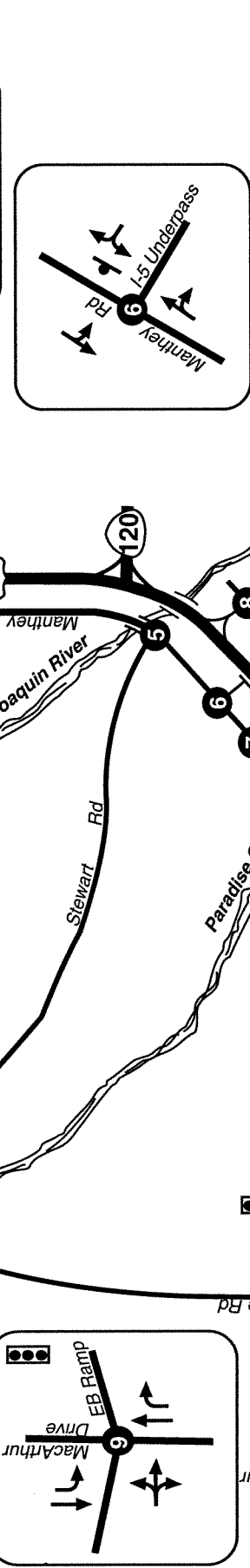
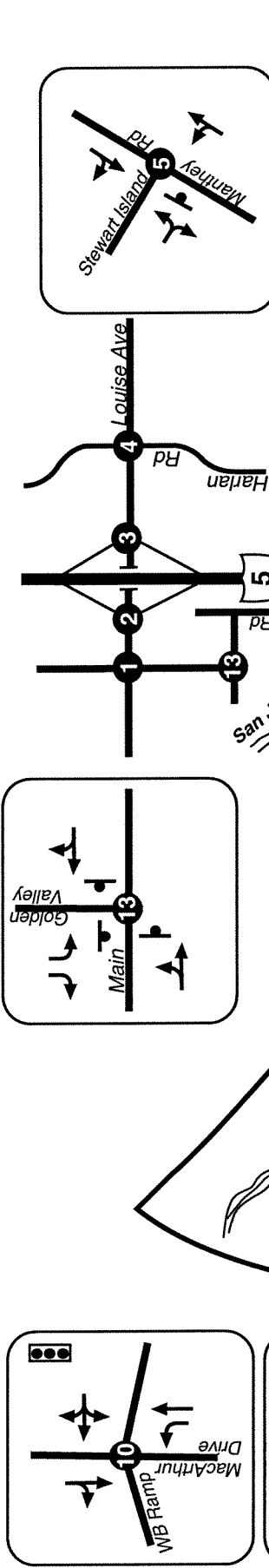
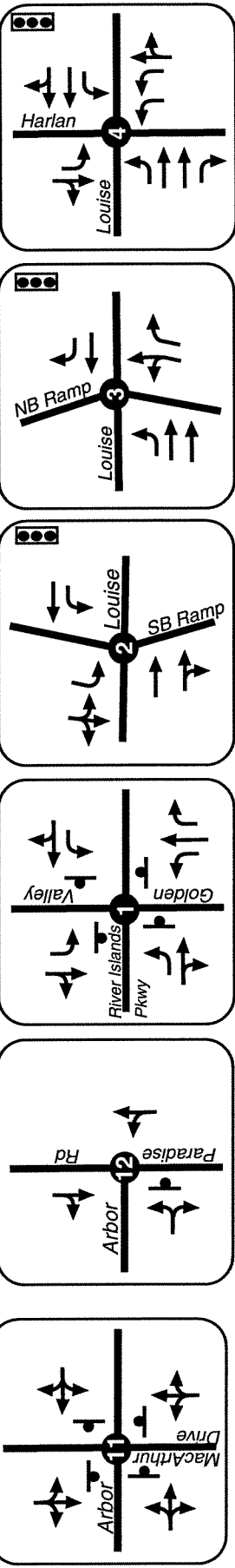
PROPOSED ROADWAY SYSTEMS

Phase 1a (2007)

Phase 1a would be developed over a 3-year period (2004-2007) and would include development of 800 single-family units total. Two hundred units would be occupied by the end of 2005, 500 units total would be occupied by the end of 2006, and 800 units total would be occupied by the end of 2007. Phase 1a also would include development of a temporary K-8 school.

Initial site access would be provided via the existing Paradise Road and Stewart Road. The following paragraph lists roadway improvements proposed as part of the project. Stewart Road, which intersects Manthey Road just south of the Manthey Road Bridge crossing of the San Joaquin River, would be upgraded to provide two 12-foot travel lanes and three-foot-wide paved shoulders. It would continue to use the existing at-grade crossing of the Union Pacific Railroad (UPRR) (after upgrading). Freeway access would be via the Louise Avenue/Interstate 5 (I-5) interchange to the north (using Manthey Road) and via the Manthey Road/Mossdale Road/I-5 hook ramp connections to the south. No improvements are proposed to Paradise Road, Arbor Avenue, or MacArthur Drive for this phase. Access from the Phase 1a development to I-205 and Tracy would be possible via these three roadways.

A bridge would be under construction across the San Joaquin River during development of Phase 1a for the extension of Louise Avenue-River Islands Parkway onto Stewart Tract from the Louise Avenue/I-5 interchange. This bridge is scheduled for completion by the end of 2007. The 800 units developed as part of Phase 1a would be served via this bridge. At this point, the direct (Stewart Road) connection from Phase 1a to Manthey Road would be eliminated and used for emergency vehicle and pedestrian/bicycle access only. Projected existing baseline (2001) plus Phase 1a intersection geometrics and control along with the projected number of lanes along arterials serving the project site are presented in Exhibit 4.4-9.



Source: Crane Transportation Group 2002

Year 2007 Base Case + Project Phase 1a Intersection Geometrics and Control

EXHIBIT 4.4-9

River Islands at Lathrop
CITY OF LATHROP
G-11013.01 10/02

NO SCALE
NORTH



Phase 1 (2015)

Most of Phase 1 is scheduled to be completed by 2015. The Employment Center is so large that its buildout is not anticipated until 2020. Therefore, the anticipated square footage constructed by 2015 is 2,000,000 based on market absorption. This results in approximately 8,500 total jobs in the project by 2015.

Proposed development under Phase 1 would include:

- ▶ 4,000 residential units,
- ▶ 2,000,000 square feet of business park,
- ▶ a 90-acre town center with retail/commercial uses, and
- ▶ one K–12 school.

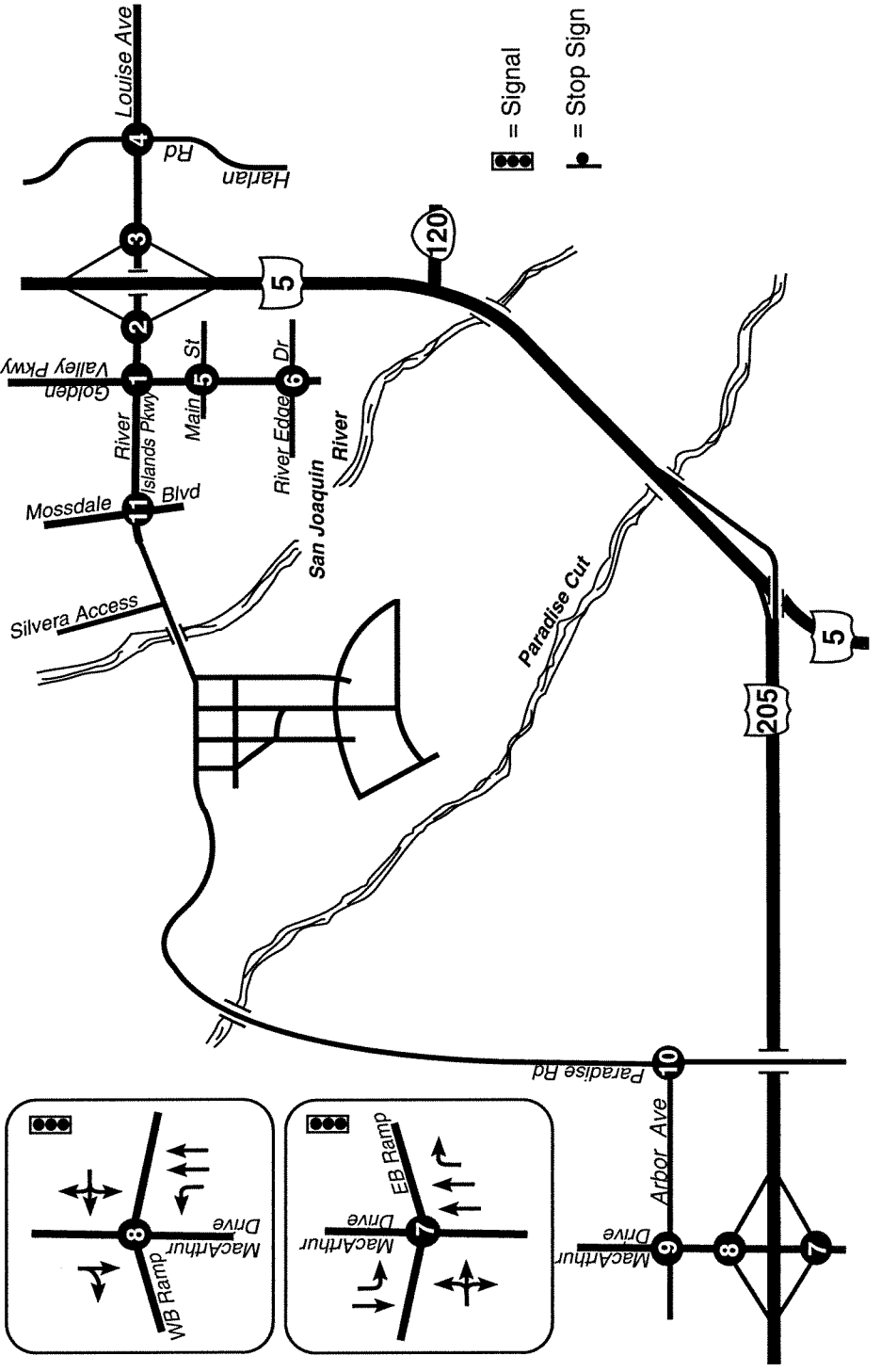
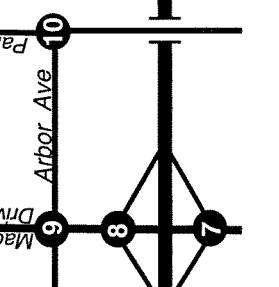
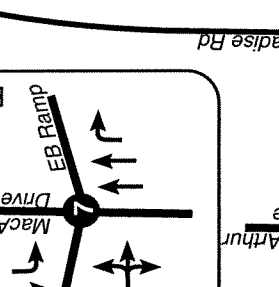
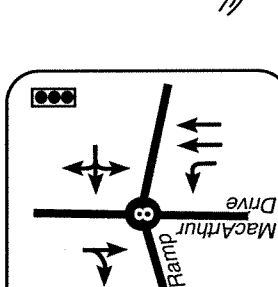
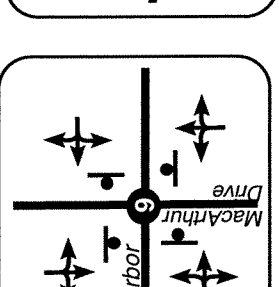
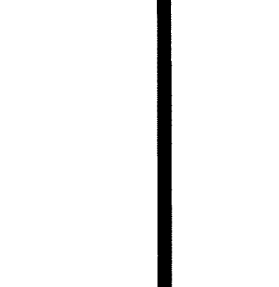
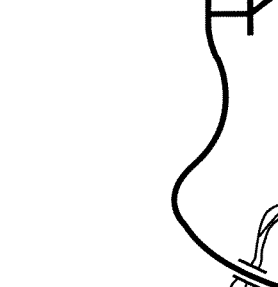
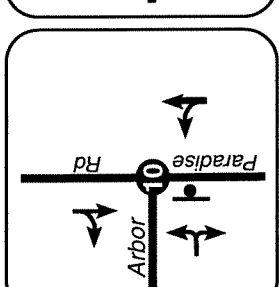
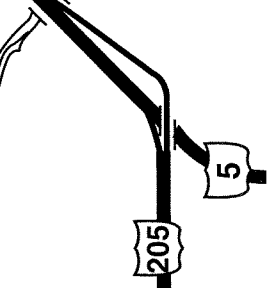
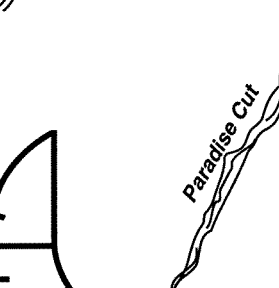
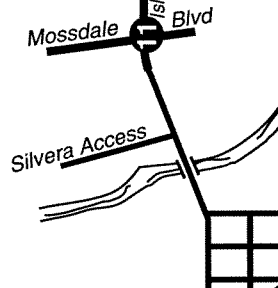
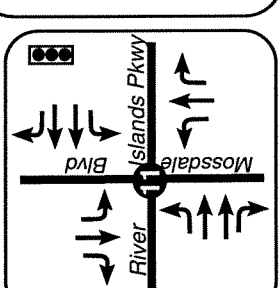
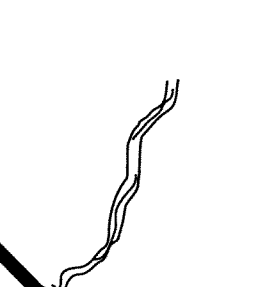
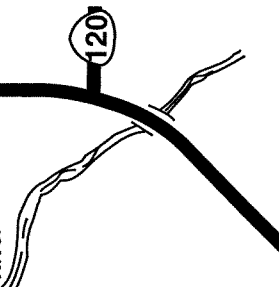
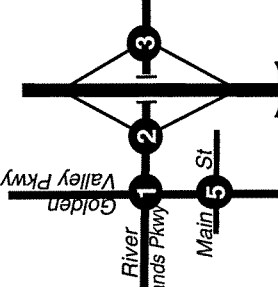
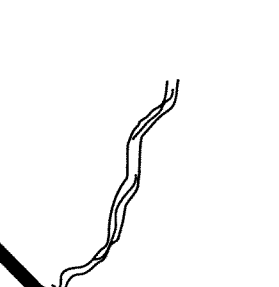
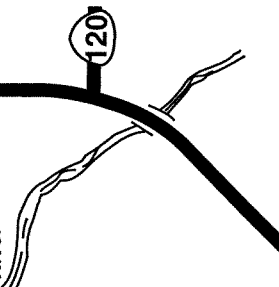
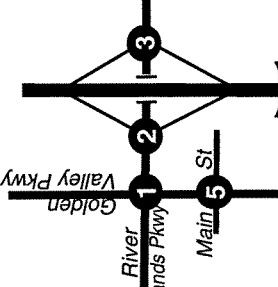
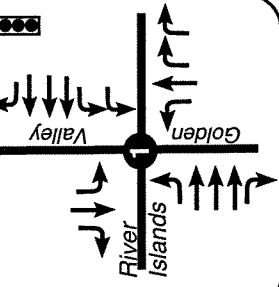
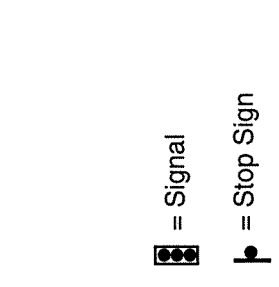
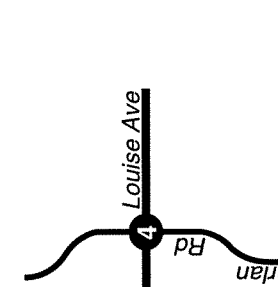
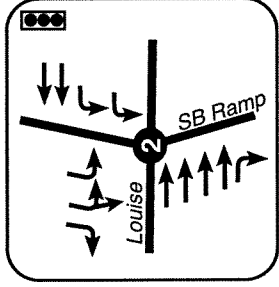
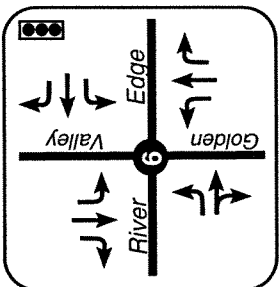
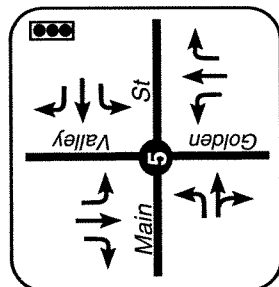
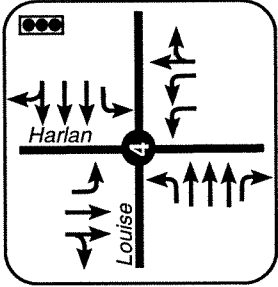
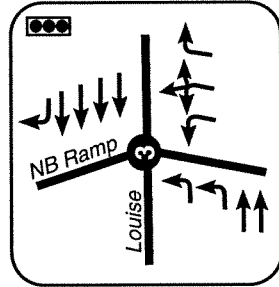
By the completion of Phase 1, site access would be provided via the River Islands Parkway four-lane bridge across the San Joaquin River and the existing Paradise Road two-lane bridges across Paradise Cut. Direct freeway access would be via the River Islands Parkway-Louise Avenue/I-5 interchange and the MacArthur Drive/I-205 interchange using Arbor Avenue and MacArthur Drive. No access is proposed or would be likely via the Manthey Road/Mossdale Road hook ramp connections to I-5. Projected existing baseline (2001) plus Phase 1 offsite intersection geometrics and control along with the projected number of lanes along arterials serving the project site are presented in Exhibit 4.4-10 while onsite intersection geometrics and control are presented in Exhibit 4.4-11.

PROJECT BUILDOUT (2025)

Buildout is projected to be completed by 2025 and would include:

- ▶ 11,000 residential units (7,500 single-family, 1,500 multifamily, and 2,000 active adult units),
- ▶ 5,000,000 square feet of business park,
- ▶ a 90-acre town center with retail/commercial uses,
- ▶ two 18-hole golf courses,
- ▶ one neighborhood commercial center, and
- ▶ three K–12 schools.

The total number of employees projected for the project is more than 17,000. Site access would be provided via the River Islands Parkway four-lane bridge across the San Joaquin River and the existing Paradise Road two-lane bridges across Paradise Cut. In addition, Golden Valley Parkway would extend south from River Islands Parkway and bridge the San Joaquin River at the east end of the project site. It would continue through the project site and across Paradise Cut and then run as a two-lane roadway parallel to and north of I-205 to Paradise Road. Direct freeway access would be via the River Islands Parkway-Louise Avenue/I-5 interchange and a new Paradise Road-Chrisman Road/I-205 interchange. Secondary I-205 freeway access for project traffic would still be possible (although not likely) via the MacArthur Drive interchange because the Paradise Road-Chrisman Road interchange would be closer to



= Signal
 = Stop Sign

Source: Crane Transportation Group 2002.

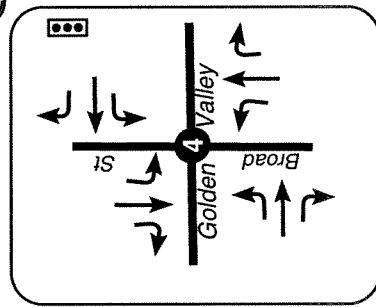
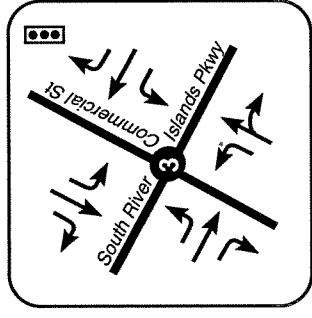
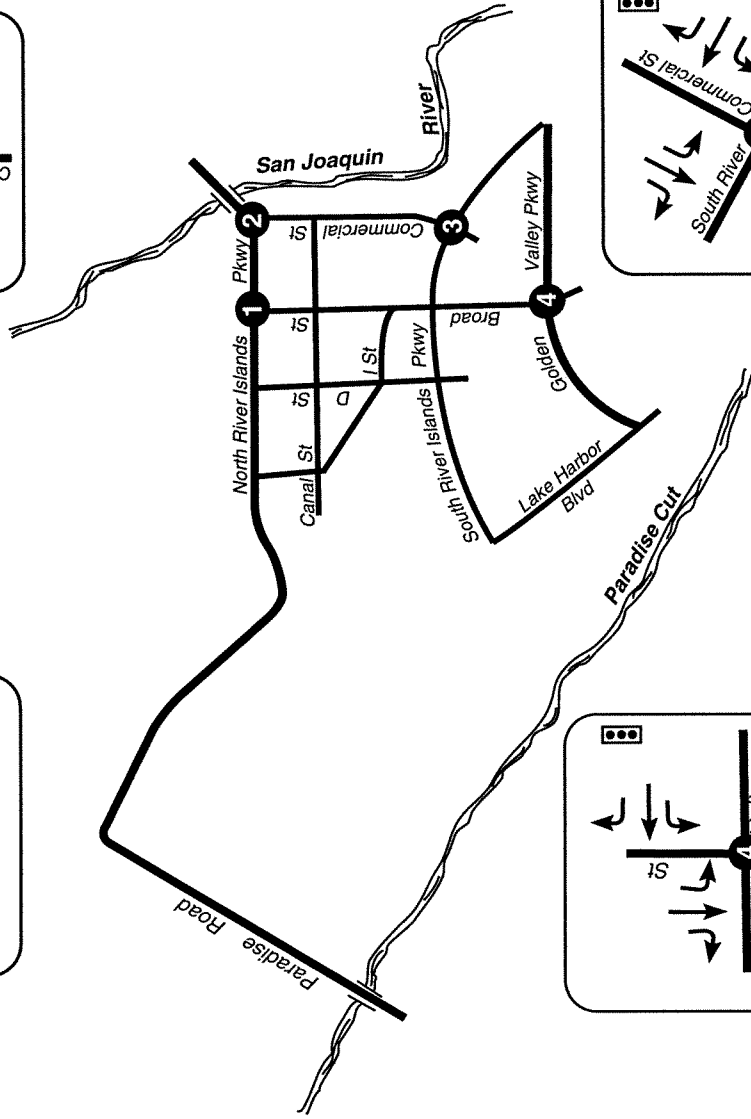
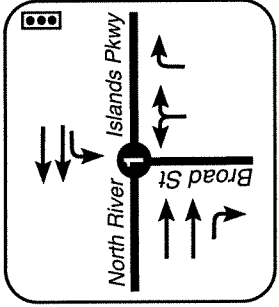
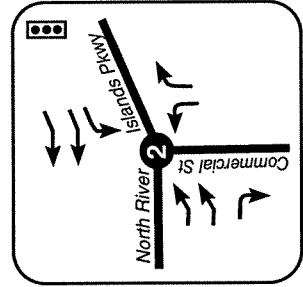
Year 2015 Base Case + Project Phase 1 Offsite Intersection Geometrics and Control

EXHIBIT 4.4-10

River Islands at Lathrop
 CITY OF LATHROP
 G-11013.01 10/02

NO SCALE
 NORTH





☐ = Signal

Source: Crane Transportation Group 2002

Year 2015 Base Case + Project Onsite Intersection Lane Geometrics and Control

EXHIBIT 4.4-11

River Islands at Lathrop
CITY OF LATHROP
G 11013.01 10/02

NO SCALE
NORTH



the project site. No access is proposed or would be likely via the Manthey Road/Mosssdale Road hook ramp connections to I-5. Projected existing baseline (2001) plus project buildout offsite intersection geometrics and control along with the projected number of lanes along arterials serving the project site are presented in Exhibit 4.4-12; onsite geometrics and controls are shown in Exhibit 4.4-13.

BASE CASE PLUS PROJECT TRIP GENERATION AND RESULTANT TRAFFIC VOLUMES

As explained earlier, the SJCOG model, as adjusted, was used to forecast traffic conditions. Adjustments were made in the 2007 projections to reflect at least 75 construction worker vehicles that could be entering the site during the AM peak hour and leaving the site during the PM peak hour. No construction truck activity would be expected during either peak hour. In addition, adjustments were also made to the 2007 with project projections to reflect locations of school attendance and the all or nothing model assignment of project traffic volumes to Stewart Road versus Paradise Road.

It should be noted that year 2007, 2015 and 2025 Base Case and Base Case + Project traffic projections show projected volumes exceeding available capacities on the I-5, I-205 and S.R.120 freeways. In particular, by 2025 demand exceeds capacity by more than 50 percent (with or without the River Islands project) in many locations. Given the capacity constrained reality of the local freeway system not to be able to accept or deliver the surface street volumes that are included as part of the traffic modeling output, there is the distinct possibility that interchange and surface street intersection impacts and needed mitigations are conservatively overstated in this analysis.

THRESHOLDS OF SIGNIFICANCE

The project would result in a significant traffic impact if it would cause one or more of the following (which are based, in part, on standards established in the City of Lathrop's General Plan or by the Lathrop Public Works Department, Caltrans, San Joaquin County, and the City of Tracy):

- ▶ project traffic degrades base case operation at a signalized or all-way-stop intersection in the City of Lathrop or the City of Tracy from LOS A through D to LOS E or F, or degrades base case operation at a City of Lathrop side street stop-sign-controlled intersection from LOS A through E to LOS F;
- ▶ the project increases traffic by 1% or more at base case signalized or all-way-stop intersections in the City of Lathrop or the City of Tracy already operating at LOS E or F or at side street stop-sign-controlled intersections in the City of Lathrop already operating at LOS F;
- ▶ the project increases traffic at base case unsignalized intersections such that Caltrans peak-hour warrant #11 criteria levels are exceeded;
- ▶ the project increases traffic by 1% or more at base case unsignalized intersections that already exceed Caltrans peak-hour warrant #11 criteria levels;



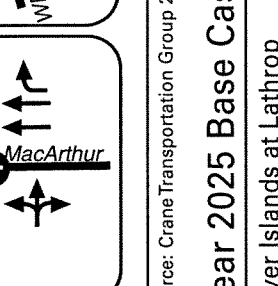
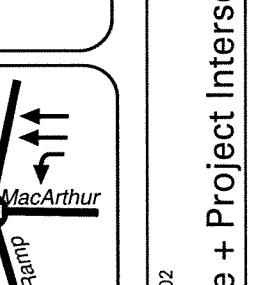
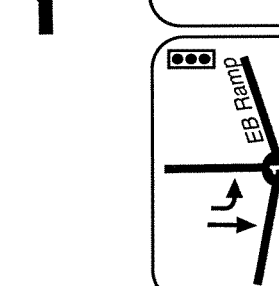
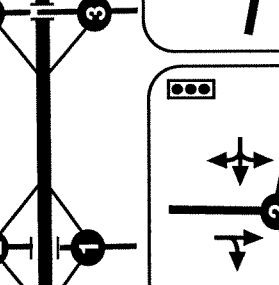
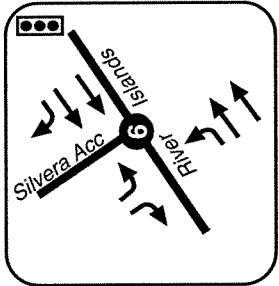
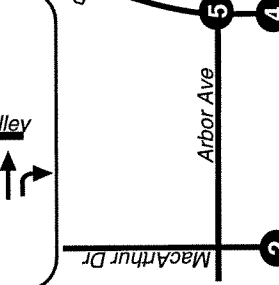
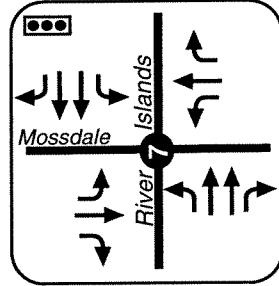
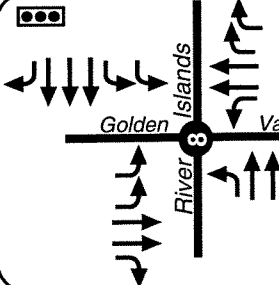
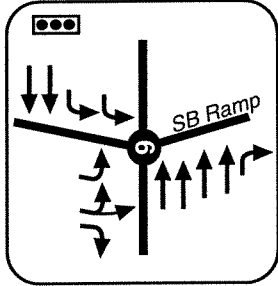
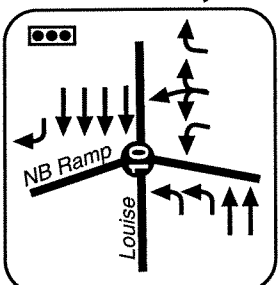
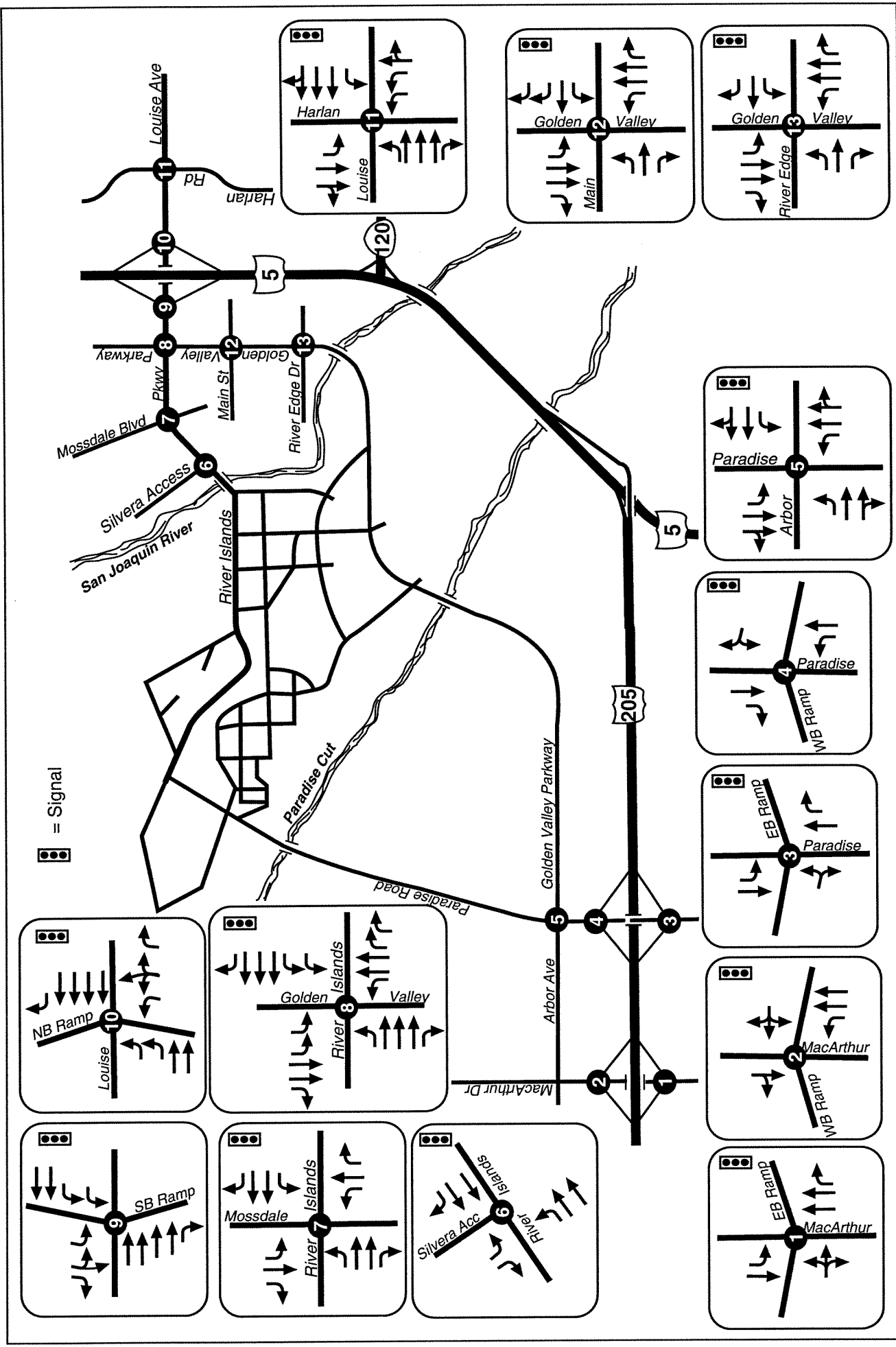
NO SCALE



Year 2025 Base Case + Project Intersection Geometrics and Control

Source: Crane Transportation Group 2002

River Islands at Lathrop
CITY OF LATHROP
G.1T013.01 10/02



Source: Crane Transportation Group 2002

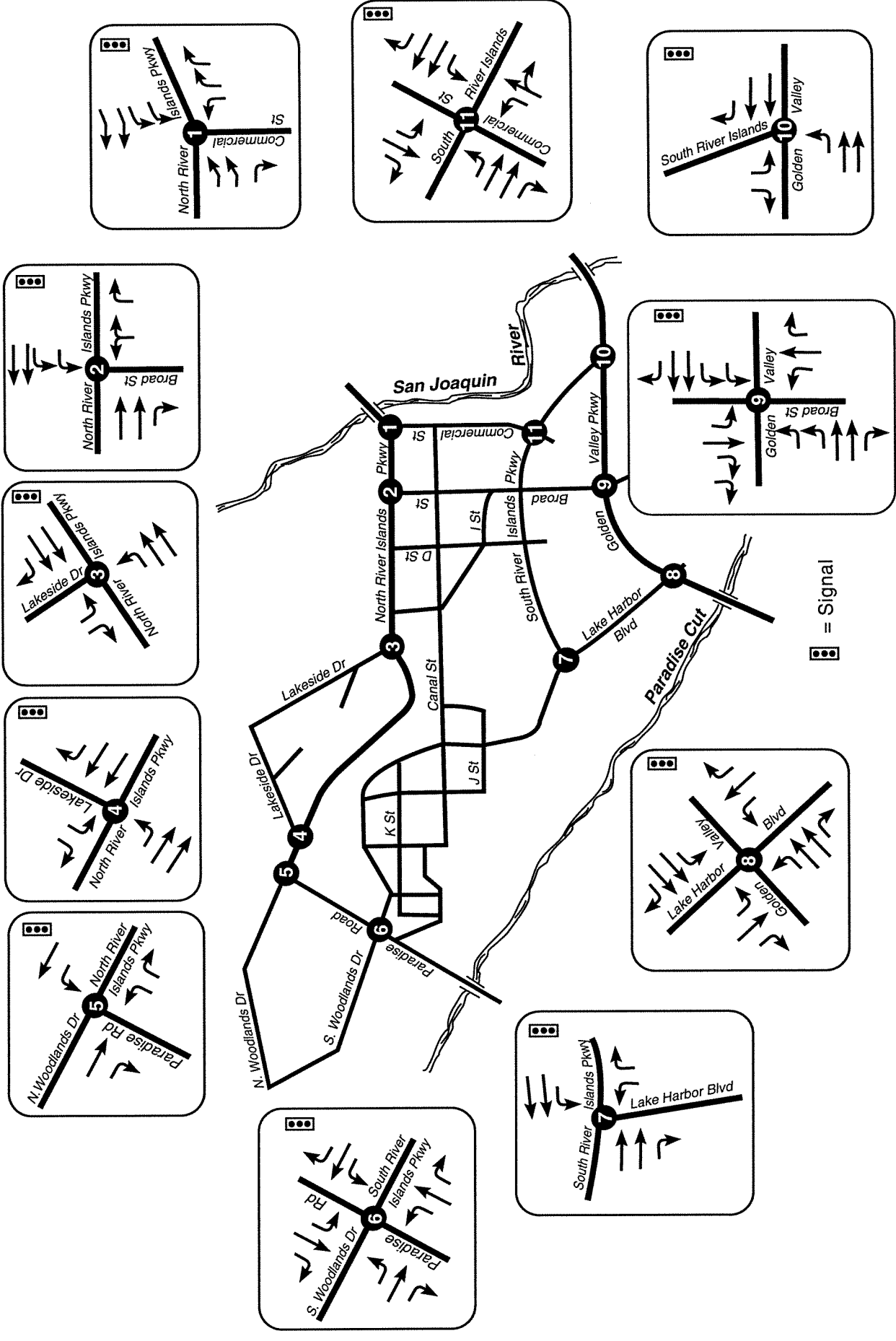
Year 2025 Base Case + Project Onsite Intersection Lane Geometrics and Control

EXHIBIT 4.4-13

River Islands at Lathrop
CITY OF LATHROP
G 11013.01 10/02



NO SCALE



Signal

- ▶ project traffic degrades base case operation at a signalized, all-way-stop- or side street stop-sign-controlled intersection or along rural roadways in San Joaquin County from LOS A through C to LOS D, E or F;
- ▶ the project increases traffic by 1% or more at base case signalized, all-way-stop- or side street stop-sign-controlled intersections or along rural roadways in San Joaquin County already operating at LOS D, E or F;
- ▶ project traffic results in vehicle queues extending from one signalized intersection to and through an adjacent signalized intersection (or out of a turn pocket's available storage length), or if base case vehicle queues already extend from one signalized intersection to an adjacent signalized intersection (or out of a turn pocket's available storage length), and the project increases traffic passing through the upstream intersection by 1% or more;
- ▶ project traffic degrades base case freeway segment, on-ramp merge/off-ramp diverge or weaving operation from LOS A through D to LOS E or F;
- ▶ the project increases traffic by 1% or more to base case freeway segments, on-ramp merge/off-ramp diverge areas or weaving locations already operating at LOS E or F;
- ▶ certain project-related traffic changes or proposed designs would substantially increase auto, pedestrian, or bicycle rider safety concerns;
- ▶ the project's internal circulation does not provide for or allow flexibility to provide for public transit service along major internal streets; or
- ▶ project traffic could significantly degrade existing roadway pavement condition.

IMPACT ANALYSIS

As explained earlier, the primary difference between the base case and the existing baseline conditions is that under base case conditions, the circulation system is assumed to be improved, as planned, as projects included in the base case condition are built. These improvements are described in the first subsections of this discussion of project-related impacts. Under existing baseline conditions, the only roadway improvements assumed in the analysis are those associated with the proposed project's internal circulation system.

Existing (Baseline) Plus Project Impacts

Table 4.4-7 (previously shown as Table 4.4-7) summarizes the impacts of the project on existing ("baseline") intersections and roadways. Also, see Appendix B for substantial and detailed discussions of project impacts.

Impact
4.4-a

Traffic - Degradation of Levels of Service at Signalized and Unsignalized Intersections (Existing Baseline Plus Project).

Phase I a traffic would create no significant intersection impacts.

Phase I traffic would degrade the Louise Avenue/Manthey Road intersection to LOS F.

With **Buildout** traffic, the following intersections would degrade to LOS F:

- ▶ Louise Avenue/I-5 northbound ramp
- ▶ Louise Avenue/I-5 southbound ramp
- ▶ MacArthur Drive/Arbor Avenue
- ▶ Paradise Road/Arbor Avenue

These impacts are considered **significant**.

With **Phase I** or **Buildout** traffic, the stop sign-controlled Manthey Road/Louise Avenue intersection would be adversely affected. The reason this intersection is affected under existing baseline plus **Phase I** or **Buildout** conditions and not the base case is that under any of the base case conditions, this intersection would be eliminated and replaced with the River Islands Parkway/Golden Valley Parkway intersection.

Impact
4.4-b

Traffic - Vehicle Backups Extending from One Intersection through an Adjacent Intersection (Existing Baseline Plus Project).

Phase I a traffic would create no significant vehicle backup impacts.

With **Phase I** traffic, vehicle backups would extend from one intersection through an adjacent intersection during both peak hours for:

- ▶ Louise Avenue, eastbound left-turn traffic approaching the I-5 northbound ramps,
- ▶ Louise Avenue, eastbound through traffic approaching the I-5 southbound ramps,
- ▶ Louise Avenue, westbound through traffic approaching the I-5 southbound ramps
- ▶ Louise Avenue, westbound through traffic approaching the Manthey Road intersection,

With **Buildout** traffic, vehicle backups would extend from one intersection through an adjacent intersection during at least one of the peak hours for:

- ▶ Louise Avenue, eastbound left-turn traffic approaching the I-5 northbound ramps
- ▶ Louise Avenue, eastbound right-turn traffic approaching the I-5 southbound ramps
- ▶ Louise Avenue, eastbound through traffic approaching the I-5 southbound ramps
- ▶ Louise Avenue, westbound through traffic approaching the I-5 southbound ramps
- ▶ MacArthur Drive, northbound left-turn traffic approaching the I-205 westbound ramps
- ▶ MacArthur Drive, northbound through traffic approaching the I-205 westbound ramp,
- ▶ Louise Avenue, westbound through traffic approaching the Manthey Road intersection

These impacts are considered **significant**.

For Phase 1 and Buildout, right-turn and through traffic on westbound Louise Avenue approaching the Manthey Road intersection is affected under existing baseline conditions and not the base case because under any of the base case conditions, this intersection would be eliminated and replaced with the River Islands Parkway/Golden Valley Parkway intersection.

Impact
4.4-c

Traffic - Degradation of Freeway Operations (Existing Baseline Plus Project).

With **Phase 1a** traffic, freeway operations on I-205 westbound, west of MacArthur Drive would be degraded from LOS D to LOS E during the AM peak hour.

With **Phase 1** traffic, operations would continue to perform at or would be degraded to an unacceptable level of service along three freeway segments during one of the peak hours:

- ▶ I-205 westbound, between I-5 and MacArthur Drive with the project contributing more than a 1% traffic increase,
- ▶ I-205 westbound, between Paradise Road and MacArthur Drive, and west of MacArthur Drive.
- ▶ I-205 eastbound, west of MacArthur Drive.

With **Buildout** traffic, freeway operations either would continue to perform at an unacceptable level of service, with the project contributing more than 1% of the traffic increase, or would degrade to an unacceptable level of service at six freeway segments during one of the peak hours:

- ▶ I-205 between eastbound and westbound, I-5 to Paradise Road, Paradise Road to MacArthur Drive, and west of MacArthur Drive.

These impacts are considered **significant**.

Impact
4.4-d

Traffic - Degradation of Freeway Ramp/Freeway Mainline Merge/Diverge Operation (Existing Baseline Plus Project).

With **Phase 1a**, traffic volumes would increase more than 1% at one ramp merge location and one ramp diverge location already operating at unacceptable levels of service during one of the peak hours:

- ▶ I-5 southbound on-ramp merge from Manthey Road
- ▶ I-205 eastbound off-ramp diverge to MacArthur Drive

With **Phase 1**, project traffic would produce significant impacts at one ramp merge and two ramp diverge locations during one of the peak hours:

- ▶ I-205 westbound off-ramp diverge to MacArthur Drive would degrade to LOS F operation
- ▶ I-205 westbound on-ramp merge from MacArthur Drive would degrade to LOS F operation
- ▶ I-205 eastbound off-ramp diverge to MacArthur Drive would continue to operate at LOS E, with more than a 1% increase in traffic attributable to the project.

At **Buildout**, project traffic would produce significant impacts at two ramp merge and two ramp diverge locations during one of the peak hours by either degrading operation from an acceptable to an unacceptable level of service or by providing more than a 1% traffic increase at a location already operating at an unacceptable level of service:

- ▶ I-205 westbound off-ramp diverge at MacArthur Drive
- ▶ I-205 westbound on-ramp merge from MacArthur Drive
- ▶ I-205 eastbound off-ramp diverge to MacArthur Drive
- ▶ I-205 eastbound on-ramp merge from MacArthur Drive.

These impacts are considered **significant**.

Impact
4.4-e

Traffic - Degradation of Weaving Movements on I-5 to/from Mossdale Road/Manthey Road Hook Ramps (Existing Baseline Plus Project). There are no significant weaving impacts on I-5 to/from Mossdale Road and Manthey Road hook ramp interchanges for **Phase Ia, Phase I and Buildout**. The reason is that the River Islands project would only access these interchanges during Phase Ia. Under Phase I and Buildout conditions, the project would not be expected to add any measurable increase in base case traffic to the Mossdale Road/Manthey Road Hook Ramps since there would only be an emergency vehicle roadway connection between the project and Manthey Road. As a result, these two interchanges would be operating under all scenarios either at an acceptable level of service and would not have a measurable increase in traffic or the interchanges would already be operating at an unacceptable level of service during at least one of the peak hours and would continue to operate at an unacceptable level of service during at least one of the peak hours, with the project contributing less than 1% of the traffic increase. These impacts are therefore considered **less than significant**.

Impact
4.4-f

Traffic - Degradation of Rural Two-Lane Roadway Operation – (Existing Baseline Plus Project).

Phase Ia traffic would create no significant impacts to rural two-lane roads.

Phase I traffic would create no significant impacts to rural two-lane roads.

Buildout traffic would result in unacceptable (LOS D) operation along the three two-lane rural roadways connecting the River Islands development to the I-205 / MacArthur Drive interchange (Paradise Road, Arbor Avenue, MacArthur Drive).

These impacts are considered **significant**.

Impact
4.4-g

Traffic - Degradation of Stewart Road Operation (Existing Baseline Plus Project).

For **Phase Ia**, the project applicant's proposed widening of Stewart Road (just west of Manthey Road) to contain two 12-foot travel lanes and 3-foot paved shoulders would not meet minimum AASHTO rural collector road standards of two 12-foot travel lanes and 8-foot-wide shoulders for roadways accommodating more than 3,000 vehicles per day. The

applicant is also not proposing to relocate the Union Pacific at-grade crossing gate and signal standards, which would be within 10 feet of the roadways edge of travel way and would not conform to AASHTO standards for horizontal clearance to obstructions along rural collector roads with design speeds less than 45 miles per hour. In addition, the two sharp 90-degree curves in Stewart Road near Manthey Road do not meet City of Lathrop curve radii minimum requirements. Finally, the sharp 90-degree curve on Stewart Road just west of Manthey Road does not meet AASHTO minimum stopping sight distance criteria for a 25-mile per hour design speed.

For **Phase I** and for **Buildout**, the project would not use Stewart Road, so there is no impact.

These Phase Ia issues would represent **significant** impacts.

Impact
4.4-h

Traffic - Degradation of Manthey Road San Joaquin River Bridge Operation (Existing Baseline Plus Project).

Project **Phase Ia** would increase existing traffic using the 500-foot-long Manthey Road San Joaquin River Bridge from about 550 to about 1,800 two-way vehicles per day. This total would include northbound heavy truck traffic associated with sand and gravel mining operation to the east of the I-5 freeway. The bridge's two 12-foot travel lanes and no shoulder area would potentially meet AASHTO standards for existing bridges along rural collector roads (which indicate the need for a 24-foot minimum clear roadway width with 1,500 to 2,000 vehicles per day). However, it should be noted that these criteria pertain to bridges 100 feet or less in length: there are no published AASHTO criteria for rural collector bridges longer than 100 feet.

For **Phase I** and for **Buildout**, the project is anticipated to have minimal impact upon Manthey Road, and so the impact is considered less than significant.

This Phase Ia issue represents a potentially **significant** impact.

Impact
4.4-i

Traffic - Construction Traffic (Existing Baseline Plus Project).

For **Phase Ia**, the project applicant estimates there could be up to 300 construction workers accessing the project site on any given weekday. All but 75 workers are expected to access the site before 6:30 AM and all but 75 would exit the site before 4:30 PM. No construction truck traffic is expected before 8:00 AM or after 4:00 PM. Should these projections and commute times be followed, operational impacts would remain at a less-than-significant level. However, if these times are not followed, operational problems could arise. Also, construction traffic, in particular truck traffic, could degrade pavement condition along all roadways used for access. In addition, construction truck traffic (not staying within their lanes) would cause safety concerns on the sharp 90-degree curves of Stewart Road (during Phase Ia).

For **Phase I and Buildout**, the access to the site via River Islands Parkway is adequate to support construction traffic, and so this impact is considered less than significant.

These Phase I issues would represent **significant** impacts.

Cumulative (Base Case) Plus Project Impacts

Table 4.4-8 summarizes the impacts of the project on planned/cumulative (“base case”) intersections and roadways. Also, see Appendix B for substantial and detailed discussions of project impacts.

Impact
4.4-j

Traffic - Degradation of Levels of Service at Signalized and Unsignalized Intersections (Base Case Plus Project).

Phase Ia (2007) traffic would create no significant intersection impacts.

With **Phase I (2015)** traffic, the following intersections would degrade to LOS F (or would not degrade an LOS level but would operate at LOS F and contribute more than a 1% traffic increase to the intersection):

- Louise Avenue/I-5 northbound ramps
- Louise Avenue/I-5 southbound ramps
- MacArthur Drive/Arbor Avenue

Buildout (2025) traffic would create the following impacts:

- ▶ Louise Avenue/I-5 northbound ramps would continue to operate at LOS F, with the project contributing more than 1% of the traffic increase to the intersection
- ▶ Louise Avenue/I-5 southbound ramps would operate at LOS E
- ▶ MacArthur Drive/I-205 westbound ramp would operate at LOS F; and
- ▶ River Islands Parkway/Golden Valley Parkway intersection would operate at LOS E.

These impacts are considered **significant**.

Impact
4.4-k

Traffic - Vehicle Backups Extending from One Intersection through an Adjacent Intersection (Base Case Plus Project).

Phase Ia (2007) traffic would create no significant vehicle backup impacts. With **Phase I (2015)** traffic, vehicle backups would extend from one intersection through an adjacent intersection during the PM peak hour for:

- ▶ Louise Avenue eastbound through traffic approaching the I-5 northbound ramps
- ▶ Louise Avenue westbound through traffic approaching the I-5 southbound ramps
- ▶ MacArthur Drive northbound left-turn traffic approaching the I-205 westbound ramps, and
- ▶ MacArthur Drive southbound left-turn traffic approaching the I-205 eastbound ramps.

**Table 4.4-8
Roadway Incremental Improvements by Horizon Year (Phase)
Base Case, and Base Case Plus Project
River Islands at Lathrop**

	Existing		Phase 1A		Phase 1A Mitigation		Phase 1		Phase 1 Mitigation		Build-Out		Build-Out Mitigation												
	Lanes @ I/S	2007 Base Case NO Project Lanes @ I/S	2007 Base Case Plus Project Lanes @ I/S	2015 Base Case NO Project Lanes @ I/S	2015 Base Case Plus Project Lanes @ I/S	2025 Base Case NO Project Lanes @ I/S	2025 Base Case Plus Project Lanes @ I/S	Plus Project Req. Mitigation Lanes @ I/S	Plus Project Req. Mitigation Lanes @ I/S	2025 Base Case NO Project Lanes @ I/S	2025 Base Case Plus Project Lanes @ I/S	Plus Project Req. Mitigation Lanes @ I/S	2025 Base Case NO Project Lanes @ I/S	2025 Base Case Plus Project Lanes @ I/S	Plus Project Req. Mitigation Lanes @ I/S										
																Phase 1A		Phase 1		Phase 1 Mitigation		Build-Out		Build-Out Mitigation	
																2007 Base Case NO Project Lanes @ I/S	2007 Base Case Plus Project Lanes @ I/S	2015 Base Case NO Project Lanes @ I/S	2015 Base Case Plus Project Lanes @ I/S	2025 Base Case NO Project Lanes @ I/S	2025 Base Case Plus Project Lanes @ I/S	Plus Project Req. Mitigation Lanes @ I/S	Plus Project Req. Mitigation Lanes @ I/S	2025 Base Case NO Project Lanes @ I/S	2025 Base Case Plus Project Lanes @ I/S
Louise - River Islands Pkwy																									
w/o Harlan	4	Signal	-	-	-	-	-	-	-	-	-	-	-	-	-										
w/o NB Ramps	4	Signal	-	-	-	-	-	-	-	-	-	-	-	-	-										
w/o SB Ramps	2	Signal	+1(3)	-	-	-	+1(11)	-	Loop, fair share	-	-	-	-	-	+1(12)										
w/o Manthey	n/a	SS	n/a	n/a	n/a	n/a	n/a	n/a	Loop, fair share	-	-	-	-	-	-										
w/o Golden Valley Pkwy	n/a	n/a	Signal	-	-	-	+2(4)	-	-	-	-	-	-	-	-										
w/o Mossdale	n/a	n/a	SS	n/a	n/a	n/a	+2	-	-	-	-	-	-	-	-										
w/o Silvera Access	n/a	n/a	n/a	n/a	n/a	n/a	Signal	+2(4)	-	-	-	-	-	-	-										
w/o Commercial St	n/a	n/a	n/a	n/a	n/a	n/a	SS	+4	-	-	-	-	-	-	-										
w/o Broad St	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Signal	-	-	-	-	-	-	-										
w/o Lakeside Dr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Signal	-	-	-	-	-	-	-										
@ Paradise Rd	n/a	n/a	n/a	n/a	n/a	n/a	n/a	SS	-	-	-	-	-	-	-										
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	+2	-	-	-	-	-	-	-										
NB Offramp @ Louise	2	Signal	-	-	-	-	+1(3)	-	-	-	-	-	-	-	+1(4)										
SB Offramp @ Louise	2	Signal	-	-	-	-	+1(3)	-	-	-	-	-	-	-	-										
South River Islands Pkwy																									
w/o Golden Valley Pkwy	n/a	n/a	n/a	n/a	n/a	n/a	n/a	+2	-	-	-	-	-	-	-										
w/o Commercial St	n/a	n/a	n/a	n/a	n/a	n/a	n/a	+2	-	-	-	-	-	-	-										
w/o Lake Harbor Blvd	n/a	n/a	n/a	n/a	n/a	n/a	n/a	+2	-	-	-	-	-	-	-										
@ Paradise Rd	n/a	n/a	n/a	n/a	n/a	n/a	n/a	na	-	-	-	-	-	-	-										
Golden Valley Parkway																									
s/o River Islands Parkway	n/a	n/a	+2	Signal	-	-	+2(4)	-	-	-	-	-	-	-	+2(6)										
s/o Main St	n/a	n/a	n/a	SS	-	-	+2	-	-	-	-	-	-	-	-										
s/o River Edge Dr	n/a	n/a	n/a	n/a	n/a	n/a	Signal	-	-	-	-	-	-	-	-										
w/o S. River Islands Pkwy	n/a	n/a	n/a	n/a	n/a	n/a	n/a	+2	-	-	-	-	-	-	-										
w/o Broad St	n/a	n/a	n/a	n/a	n/a	n/a	n/a	+2	-	-	-	-	-	-	-										
w/o Lake Harbor Blvd	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Signal	-	-	-	-	-	-	-										
@ Paradise Rd/Arbor Ave	n/a	n/a	n/a	n/a	n/a	n/a	n/a	SS	-	-	-	-	-	-	+2(4)										
Paradise Road																									
n/o I-205 EB ramps	2	n/a	-	n/a	-	-	-	-	-	-	-	-	-	-	relocate ramps										
n/o I-205 WB ramps	2	n/a	-	n/a	-	-	-	-	-	-	-	-	-	-	+2(4),reloc ramps										
n/o Arbor/Golden Valley Pkwy	2	SS	-	-	-	-	-	-	-	-	-	-	-	-	-										
n/o South River Islands Pkwy	2	n/a	n/a	n/a	n/a	n/a	n/a	-	+2(4)	-	-	-	-	-	-										
@ North River Islands Pkwy	2	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	-	-	-										
MacArthur Boulevard																									
n/o I-205 EB ramps	3	Signal	-	-	-	-	-	-	-	-	-	-	-	-	-										
n/o I-205 WB ramps	2	Signal	-	-	-	-	+2(4)	-	-	-	-	-	-	-	-										
EB Offramp from I-205	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-										
WB Offramp from I-205	1	-	-	-	-	-	-	+1	-	-	-	-	-	-	-										

**Table 4.4-8
Roadway Incremental Improvements by Horizon Year (Phase)
Base Case, and Base Case Plus Project
River Islands at Lathrop**

	Existing Lanes @ I/S	Phase 1A		Phase 1		Phase 1 Mitigation		Build-Out		Build-Out Mitigation	
		2007 Base Case Plus Project		2015 Base Case Plus Project		2015 Base Case Plus Project		2025 Base Case Plus Project		2025 Base Case Plus Project	
		NO Project Lanes @ I/S	Plus Project Lanes @ I/S	NO Project Lanes @ I/S	Plus Project Lanes @ I/S	NO Project Lanes @ I/S	Plus Project Lanes @ I/S	NO Project Lanes @ I/S	Plus Project Lanes @ I/S	NO Project Lanes @ I/S	Plus Project Lanes @ I/S
Arbor Avenue w/o Paradise/Golden Val Pkwy w/o MacArthur	2 SS 2 SS	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -
Stewart Road w/o Manthey	2 SS	- -	(6) (6)	- -	- -	- -	- -	- -	- -	- -	- -
+2 ⁽¹⁾											
+2(4) ⁽²⁾											
+1(4) ⁽³⁾											
(4)											
(5)											
(6)											
(7)											
+2(6)											

+2⁽¹⁾ = Represents two lanes to San Joaquin River
+2(4)⁽²⁾ = Represents two added lanes to San Joaquin River, and 4 lanes across the river
+1(4)⁽³⁾ = Also provide 2nd departure lane for EB on-ramp
(4) = Also provide right turn lane on SB approach to WB on-ramp
(5) = Some realignment, reconstruction and widening
(6) = Additional realignment and widening
(7) = Right turn lanes on Paradise approach to both ramps
+2(6) = Typical, represents an addition of 2 lanes, for a total of 6 lanes

With **Buildout (2025)** traffic, vehicle backups would extend from one intersection through an adjacent intersection during at least one of the peak hours for:

- ▶ Louise Avenue eastbound through traffic approaching the I-5 northbound ramps,
- ▶ Louise Avenue eastbound through traffic approaching the I-5 southbound ramps,
- ▶ Louise Avenue westbound through traffic approaching the I-5 southbound ramps,
- ▶ Paradise Road southbound through traffic approaching the I-205 eastbound ramps,
- ▶ MacArthur Drive northbound left-turn traffic approaching the I-205 westbound ramps,
- ▶ MacArthur Drive southbound left-turn traffic approaching the I-205 eastbound ramps, and

These impacts are considered **significant**.

Impact
4.4-l

Traffic - Degradation of Freeway Operations (Base Case Plus Project).

With **Phase 1a (2007)** traffic, freeway operations on I-205, both eastbound and westbound, west of MacArthur Drive would continue to operate at LOS E or F during one of the peak hours, with the project increasing traffic more than 1%.

With **Phase 1 (2015)** traffic, operations at four freeway segments would continue to perform at or would be degraded to unacceptable levels of service, with the project contributing more than 1% of the traffic increase to all four segments, during one of the peak hours:

- ▶ I-5 north of Louise Avenue, both northbound and southbound
- ▶ I-205 west of MacArthur Drive, both eastbound and westbound

With **Buildout (2025)** traffic, the project contributes more than a 1% traffic increase at each of the following freeway segments during at least one of the peak hours:

- ▶ I-5 northbound, north of Louise Avenue and south of I-205
- ▶ I-5 southbound, north of Louise Avenue, between Louise Avenue and SR 120 and between SR 120 and I-205
- ▶ I-205 eastbound and westbound between Paradise Road and MacArthur Drive
- ▶ I-205 westbound, west of MacArthur Drive; and
- ▶ SR 120 westbound, east of I-5.

These impacts are considered **significant**.

Impact
4.4-m

Traffic - Degradation of Freeway Ramp/Freeway Mainline Merge/Diverge Operation (Base Case Plus Project).

Phase 1a (2007) project traffic would increase volumes more than 1% at two ramp merge and two ramp diverge locations already operating at unacceptable levels of service during one of the peak hours:

- ▶ I-5 southbound on-ramp merge from Manthey Road
- ▶ I-5 northbound on-ramp merge from Mossdale Road

- ▶ I-5 northbound off-ramp diverge to Mossdale Road
- ▶ I-205 eastbound off-ramp diverge to MacArthur Drive

With **Phase I (2015)**, project traffic would contribute more than a 1% traffic increase at these five locations, significantly degrading base case freeway operation at the following freeway ramp merge and diverge areas during one of the peak hours:

- ▶ I-5 southbound off-ramp diverge to Louise Avenue, which would continue to operate at LOS E; the
- ▶ I-5 northbound on-ramp merge from Louise Avenue, which would degrade from LOS E operations to LOS F
- ▶ I-205 westbound on-ramp merge from MacArthur Drive, which would continue to operate at LOS F
- ▶ I-205 eastbound on-ramp merge from MacArthur Drive, which would continue to operate at LOS F
- ▶ I-205 eastbound off-ramp diverge to MacArthur Drive, which would continue to operate at LOS F

With **Buildout (2025)**, project traffic would significantly degrade base case freeway on-ramp merge and off-ramp diverge operations during one or both of the peak hours:

- ▶ I-5 southbound off-ramp diverge to Louise Avenue,
- ▶ I-5 southbound on-ramp merge from Louise Avenue,
- ▶ I-5 northbound on-ramp merge from Louise Avenue,
- ▶ I-5 southbound off-ramp diverge to Manthey Road,
- ▶ I-5 southbound on-ramp merge from Manthey Road,
- ▶ I-205 westbound on-ramp merge from Paradise Road,
- ▶ I-205 eastbound off-ramp diverge to Paradise Road,
- ▶ I-205 westbound off-ramp diverge to MacArthur Drive,
- ▶ I-205 westbound on-ramp merge from MacArthur Drive, and
- ▶ I-205 eastbound on-ramp merge from MacArthur Drive.

These impacts are considered **significant**.

Impact
4.4-n

Traffic - Degradation of Weaving Movements on I-5 to/from Mossdale

Road/Manthey Road Hook Ramps(Base Case Plus Project). There are no significant weaving impacts anticipated at the I-5 to/from Mossdale Road and Manthey Road hook ramp interchanges. The River Islands project would access these interchanges only during Phase I a (2007). Under Phase I (2015) and Buildout (2025) conditions, the project would not be expected to add any measurable increase in base case traffic to the Mossdale Road/Manthey Road Hook Ramps since there would only be an emergency vehicle roadway connection between the project and Manthey Road. As a result, these two interchanges would be operating under all scenarios either at an acceptable level of service and would not have a measurable increase in traffic or the interchanges would already be operating at an unacceptable level of service during at least one of the peak hours and would continue to operate at an unacceptable level of service during at least one of the peak hours, with the

project contributing less than 1% of the traffic increase. These impacts are therefore considered **less than significant**.

Impact
4.4-o

Traffic - Degradation of Rural Two-Lane Roadway Operation (Base Case Plus Project).

Phase Ia (2007) traffic would create no significant impacts to rural two-lane roads. With **Phase I (2015)** traffic, the proposed project would degrade rural two-lane roadway operation to an unacceptable LOS D at the following locations:

- ▶ Paradise Road, Paradise Cut to Arbor Avenue (in AM and PM peak hour)
- Arbor Avenue, Paradise Road to MacArthur Drive (in AM and PM peak hour)

With **Buildout (2025)** traffic, the proposed project would degrade rural two-lane roadway operation at the following locations:

- ▶ Paradise Road, Paradise Cut to Arbor Avenue (in AM peak hour, degrade to unacceptable LOS D operation. In PM peak hour, degrade to unacceptable LOS E operation)
- ▶ Paradise Road, Arbor Avenue to I-205 (in AM and PM peak hour, degrade to unacceptable LOS E operation)
- ▶ Arbor Avenue, Paradise Road to MacArthur Drive (in AM and PM peak hour, greater than 1% traffic increase with Base Case unacceptable LOS D operation; plus degrade to LOS E operation)
- ▶ MacArthur Drive, Arbor Avenue to I-205 (in PM. peak hour, degrade to unacceptable LOS E operation)
- ▶ Golden Valley Parkway, Paradise Road/Arbor Avenue intersection to the east end of the project site (in the AM and PM Peak Hours, degrade to unacceptable LOS E operation)

These impacts are considered **significant**.

Impact
4.4-p

Traffic - Degradation of Stewart Road Operation (Base Case Plus Project).

For **Phase Ia (2007)**, the project applicant's proposed widening of Stewart Road (just west of Manthey Road) to contain two 12-foot travel lanes and 3-foot paved shoulders would not meet minimum AASHTO rural collector roadway standards of two 12-foot travel lanes and 8-foot-wide shoulders for roadways accommodating more than 3,000 vehicles per day. The applicant is also not proposing to relocate the Union Pacific at-grade crossing gate and signal standards, which would be within 10 feet of the roadways edge of travel way and would not conform to AASHTO standards for horizontal clearance to obstructions along rural collector roads with design speeds less than 45 miles per hour. In addition, the two sharp 90-degree curves in Stewart Road near Manthey Road do not meet City of Lathrop curve radii minimum requirements. Finally, the sharp 90-degree curve on Stewart Road just west of Manthey Road does not meet AASHTO minimum stopping sight distance criteria for a 25-mile per hour design speed.

For **Phase I (2015)** and for **Buildout (2025)**, the project would not use Stewart Road, so there is no impact.

These Phase I a issues would represent **significant** impacts.

Impact
4.4-q

Traffic - Degradation of Manthey Road San Joaquin River Bridge Operation (Base Case Plus Project).

Project **Phase I a (2007)** traffic would increase year 2007 Base Case traffic using the 500-foot-long Manthey Road San Joaquin River Bridge from about 600 to more than 2,000 vehicles per day. This total would include northbound heavy truck traffic associated with the sand and gravel mining operation to the east of the I-5 freeway as well as construction trucks associated with River Islands. The bridge's two 12-foot travel lanes and no shoulder area would potentially not meet AASHTO standards for existing bridges along rural collector roads (which indicate the need for a 28-foot minimum clear roadway width). It should be noted, however, that these criteria pertain to bridges 100 feet or less in length: there are no published AASHTO criteria for rural collector bridges longer than 100 feet.

For **Phase I (2015)** and for **Buildout (2025)**, the project is anticipated to have minimally use Manthey Road, and the impact would be less than significant.

This Phase I a issue would represent a potentially **significant** impact.

Impact
4.4-r

Traffic - Proposed Internal Circulation Plan (Base Case Plus Project).

The proposed **Buildout** project internal circulation plan (see Exhibit 3-13) would function adequately with acceptable levels of service at all major signalized internal intersections (see Table B-40). With regional development and resultant congested peak period freeway operation, it is likely that some subregional through traffic would be using the River Islands roadway system during these periods. This through traffic would use only arterial roadways through the site (River Islands Parkway and Paradise Road). Projections indicate this additional traffic could be accommodated at acceptable levels.

However, a review of the proposed **Phase I** internal circulation plan showed that the following parts of the plan could result in significant impacts.

1. Broad Street is proposed to be a two-lane major collector roadway. While two lanes may be adequate for Phase I volumes, they potentially may not be adequate to accommodate buildout volumes.
2. The four-lane parkway proposed cross section for North River Islands Parkway and South River Islands Parkway shows provision of a 16-foot-wide median. This would not allow provision of dual left turn lanes on the approaches to major intersections, if ever needed, unless right-of-way allocated to landscaping is used for this purpose.
3. Angled parking, as proposed along Water Street, has been documented to result in higher accident rates than parallel parking.

4. *Two-lane local streets with parking allowed on both sides of the street are proposed to be 34 feet wide. While this may be adequate for straight segments of the local streets, it would result in safety concerns at curves.*
5. *The sharp 90-degree curves proposed at many locations along local streets potentially do not meet minimum City curve radii standards.*
6. *There are several locations where local street intersections with collector streets are located too close to the collector street intersection with a parkway. Vehicle queues on the collector or local street approaches to the Parkway could extend through the local/collector street intersections. Also, sight lines may be less than adequate for a driver turning at a higher rate of speed from the Parkway to see a vehicle turning at an adjacent minor street intersection. Locations are:*

The J2 Street/J3 Street and J2 Street/J4 Street intersections are too close (250 feet) to the J2 Street/Golden Valley Parkway intersection.

- ▶ *The Commerce Center Boulevard/J5 Street and Commerce Center Boulevard/J6 Street intersections are too close (250 feet) to the Commerce Center Boulevard/Golden Valley Parkway intersection.*
- ▶ *The F1 Street/F6 Street intersection is too close (130 feet) to the F1 Street/South River Islands Parkway roundabout.*
- ▶ *The G1 Street/G2 Street intersection is too close (130 feet) to the G1 Street/South River Islands Parkway roundabout.*
- ▶ *The F7 Street/F12 Street intersection is too close (130 feet) to the F7 Street/South River Islands Parkway roundabout.*
- ▶ *The G7 Street/G6 Street intersection is too close (130 feet) to the G7 Street/South River Islands Parkway roundabout.*
- ▶ *The D40 Street/Broad Street intersection is too close (200 feet) to the Broad Street/South River Islands Parkway intersection.*
- ▶ *The D14 Street/Broad Street intersection is too close (180 feet) to the Broad Street/North River Islands Parkway intersection.*
- ▶ *The D5 Street/D20 Street intersection is too close (180 feet) to the D20 Street/North River Islands Parkway intersection.*
- ▶ *The A10 Street/A6 Street intersection is too close (150 feet) to the A10 Street/North River Islands parkway intersection.*

7. *The two-lane roundabout at the North River Islands Parkway/D27 Street-A14 Street intersection may not be appropriate for a route to be used by senior drivers, regional traffic, and bicycle riders.*

8. Geometric control at the A10 Street/K8 Street, K8 Street/K1 Street and both K1 Street/K2 Street intersections may be problematic with two-way traffic flow and the 30-degree intersection approaches at all four locations.
9. Vehicle control at the two closely spaced Canal Street intersections with Commercial Street, Broad Street, D27 Street, D20 Street and D41 Street may lead to driver confusion or less than ideal north-south traffic flow.
10. Sight lines may be less than adequate on one or more approaches at the following locations:
 - ▶ D20 Street/D19 Street intersection
 - ▶ D20 Street/D22 Street intersection
 - ▶ C2 Street/C4 Street intersection
 - ▶ C5 Street/C6 Street intersection
 - ▶ C8 Street/C9 Street intersection
 - ▶ C10 Street/C11 Street intersection
11. The three two-lane roundabouts proposed along South River Islands Parkway could lead to driver confusion and increased accident potential.
12. The Lathrop-Manteca Fire District has indicated (after review of the Phase I tentative map) that many of the cul-de-sacs exceed maximum length criteria established by the City, while at the same time secondary (emergency) access has not been provided at or near the end of the cul-de-sacs.

Regarding **Buildout**, there is no tentative map for development of the entire project; only Phase I. However, the UDC for project buildout presents enough detail in order to analyze all major intersections outside Phase I. The proposed project internal circulation plan at buildout (see Exhibit 3-13) would function adequately with acceptable levels of service at all major signalized internal intersections (see Table B-47). However, with regional development and resultant congested peak period freeway operation, it is likely that some subregional through traffic would be using the River Islands roadway system during these periods. Use of project collector roadways by through traffic could potentially result in significant safety concerns.

In addition, comments pertaining to Phase I significant impacts regarding less-than-adequate spacing between intersections, inadequate sight lines, widths of local streets at curves, inadequate rights-of-way for four-lane parkways at major intersections, operation of two-lane roundabouts, Canal Street intersection control and concerns of the Lathrop-Manteca Fire District regarding the maximum length of cul-de-sacs would also pertain to those sections of River Islands remaining to be completed by buildout.

These would represent **significant** impacts.



Traffic - Onsite Pedestrian Circulation (Base Case Plus Project). The project's **Phase Ia, Phase I and Buildout** pedestrian circulation plan (see Exhibit 3-9) proposes sidewalks along both sides of all internal streets, with the exception of all single loaded stub streets

(where a sidewalk on one side would be provided), and all alleys (where no sidewalks would be provided). Pedestrian/bicycle trails would also be provided along some levees and adjacent to some portions of internal waterways.

A two-level series of loop trails would ultimately be provided with shared use by pedestrians and bicycle riders. A Main Loop 10-foot-wide trail would be partially completed by Phase I and fully completed by the project Buildout. A series of five secondary loops, each 8 feet wide, would also be provided by the project (the Town Center Loop and the Employment Center Loop with Phase I, the West Village Loop, Woodlands Loop and Old River Road Loop with Buildout). Trails would also be provided along both sides of the canal that extends westerly from the town center (named the Canal Street Trail). These 8-foot-wide trails would be completed to their ultimate two-mile length during project buildout, with half that length provided with Phase I. Up to 19 paseos or local 8-foot-wide trails within neighborhoods would also be provided as part of project buildout development, with 4 completed with Phase I. These trails and paseos would provide access to all village and community parks, schools, commercial areas and employment centers.

The overall pedestrian circulation plan appears adequate with one possible exception. The 8- to 10-foot-wide trails are widths typically provided for bike riders only. In locations with moderate to high pedestrian volumes, there could be conflicts between pedestrians and bike riders.

This would represent a potentially **significant** impact.

Impact
4.4-t

Traffic - On-Site Bicycle Circulation (Base Case Plus Project). The project's proposed Phase Ia, Phase I and Buildout bicycle circulation plan (see Exhibit 3-9) proposes a mix of multi-use trails (Class I pedestrian/bikeways) and bicycle lanes (Class II bikeways). All four- and six-lane parkways and all two-lane major collector streets would have Class II signed and striped bike lanes. The Loop and Paseo trail system previously listed under pedestrian circulation would also serve bike riders as well as pedestrians. Thus, bike riders would also have off-street or signed and striped on-street facilities providing access to all parks, schools, commercial areas and employment centers within the development.

The overall bicycle circulation plan appears adequate with three possible exceptions.

There could be conflicts between bike riders and pedestrians on those sections of the 8- or 10-foot-wide loop trail system with moderate to heavy pedestrian use.

Bike riders not observing basic traffic laws would be safety concerns for pedestrians and auto drivers at all locations where bike riders would interface with pedestrians and auto traffic.

Bike riders could have significant safety problems using the two-lane roundabouts proposed along North River Islands Parkway and South River Islands Parkway.

These would represent potentially **significant** impacts.

Impact
4.4-u

Traffic - Provisions for Public Transit (Year 2007, 2015 & 2025 Base Case + Project). Regarding **Phase Ia (2007), Phase I (2015) and Buildout (2025)**, the project applicant has contacted the San Joaquin Regional Transit District (SJRTD) and has committed to work with them to provide an internal circulation plan within the residential and commercial areas that would facilitate and encourage use of public transit. This would include providing areas for likely bus stops (to transit agency criteria) as well as bus stop shelters. The project's TDM program would also encourage employees to use local transit service. Bus transit service would be provided by SJRTD to the ACE commuter train station as well as to Stockton, Tracy and the other sections of Lathrop. While the project site is adjacent to the San Joaquin River and would contain several marinas, there are no definitive plans for public boat service. However, it would be assumed that some residents would use their private boats for local travel within the River Islands project as well as for regional recreation travel.

This would represent a **less-than-significant** impact

Impact
4.4-v

Traffic - Construction Traffic (Base Case Plus Project).

For **Phase Ia**, the project applicant estimates there could be up to 300 construction workers accessing the project site on any given weekday. All but 75 workers are expected to access the site before 6:30 AM and all but 75 would exit the site before 4:30 PM. No construction truck traffic is expected before 8:00 AM or after 4:00 PM. Should these projections and commute times be followed, operational impacts would remain at a less-than-significant level. However, if these times are not followed, operational problems could arise. Also, construction traffic, in particular truck traffic, could degrade pavement condition along all roadways used for access. In addition, construction truck traffic (not staying within their lanes) would cause safety concerns on the sharp 90-degree curves of Stewart Road (during Phase Ia).

For **Phase I and Buildout**, the access to the site via River Islands Parkway is adequate to support construction traffic, and so this impact is considered less than significant.

These would represent **significant** impacts.

4.4.3 MITIGATION MEASURES

The mitigation measures below correspond by number and name to the environmental impacts. Where either a "less-than-significant impact" or "no impact" would occur, no mitigation is identified below (this is the reason why some of the mitigation measures may skip letters). Similar to the explanation of how the impacts were summarized in the prior section, this section summarizes the detailed mitigation measures noted in Appendix B by grouping them into the two scenarios: **Existing Baseline (2001) + Project**, and **Base Case + Project**. This section is just a summary, and the details of the various mitigation measures are found in Appendix B. For ease of reading this summary, the mitigations required for each phase of the project have been grouped under each general mitigation category.

It should be noted that the mitigations under the Existing Baseline (2001) + Project scenario do not identify a design year. This is because, by definition, this scenario represents the addition of a particular phase of the River Islands Project on top of existing traffic, with no other traffic growth influencing roads affected by the project. The date of the design year would be meaningless under this scenario, so only the phase of development anticipated is noted. Conversely, under the Base Case + Project scenario, the Base Case year is noted along with the development Phase (e.g., Phase 1 [2015]), to assist the reader in distinguishing when in time that particular phase is anticipated to occur.

Prior to discussing mitigations of the specific impacts, a general discussion of funding and monitoring programs is provided. These include the WLSP Regional Transportation Fee, the City of Lathrop Capital Facility Fee for Transportation Improvements, The Stewart Tract On-Site Traffic Mitigation Fee, the City of Tracy/San Joaquin County/City of Lathrop Cooperative Agreement and Traffic Fee and the Stewart Tract Traffic Monitoring Program. Together, these fee programs are referenced in this document as the Transportation Impact Fees. Therefore, rather than reference the fee program specific to each facility, the individual mitigation measures reference payment of applicable Transportation Impact Fees.

WEST LATHROP SPECIFIC PLAN (WLSP) REGIONAL TRANSPORTATION FEE

As noted in the “Existing Programs” section, the West Lathrop Specific Plan Regional Transportation Fee (Regional Transportation Fee) was adopted as a mitigation program to calculate new development’s fair share of regional improvements needed within San Joaquin County, including improvements to mainline freeways, freeway interchanges, regional streets, the regional bicycle system and the bus transit system, as well as rail corridor improvements. Under this program, the City of Lathrop would hold the funds and decide the order and the timing of the construction of these facilities within their Sphere of Influence. The Regional Transportation Fee was adopted by the City of Lathrop as Ordinance No. 97-146 on September 16, 1997, and applies to the entire West Lathrop Specific Plan area. In accordance with the Development Agreement Section 6.03, “Obligations Regarding Regional Traffic Improvements,” payment of the Regional Fee is accepted by the City as mitigation of the Project’s impact on regional improvements, with a few exceptions. This means that the Project will not be required to construct identified regional improvements, with the only exceptions being the I-5/Louise Avenue interchange, the I-205/Paradise-Chrisman interchange, or Golden Valley Parkway between Louise Avenue and Paradise Road. Payment of the Regional Fee will therefore mitigate the project’s impacts upon mainline freeway widening on I-5, SR 120, and I-205.

Specific Improvements in the area to be funded by the Regional Transportation Fee, if all agencies within the County adopted and collected the fee, include:

<u>Mainline Freeway Facility</u>	<u>Improvement Funded</u>	<u>Fee Funding</u>	<u>Total Funding</u>
I-5 mainline, I-205 to SR 120	Widen to 12 lanes	\$11,505,000	\$23,010,000
I-5 Southbound, SR 120 to I-205	Add SB aux lane	\$6,500,000	\$13,000,000
I-5 mainline, SR 120 to French Camp	Widen to 8 lanes	\$14,495,000	\$28,990,000
I-5 Northbound, @ San Joaquin River	Widen bridge, one lane	\$10,000,000	\$20,000,000
SR 120, I-5 to SR 99	Widen to 6 lanes	\$8,450,000	\$16,900,000
I-205, I-580 to I-5	Widen to 8 lanes	\$27,950,000	\$55,900,000

Freeway Interchange Facility	Improvement Funded	Fee Funding	Total Funding
I-5 / Louise Avenue	Included in GVP funding	\$	\$
I-5 / Lathrop Road	Stage I and II improvements	\$5,100,000	\$17,200,000
I-205 / Paradise-Chrisman	New interchange	\$13,400,000	\$19,200,000
I-5 / SR 120	New branch connections	\$15,000,000	\$30,000,000
Regional Roadway Facility	Improvement Funded	Fee Funding	Total Funding
Golden Valley Pkwy, Lathrop Rd to Paradise/Chrisman	New facility	\$41,503,000	\$59,290,000
E/W Expressway, along Arbor (Paradise to Mountain House)	Expanded facility	\$18,655,000	\$26,650,000

CITY OF LATHROP CAPITAL FACILITY FEES (CFF) FOR TRANSPORTATION IMPROVEMENTS

The Regional Transportation Fee anticipated some funding from local impact fees to account for local impacts to some regional facilities, including Golden Valley Parkway and some freeway Interchanges. There are also other facilities of a City-wide nature that benefit multiple projects yet were not included in the Regional Fee. The City will require payment of Capital Facility Fee (CFF) impact fees for funding City-wide transportation improvements required within the River Islands UDC area that are beyond the scope of the Regional Transportation Fee.

The City’s existing CFF program provides funding for various elements of infrastructure and public amenities, including those for transportation in accordance with California Government Code §66000 et seq. However, the current fee applies only to new development in the area east of I-5. The CFF program is currently being updated to reflect the impact of anticipated residential and commercial development within the West Lathrop Specific Plan area, and will set a fee for mitigating those impacts. The existing CFF for transportation includes funding for the following improvements:

- ▶ Interstate 5\Louise Avenue Interchange Stage 1 and partial 2 improvements (local share)
- ▶ Interstate 5\Lathrop Road Interchange Stage 1 and partial 2 improvements (local share)
- ▶ Interstate 5\Roth Road Interchange Stage 1 improvements
- ▶ Railroad grade separations
- ▶ Traffic signals at major intersections
- ▶ Park and Ride Lots and bicycle trails

The CFF update currently being processed will include, at a minimum, the following improvements:

- ▶ Golden Valley Parkway (local share), River Islands Parkway to Paradise Road
- ▶ River Islands Parkway (formerly Gold Rush Boulevard), I-5 to San Joaquin River
- ▶ Interstate 5 Interchange improvements at Louise Avenue
(Balance of Stage 2 improvements plus par-clo or equivalent, local share)

- ▶ Traffic Signals at new major intersections, including:
 - Golden Valley Parkway/River Islands Parkway
 - Golden Valley Parkway/Main Street
 - Golden Valley Parkway/South River Islands Parkway
 - Golden Valley Parkway/Broad Street
 - Golden Valley Parkway/Lake Harbor Blvd
 - Golden Valley Parkway/Paradise/Arbor
 - Golden Valley Parkway/River Edge Drive
 - River Islands Parkway/Mossdale Boulevard
 - River Islands Parkway/Silvera Access

In addition, The CFF update will review the extent that major improvements on Stewart Tract benefit an area beyond Stewart Tract and should be partially funded by development east of the San Joaquin River. Facilities analyzed will include:

- ▶ River Islands Parkway Bridge (Bradshaw’s Crossing) over San Joaquin River
- ▶ Expanded Paradise Road Bridges over Paradise Cut
- ▶ Paradise Road widening, I-205 to North River Islands Parkway
- ▶ North River Islands Parkway (on Stewart Tract)
- ▶ South River Islands Parkway (on Stewart Tract)

Since the Stewart Tract is controlled by one developer, the option exists to create a Stewart Tract On-Site Traffic Mitigation Fee to enable the recovery of Stewart Tract’s share of the costs of the five major facilities located on Stewart Tract noted above from the various future developers of land on the Stewart Tract. Rather than process this fee through the City, the developer has agreed to handle this recovery separately and impose this fee as a condition of the sale of land to future purchasers on Stewart Tract.

CITY OF TRACY/SAN JOAQUIN COUNTY/CITY OF LATHROP COOPERATIVE AGREEMENT AND TRAFFIC FEE

There is one more category of improvements that need to be funded. These are the improvements that are beyond the Sphere of Influence of the City of Lathrop and are not included in the Regional Transportation Fee. They include improvements in the area of the MacArthur Boulevard interchange with I-205. The project will have some responsibility of partial funding these improvements, yet there is also some responsibility of the City of Tracy and the County of San Joaquin to fund these facilities. It is therefore anticipated that these agencies will create a cooperative agreement and traffic fee to fund their shares of the following improvements:

- ▶ I-205 / Paradise – Chrisman Interchange (local share not in Regional Fee)
- ▶ I-205 / MacArthur interchange improvements
- ▶ MacArthur widening, from EB ramps to Arbor Avenue
- ▶ Arbor Avenue widening, Paradise to MacArthur (local share not in Regional Fee)

STEWART TRACT TRAFFIC MONITORING PROGRAM

In 1996, the City of Lathrop and the project applicant established a monitoring program to determine, on an annual basis, an updated evaluation of the current status of circulation system operation and make a revised projection of near and long term circulation system improvement needs based upon current operating conditions and projected new development. This monitoring program was included in the approved Development Agreement for the prior Calafia Project. That existing program established a process for projecting the need for transportation improvements in advance of the actual need occurring to allow the improvement to be constructed to avoid the potential impacts. It is anticipated that this program (or a similar program) will be implemented by the River Islands developer and the City in accordance with the Development Agreement.

The timing of payments from the transportation fee programs noted above is at building permit issuance. Monies collected from the fees are used either to fund the construction of the affected improvements, if sufficient funds exist for such a purpose, or to provide reimbursement or credit for improvements “fronted” by the project developer. It is envisioned that the timing for improvements will coincide with the necessary fund balance to construct those improvements. Should the timing of development slow or impacts from the development arise sooner than anticipated, the River Islands project applicant shall be required to fully fund the necessary improvements (other than main line freeway improvements) and receive either reimbursement or credit from the applicable fee program when paid by others benefiting from the improvements. Where the provision of a mainline freeway transportation improvement is required as a mitigation below, payment of the Regional Transportation Fee will be considered to fulfill the mitigation requirement, so long as the improvement is included in the fee program calculation.

Similar to the provision in the adopted West Lathrop Specific Plan (WLSP) Regional Transportation Fee, it is anticipated that funds collected for the City of Lathrop Capital Facility Fee for Transportation Improvements and the City of Tracy/San Joaquin County/City of Lathrop Cooperative Agreement and Traffic Fee will be held by the City of Lathrop in separate interest bearing accounts for each fund. It is also anticipated that each fund will allow the City to determine what facility is built, and when.

No mitigation measures are provided for the following less-than-significant impacts.

- 4.4-e Degradation of Weaving Movements on I-5 to/from Mossdale Road/Mantney Road Hook Ramps (Existing Baseline Plus Project)
- 4.4-n Degradation of Weaving Movements on I-5 to/from Mossdale Road/Mantney Road Hook Ramps (Base Case Plus Project)
- 4.4-v Construction Traffic (Base Case Plus Project)

The following mitigation measures are provided for significant impacts.

EXISTING BASELINE (2001) + PROJECT MITIGATION

4.4-a Degradation of LOS at Signalized and Unsignalized Intersections (Existing Baseline (2001) + Project).

The City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees to provide that the Phase 1 improvements listed below and in Appendix B, Table B-55 (under recommended Existing + Project Phase 1 Buildout) are completed by the time the River Islands project Phase 1 is completed and that the Buildout improvements listed below and in Appendix B, Table B-57 (under recommended Existing + Full Project Buildout) are completed by the time the River Islands project Buildout is completed or as needed based upon the Stewart Tract Traffic Monitoring Program.

For **Phase 1**, the following improvements shall be provided:

- ▶ Louise Avenue/I-5 Northbound Ramps, provide most Phase 2 PSR improvements to the Louise Avenue interchange. This would include widening the Louise Avenue/I-5 freeway underpass to provide 6 travel lanes and widening Louise Avenue between the I-5 Southbound Ramps and Manthey Road to accommodate 7 travel lanes (4 eastbound and 3 westbound) (see Appendix B, Exhibit B-51).
- ▶ Louise Avenue/I-5 Southbound Ramps, provide most Phase 2 PSR improvements to the Louise Avenue interchange. This would include widening the Louise Avenue/I-5 freeway underpass to provide 6 travel lanes and widening Louise Avenue between the I-5 Southbound Ramps and Manthey Road to accommodate 7 travel lanes (see Appendix B, see Exhibit B-51).
- ▶ River Islands Parkway (currently Louise Avenue)/Manthey Road, signalize, and move the intersection at least an additional 150 feet to the west.

For **Buildout**, the following improvements shall be provided

- ▶ Louise Avenue/I-5 Northbound Ramps, provide most Phase 2 PSR improvements to the Louise Avenue interchange. This would include widening the Louise Avenue/I-5 freeway underpass to provide 8 travel lanes, adding a third lane to the north and southbound off-ramps, widening Louise Avenue between Harlan Road and the I-5 Northbound Ramps to accommodate 8 travel lanes, and widening Louise Avenue between the I-5 Southbound Ramps and Manthey Road to accommodate 8 travel lanes (see Appendix B, Exhibit B-54).
- ▶ Louise Avenue/I-5 Southbound Ramps, provide most Phase 2 PSR improvements to the Louise Avenue interchange. This would include widening the Louise Avenue/I-5 freeway underpass to provide 8 travel lanes, adding a third lane to the north and southbound off-ramps, widening Louise Avenue between Harlan Road and the I-5 Northbound Ramps to accommodate 8 travel lanes, and widening Louise Avenue between the I-5 Southbound Ramps and Manthey Road to accommodate 8 travel lanes (see Appendix B, Exhibit B-54).

- River Islands Parkway (currently Louise Avenue)/Manthey Road.
 - Provide exclusive left turn lanes on the north and southbound Manthey Road intersection approaches.
 - Provide a third westbound through lane and westbound departure lane on Louise Avenue, which would merge to the proposed two westbound lanes to the west of the intersection.

- Arbor Avenue/Paradise Road
 - Signalize.
 - Provide an exclusive right turn lane on the southbound Paradise Road intersection approach.
 - Provide an exclusive left turn lane on the Arbor Avenue eastbound intersection approach.

- Arbor Avenue/MacArthur Drive
 - Signalize.
 - Provide an exclusive left turn lane on the westbound Arbor Avenue intersection approach.
 - Provide an exclusive right turn lane on the northbound MacArthur Drive intersection approach.

Implementation of Mitigation Measure 4.4-a would reduce potential traffic impacts associated with degradation of LOS at signalized and unsignalized intersections to less-than-significant levels by returning them to an LOS of D or better.

4.4-b Vehicle Backups Extending from One Intersection Through an Adjacent Intersection–Louise Avenue Corridor: I-5 Northbound Ramps to Manthey Road and MacArthur Drive between the I-205 East and Westbound Ramps (Existing Baseline (2001) + Project).

The City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees to provide the improvements listed below to eliminate vehicle queues extending between intersections on Louise Avenue between the Louise Avenue/I-5 northbound ramps and Manthey Road intersections by the time the River Islands project Phase 1 is completed, and along MacArthur Drive between the I-205 east and westbound ramp intersections by the time the River Islands project is built out, or as needed based upon the Stewart Tract Traffic Monitoring Program.

For **Phase 1**, the following improvements shall be provided:

- ▶ Louise Avenue/I-5 Northbound Ramps, implement Mitigation Measure 4.4-a (see Appendix B, Exhibit B-51).
- ▶ Louise Avenue/I-5 Southbound Ramps, implement Mitigation Measure 4.4-a (see Appendix B, Exhibit B-51).
- ▶ River Islands Parkway (currently Louise Avenue)/Manthey Road, implement Mitigation Measures 4.4-a (see Appendix B, Exhibit B-53).

For **Buildout**, the following improvements shall be provided:

- ▶ Louise Avenue/I-5 Northbound Ramps, implement Mitigation Measure 4.4-a (see Appendix B, Exhibit B-54).
- ▶ Louise Avenue/I-5 Southbound Ramps, implement Mitigation Measure 4.4-a (see Appendix B, Exhibit B-54).
- ▶ Louise Avenue/Manthey Road, implement Mitigation Measures 4.4-a (see Appendix B, Exhibit B-56).
- ▶ MacArthur Drive/I-205 Westbound Ramps,
 - Provide a second northbound through lane along MacArthur Drive between the east and westbound ramp intersections (see Appendix B, Exhibit B-55).
 - Provide north and southbound left turn lanes along MacArthur Drive running the full length between the east and westbound ramp intersections (see Appendix B, Exhibit B-55).
- ▶ MacArthur Drive/I-205 Eastbound Ramps,
 - Provide a second northbound through lane along MacArthur Drive between the east and westbound ramp intersections (see Appendix B, Exhibit B-55).
 - Provide north and southbound left turn lanes along MacArthur Drive running the full length between the east and westbound ramp intersections (see Appendix B, Exhibit B-55).

Implementation of Mitigation Measure 4.4-b would reduce potential traffic impacts associated with vehicle backups extending from one intersection through an adjacent intersection to less-than-significant levels by providing adequate storage for the 95th percentile queue.

4.4-c Degradation of Freeway Operation (Existing Baseline (2001) + Project). For Phases 1a, Phase 1 and Buildout, the City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees for its fair share contribution for I-205 freeway improvements. However, because the needed I-205 improvements are not scheduled to be completed by Caltrans until 2007, and because the development of these improvements is outside the scope of the project (i.e., it is a regional improvement), the River Islands Phase 1a development would result in significant and unavoidable (short term) traffic impacts to the identified I-205 segment until said improvements are completed.

Although implementation of Mitigation Measure 4.4-c would assist in reducing degradation of freeway operation on I-205, actual freeway improvements would not be implemented by Caltrans rapidly enough to reduce the impact to less-than-significant levels. Therefore, this impact is considered significant and unavoidable.

4.4-d Degradation of Freeway Ramp-Freeway Mainline Merge/Diverge Operation (Existing Baseline (2001) + Project). To eliminate the degradation of freeway ramp-freeway mainline merge/diverge operation, the City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees to provide that the improvements listed below by phase

are completed by the time the specific River Islands project Phase is completed or as needed based upon the Stewart Tract Traffic Monitoring Program.

For **Phase 1a**, the following improvements shall be provided: To fully mitigate operation of the following two merge/diverge areas to preproject condition would require the following improvements:

- ▶ Increase the length of the MacArthur Drive eastbound off-ramp deceleration lane from I-205 adjacent to the freeway by at least 10 feet (or to a minimum length required by Caltrans).
- ▶ Increase the length of the Manthey Road southbound on-ramp acceleration lane to I-5 adjacent to the freeway by at least 10 feet (or to a minimum length required by Caltrans).

Regarding I-5, Caltrans has indicated an unwillingness to approve geometric improvements at the Manthey Road/I-5 interchange. In addition, the impact on the Manthey Road/I-5 interchange is temporary, since the project proposes to disconnect southbound access from the project to this interchange after Phase 1a. Finally, the anticipated traffic at this location is less than the 800 trips per hour maximum impact established by Caltrans for this interchange, and no other project that would utilize this capacity is progressing toward approval in a time frame that would be affected by the interim use of this capacity by the Project's Phase 1a development. Therefore, the City of Lathrop shall ensure that access from the project to Manthey Road is discontinued when the River Islands Parkway bridge is completed over the San Joaquin River and that no more than 800 residential units ever have access to Manthey Road.

For **Phase 1a**, implementation of Mitigation Measure 4.4-d for the I-205 off-ramp deceleration lane at MacArthur Drive would reduce the potential traffic impact of degradation of freeway ramp-freeway mainline merge/diverge operation on I-205 at that location to less-than-significant levels by returning the density of passenger cars per mile per lane to the same as existing conditions.

However, although implementation of Mitigation Measure 4.4-d would reduce degradation of freeway ramp-freeway mainline merge/diverge operation on I-5, it is doubtful if Caltrans would approve of these measures. Therefore, there would be a temporary impact (until the River Islands Parkway bridge is constructed) that is not reduced to less-than-significant levels. For Phase 1a, this impact is considered significant and unavoidable.

For **Phase 1**, the following improvements shall be provided:

- ▶ **I-205/MacArthur Drive Interchange**
 - Eastbound Off-Ramp Diverge, increase the length of the off-ramp deceleration lane at least 60 feet (for a total of 300 feet)
 - Westbound Off-Ramp Diverge, increase the length of the off-ramp deceleration lane at least 430 feet (for a total of 750 feet)
 - Westbound On-Ramp Merge, increase the length of the on-ramp acceleration lane at least 925 feet (for a total of 1,725 feet)

Acceptable levels of service for the Westbound Off-Ramp diverge and the Westbound On-Ramp merge could only be achieved with the planned widening of the I-205 freeway from 4 up to 6 lanes. This improvement is scheduled to be completed by Caltrans in 2007. However, because construction of this improvement by the proposed project is outside the scope of the project (i.e. it is a regional improvement), the River Islands full buildout would result in significant unavoidable traffic impacts to the identified I-205 merge/diverge areas.

For Phase 1, although implementation of Mitigation Measure 4.4-d will ultimately reduce degradation of freeway ramp-freeway mainline merge/diverge operation on I-205, actual freeway improvements may not be implemented by Caltrans rapidly enough to reduce the impact to less-than-significant levels. Therefore, this impact is considered significant and unavoidable.

For Buildout, the following improvements shall be provided:

- ▶ **I-205/MacArthur Drive Interchange**
 - Eastbound Off-Ramp Diverge, increase the length of the off-ramp deceleration lane at least 250 feet (for a total of 490 feet)
 - Eastbound On-Ramp Merge, increase the length of the on-ramp acceleration lane at least 360 feet (for a total of 980 feet)
 - Westbound Off-Ramp Diverge, increase the length of the off-ramp deceleration lane at least 370 feet (for a total of 690 feet)
 - Westbound On-Ramp Merge, increase the length of the on-ramp acceleration lane at least 1,380 feet (for a total of 2180 feet)

Acceptable levels of service for the Westbound Off-Ramp diverge and the Westbound On-Ramp merge could only be achieved with the planned widening of the I-205 freeway from 4 up to 6 lanes. Because this improvement is not scheduled to be completed by Caltrans until 2007, and because the development of this improvement by the proposed project is outside the scope of the project (i.e. it is a regional improvement), the River Islands full buildout would result in significant unavoidable traffic impacts to the identified I-205 merge/diverge areas.

For Buildout, although implementation of Mitigation Measure 4.4-d will ultimately reduce degradation of freeway ramp-freeway mainline merge/diverge operation on I-205, actual freeway improvements may not be implemented by Caltrans rapidly enough to reduce the impact to less-than-significant levels. Therefore, this impact is considered significant and unavoidable.

4.4-f Degradation of Rural Two-Lane Roadway Operation (Existing Baseline (2001) + Project). The City of Lathrop shall ensure that the project applicant pays its Applicable Transportation Impact Fees to provide the improvements listed below by the time the River Islands project is built out, or as needed before project buildout based upon the Stewart Tract Traffic Monitoring Program.

For **Buildout**, the following improvements shall be provided:

- ▶ **Paradise Road (River Islands Development to Arbor Avenue)**
 - Provide 4 travel lanes (each 12 feet wide), 8-foot paved shoulders, left turn lanes on the approaches to all intersections and continuous two-way left turn lanes at all major driveways.

- ▶ **Arbor Avenue (Paradise Road to MacArthur Drive)**
 - Provide 4 travel lanes (each 12 feet wide), 8-foot paved shoulders, left turn lanes on the approaches to all intersections and continuous two-way left turn lanes at all major driveways.

- ▶ **MacArthur Drive (Arbor Avenue to I-205)**
 - Provide 4 travel lanes (each 12 feet wide) and 8-foot paved shoulders.

Implementation of Mitigation Measure 4.4-f would reduce the potential impact on rural two-lane roadway operation to less-than-significant levels by returning the roadways to acceptable LOS C operation.

4.4-g Stewart Road Operation (Existing Baseline (2001) + Project). For **Phase 1a**, the City of Lathrop shall ensure that the project applicant construct Stewart Road in its existing alignment to the following criteria before the roadway is used by any project construction traffic.

- ▶ Provide two 12-foot-wide travel lanes.
- ▶ Provide two 8-foot-wide paved shoulders.
- ▶ Provide at least a 10-foot clearance between the edge of the travel lanes and any obstructing objects along the edge of the road, including the signal/gate standards at the Union Pacific Railroad crossing.
- ▶ Provide stopping light distances at all curves that provide a 250% safety factor for the posted curve speed limit.
- ▶ Provide a roadway structural section that should last at least one year beyond the projected closure of the road to project traffic.
- ▶ Provide radii of curvature to meet minimum City of Lathrop standards.

The mitigation measures noted above would improve Stewart Road to a greater extent than proposed by the project applicant. In addition, the mitigation measures noted above shall also be provided if Stewart Road is realigned.

Implementation of Mitigation Measure 4.4-g for either the existing or the proposed alignment of Stewart Road would reduce the impact of construction traffic on Stewart Road to less-than-significant levels.

As alternative mitigation, the project proponents are proposing to have construction traffic enter the site via Manthey Road, and the Paradise Cut levee road via an existing private crossing of the UPRR tracks (formerly SPRR). Due to the inadequate width of the levee to allow two opposing

lanes of traffic, the levee would be used to allow west bound construction traffic onto the site, and a new temporary road would be constructed at the base of the levee to allow east bound construction traffic to exit the site. The levee would be widened at the existing rail crossing and the two directions of travel would be returned to the same grade to cross the railroad tracks side by side. The existing private at-grade railroad crossing would be used only for construction traffic during daylight hours. Use of this private railroad crossing is subject to review and approval by UPRR and the PUC.

Implementation of Mitigation Measure 4.4-g for the alternate construction access to the site would reduce the potential impact of construction traffic on Stewart Road to less-than-significant levels by providing the required improvements to meet the AASHTO rural collector road standard.

4.4-h Degradation of Manthey Road San Joaquin River Bridge Operation (Existing Baseline (2001) + Project). For Phase 1a, there is no feasible cost effective measure that could widen the Manthey Road travel lanes on its bridge crossing the San Joaquin River. Prior to a determination that the traffic on Manthey Road has reached 150 vehicles per hour through the Stewart Tract Traffic Monitoring Programs, one of the alternative measures noted below shall be constructed:

1. Post (and regularly enforce) a 15- to 20-mile per hour speed limit on the bridge –or–
2. Stripe and sign the bridge for one-way northbound traffic flow. This would allow all non-project sand and gravel trucks as well as project construction trucks to reach the Louise Avenue interchange for freeway access. However, a secondary impact of this measure would require all inbound traffic to the project as well as local Marina/residential and sand/gravel operations to use the Mossdale Road/Manthey Road hook ramps. This would increase weaving movements to/from the Mossdale Road/Manthey Road hook ramps –or–
3. Stripe and sign a single travel lane on the Manthey Road bridge crossing the San Joaquin River and have alternating signal controlled northbound and southbound traffic flow.

Implementation of Mitigation Measure 4.4-h alternatives 1 and 2 would reduce the potential impact on the Manthey Road San Joaquin River Bridge to less-than-significant levels, although alternative 2 would result in a potentially significant secondary impact. Mitigation Measure 3 would reduce the potential impact on the Manthey Road San Joaquin River Bridge to less-than-significant levels by imposing safety features or by limiting the traffic on the bridge to meet AASHTO criteria for rural collector bridges.

4.4-i Construction Traffic (Existing Baseline (2001) + Project). For Phase 1a, the City of Lathrop shall ensure that the project applicant agrees to the following conditions regulating construction traffic.

- ▶ All degradation of pavement condition along Stewart Road and Manthey Road due to River Islands construction traffic will be fully repaired to the satisfaction of the City of

Lathrop. City staff and the project applicant shall jointly monitor the condition of each roadway every six months.

- ▶ No project construction traffic shall be allowed to use Paradise Road.
- ▶ No construction delivery truck traffic shall be allowed on the local roadway network before 8:00 AM or after 4:30 PM.
- ▶ No construction worker traffic shall be allowed on the local roadway network between 6:30 and 8:00 AM and between 4:30 and 6:00 PM.

As alternative mitigation to the impact along Stewart Road, the project proponents are proposing to have construction traffic enter the site via Manthey Road and the Paradise Cut levee road via an existing private crossing of the UPRR tracks (formerly SPRR). Due to the inadequate width of the levee to allow two opposing lanes of traffic, the levee would be used to allow west bound construction traffic onto the site, and a new temporary road would be constructed at the base of the levee to allow east bound construction traffic to exit the site. The levee would be widened at the existing rail crossing and the two directions of travel would be returned to the same grade to cross the railroad tracks side by side. The existing private at-grade railroad crossing would be used only for construction traffic during daylight hours. Use of this private railroad crossing would be subject to review and approval by UPRR and the PUC. This segregation of construction traffic would completely mitigate the effects of construction traffic along Stewart Road.

Implementation of Mitigation Measure 4.4-i for either the construction access restrictions noted or provision of the alternate construction access to the site would reduce the potential impact of construction traffic to less-than-significant levels by limiting construction traffic on Stewart Road and on Paradise Road.

YEAR 2007, 2015 AND 2025 BASE CASE + PROJECT MITIGATION

4.4-j Degradation of LOS at Signalized and Unsignalized Intersections (Year 2015 & 2025 Base Case + Project). The City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees to provide that the Phase 1 improvements listed below and in Table B-25 (under recommended “Year 2015 Base Case + Project Phase 1) are completed by the time the River Islands project Phase 1 is completed, and that the Buildout improvements listed below and in Table B-29 (under recommended “Year 2025 Base Case + Project Buildout) are completed by the time the River Islands project Buildout is completed or as needed based upon the Stewart Tract Traffic Monitoring Program.

For **Phase 1 (2015)**, the following improvements shall be provided:

- ▶ Louise Avenue/I-5 Northbound Ramps, construct an east to northbound loop on-ramp (or equivalent) in the southeast quadrant of the Louise Avenue interchange (see Appendix B, Exhibit B-51). This improvement would be needed for Base Case conditions.

- ▶ Louise Avenue/I-5 Southbound Ramps, re-coordinate signal timing between the southbound ramps intersection and the relocated northbound ramps intersection (see Appendix B, Exhibit B-51).
- ▶ MacArthur Drive/I-205 Westbound Ramps, provide an exclusive right turn lane on the southbound MacArthur Drive intersection approach (see Appendix B, Exhibit B-52).
- ▶ MacArthur Drive/I-205 Eastbound Ramps,
 - Provide a second left turn lane on the southbound MacArthur Drive approach and a second on-ramp lane (which will merge to a single on-ramp lane before intersecting the freeway mainline) (see Appendix B, Exhibit B-52).
 - Provide a second off-ramp lane which should be striped as an exclusive right turn lane (see Appendix B, Exhibit B-52).

SECONDARY IMPACTS: The development of the loop ramp at the Louise Avenue/I-5 interchange required by the above mitigation would require right-of-way purchase in the southeast quadrant of the interchange, and relocation of the existing Louise Avenue/I-5 northbound off-ramp in order to accommodate the loop ramp. This, in turn, would require the relocation or elimination of an existing gas station in the southeast quadrant. The potential general environmental effects of moving the off-ramp is programmatically evaluated in sections 4.14 and 4.16 of this SEIR (Terrestrial Biology and Cultural Resources, respectively). This improvement will also be subject to future project-level CEQA review once specific design drawings for the improvement have been prepared.

- ▶ MacArthur Drive/Arbor Avenue,
 - Signalize the intersection when warranted.
 - Provide left turn lanes on all intersection approaches and a right turn lane on the eastbound approach.

For **Buildout**, the following improvements shall be provided:

- ▶ Louise Avenue/I-5 Northbound Ramps, construct an east to northbound loop on-ramp in the southeast quadrant of the Louise Avenue interchange as well as a fourth off-ramp lane. Stripe the off-ramp to allow right turns from three of the off-ramp lanes (see Appendix B, Exhibit B-54). These improvements would be needed for Base Case conditions.
- ▶ Louise Avenue/I-5 Southbound Ramps, construct a west to southbound loop on-ramp in the northwest quadrant of the Louise Avenue interchange (see Appendix B, Exhibit B-54). This loop on-ramp would be needed for Base Case conditions.
- ▶ River Islands Parkway/Golden Valley Parkway,
 - Provide a third left turn lane on the westbound River Islands Parkway intersection approach.

- Provide a third right turn lane on the northbound Golden Valley Parkway intersection approach.
 - Add third travel lanes along Golden Valley Parkway between River Islands Parkway and Main Street (see Appendix B, Exhibit B-54).
- ▶ MacArthur Drive/I-205 Westbound Ramps
- Provide a second westbound off-ramp lane—stripe as one exclusive left turn lane and a combined left/through/right turn lane.
 - Provide a second southbound through lane on MacArthur Drive between the west and eastbound ramps intersections.
 - Stripe the northbound MacArthur Drive approach as one left, a shared left/through and one exclusive through lane (see Appendix B, Exhibit B-55).
- ▶ MacArthur Drive/I-205 Eastbound Ramps
- Provide a second eastbound off-ramp lane—stripe as one exclusive right turn lane and one combined left/through lane. Continue the second southbound through lane on MacArthur Drive through the intersection.
 - Stripe the southbound MacArthur Drive approach as one left, a shared left/through and one exclusive through lane (see Appendix B, Exhibit B-55).

Implementation of Mitigation Measure 4.4-j would reduce potential traffic impacts associated with degradation of LOS at signalized and unsignalized intersections to less-than-significant levels by returning them to an LOS of D or better.

SECONDARY IMPACTS: The development of the loop ramps at the Louise Avenue/I-5 interchange required by the above mitigation would require right-of-way purchase in the northwest and southeast quadrants of the interchange, and relocation of the existing Louise Avenue/I-5 northbound and southbound off-ramps in order to accommodate the loop ramps. This, in turn, would require the relocation or elimination of an existing statutory business in the northwest quadrant of the Louise Avenue/I-5 interchange and relocation or elimination of an existing gas station in the southeast quadrant. The potential general environmental effects of moving the off-ramps is programmatically evaluated in sections 4.14 and 4.16 of this SEIR (Terrestrial Biology and Cultural Resources, respectively). These improvements will also be subject to future project-level CEQA review once specific design drawings for the improvements have been prepared.

4.4-k Vehicle Backups Extending from One Intersection Through an Adjacent Intersection (Year 2015 & 2025 Base Case + Project). The City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees to provide the improvements listed below for Phase 1 and Buildout to eliminate vehicle queues extending between intersections by the time the River Islands project Phase 1 and Buildout are completed or as needed based upon the Stewart Tract Traffic Monitoring Program.

Phase 1 improvements to be provided include:

- ▶ Louise Avenue/I-5 Northbound Ramps, the City of Lathrop shall implement Mitigation Measure 4.4-j, which shall include its fair share towards the required realignment of the existing northbound off-ramp, and for creating a new northbound off-ramp signalized intersection (both required to accommodate the loop on-ramp in the southeast quadrant of the interchange) consistent with the methodology set forth in Mitigation Measure 4.4-j (see Appendix B, Exhibit B-52).
- ▶ Louise Avenue/I-5 Southbound Ramps, the City of Lathrop shall implement Mitigation Measure 4.4-j (see Appendix B, Exhibit B-52).
- ▶ MacArthur Drive/I-205 Westbound Ramps, the City of Lathrop shall implement Mitigation Measure 4.4-j (see Appendix B, Exhibit B-53).
- ▶ MacArthur Drive/I-205 Eastbound Ramps, the City of Lathrop shall implement Mitigation Measure 4.4-j (see Appendix B, Exhibit B-53).

Buildout improvements to be provided include:

- ▶ Louise Avenue/I-5 Northbound Ramps, the City of Lathrop shall implement Mitigation Measure 4.4-j, including its fair share towards the required realignment of the existing northbound off-ramp, and for creating a new northbound off-ramp signalized intersection (both required to accommodate the loop on-ramp in the southeast quadrant of the interchange) consistent with the methodology set forth in Mitigation Measure 4.4-j (see Appendix B, Exhibit B-54).
- ▶ Louise Avenue/I-5 Southbound Ramps, the City of Lathrop shall implement Mitigation Measure 4.4-j, including its fair share towards the required realignment of the existing southbound off-ramp, and for creating a new southbound off-ramp signalized intersection (both required to accommodate the loop on-ramp in the northwest quadrant of the intersection) consistent with the methodology set forth in Mitigation Measure 4.4-j (see Appendix B, Exhibit B 54).
- ▶ River Islands Parkway/Golden Valley Parkway, the City of Lathrop shall implement Mitigation Measure 4.4-j (see Appendix B, Exhibit B-54).
- ▶ MacArthur Drive/I-205 Westbound Ramps, the City of Lathrop shall implement Mitigation Measure 4.4-j (see Appendix B, Exhibit B 55).
- ▶ MacArthur Drive/I-205 Eastbound Ramps, the City of Lathrop shall implement Mitigation Measure 4.4-j (see Appendix B, Exhibit B-55).
- ▶ Paradise Road/I-205 Interchange, the City of Lathrop shall ensure that the project applicant pays its Applicable Transportation Impact Fees to provide the improvements listed below and in Table B-29 (under recommended “Year 2025 Base Case + Project Buildout”) by the time the

River Islands project is built out (expected in 2025) or as needed before project buildout based upon the Stewart Tract Traffic Monitoring Program.

- ▶ Paradise Road/I-205 Eastbound Ramps, realign the east and westbound on- and off-ramps and the ramp intersections farther away from the Paradise Road overpass of the I-205 freeway. Provide at least 920 feet of distance between the ramp intersections. This would preclude needing to widen the existing Paradise Road overpass. Provide single through lanes and single left turn lanes on the Paradise Road approaches to each ramp intersection.
- ▶ Paradise Road/I-205 Westbound Ramps, realign the east and westbound on- and off-ramps and the ramp intersections farther away from the Paradise Road overpass of the I-205 freeway. Provide at least 920 feet of distance between the ramp intersections. This would preclude needing to widen the existing Paradise Road overpass. Provide single through lanes and single left turn lanes on the Paradise Road approaches to each ramp intersection.

Implementation of Mitigation Measure 4.4-k would reduce potential traffic impacts associated with vehicle backups extending from one intersection through an adjacent intersection to less-than-significant levels by providing adequate storage for the 95th percentile queue.

4.4-l Degradation of Freeway Operation (Year 2007, 2015 & 2025 Base Case + Project).

The City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees for its fair share contribution for I-5, SR 120 and I-205 freeway improvements. However, because the needed improvements are not currently scheduled by Caltrans to be completed by the time the demand is anticipated (2007, 2015 & 2025), and because the development of these improvements by the proposed project is outside the scope of the project (i.e., it is a regional improvement), the River Islands Phase 1a, Phase 1 and Buildout development would result in significant unavoidable (short and long term) traffic impacts to the identified freeway segments until said improvements are completed.

Identified **Phase 1a (2007)** improvements that are needed include:

<u>I-205 (west of I-5)</u>	4 lanes each direction
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Identified **Phase 1 (2015)** improvements that are needed include:

<u>I-5 (north of S.R.120)</u>	4 lanes each direction
<u>I-5 (between S.R.120 and I-205)</u>	7 lanes each direction*
<u>I-5 (south of I-205)</u>	3 lanes northbound/3 lanes southbound
<u>I-205 (west of I-5)</u>	5 lanes each direction
<u>S.R.120 (east of I-5)</u>	3 lanes each direction

*As detailed in the 2015 Base Case improvements section, this would potentially require provision of two side by side freeways (3 to 4 lanes each) in the north and southbound directions.

Table B-27 lists needed 2015 Base Case and Base Case + Project freeway lanes in order to provide acceptable peak hour operation. In all cases, the number of new freeway lanes required to accommodate Base Case traffic would also accommodate Base Case + Project volumes.

Identified **Buildout (2025)** improvements that are needed include:

<u>I-5 (north of S.R.120)</u>	5 lanes each direction
<u>I-5 (between S.R.120 and I-205)</u>	9 lanes each direction*
<u>I-5 (south of I-205)</u>	2 lanes northbound/4 lanes southbound
<u>I-205 (west of I-5)</u>	6 lanes each direction
<u>S.R.120 (east of I-5)</u>	4 lanes each direction

*As detailed in the 2025 Base Case improvements section, this would potentially require provision of two side by side freeways (4 to 5 lanes each) in the north and southbound directions.

Table B-31 lists needed 2025 Base Case and Base Case + Project freeway lanes in order to provide acceptable peak hour operation. In all but two cases, the number of new freeway lanes required to accommodate Base Case traffic would also accommodate Base Case + Project volumes. The two exceptions are: I-205 between the MacArthur Drive and Paradise Road interchanges, where an additional (6th) lane in each direction (rather than 5) would be required to provide acceptable operation with project traffic; and I-5 just south of I-205, where an additional (4th) rather than third lane, would be required in the southbound direction.

Although implementation of Mitigation Measure 4.4-1 would assist in reducing degradation of freeway operation on I-5, SR 120 and I-205, actual freeway improvements may not be implemented by Caltrans rapidly enough to reduce the impact to less-than-significant levels. Therefore, this impact is considered significant and unavoidable.

4.4-m Degradation of Freeway Ramp-Freeway Mainline Merge/Diverge Operation (Year 2007, 2015 & 2025 Base Case + Project). The City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees to provide the improvements listed below by the time the River Islands project Phase 1a, Phase 1 or Buildout is complete, or as needed based upon the Stewart Tract Traffic Monitoring Program.

Phase 1a (2007) improvements that are needed to fully mitigate operation of the following four merge/diverge areas to bring Base Case+ Project operation to the same levels as Base Case conditions (should no additional freeway lanes be provided along I-5 or I-205 as part of needed Base Case improvements) would require the following improvements:

- ▶ MacArthur Drive eastbound off-ramp deceleration lane from I-205 adjacent to the freeway, increase the length by at least 10 feet (or to a minimum length required by Caltrans).
- ▶ Mossdale Road northbound on-ramp acceleration lane to I-5 adjacent to the freeway, increase the length by at least 10 feet (or to a minimum length required by Caltrans).

- ▶ Mosssdale Road northbound off-ramp deceleration lane from I-5 adjacent to the freeway, increase the length by at least 30 feet (or to a minimum length required by Caltrans).
- ▶ Manthey Road southbound on-ramp acceleration lane to I-5 adjacent to the freeway, increase the length by at least 130 feet.
- ▶ With added freeway lanes the above mitigations would not be required. Operation with added freeway lanes is presented in Table B-24.
- ▶ Regarding I-5, Caltrans has indicated an unwillingness to approve geometric improvements at the Mosssdale Road/I-5 interchange or at the Manthey Road/I-5 interchange. In addition, the impact on these two hook ramp interchanges is temporary, since the project proposes to disconnect southbound access from the project to this interchange after Phase 1a. Finally, the anticipated traffic at this location is less than the 800 trips per hour maximum impact established by Caltrans for this interchange, and no other project that would utilize this capacity is progressing toward approval in a time frame that would be effected by the interim use of this capacity by the Project's Phase 1a development. Therefore, the City of Lathrop shall ensure that access from the project southbound on Manthey Road to the Manthey Road/ I-5 interchange is discontinued when the River Islands Parkway bridge is completed over the San Joaquin River, and that no more than 800 residential units are built until San Joaquin River bridge is open.

For **Phase 1a (2007)**, implementation of Mitigation Measure 4.4-m will ultimately reduce degradation of freeway ramp-freeway mainline merge/diverge operation on I-205 to a less than significant level. However, although implementation of Mitigation Measure 4.4-m would reduce degradation of freeway ramp-freeway mainline merge/diverge operation on I-5, it is doubtful if Caltrans would approve of these measures. Therefore, there would be a temporary impact (until the River Islands Parkway bridge is constructed) that is not reduced to less-than-significant levels. Therefore, this impact is considered significant and unavoidable.

For **Phase 1 (2015) and Buildout (2025)**, although implementation of Mitigation Measure 4.4-m will ultimately reduce degradation of freeway ramp-freeway mainline merge/diverge improvements, actual freeway improvements may not be implemented by Caltrans rapidly enough to reduce the impact to less-than-significant levels. Therefore, this impact is considered significant and unavoidable.

4.4-o Degradation of Rural Two-Lane Roadway Operation (Year 2015 & 2025 Base Case + Project). The City of Lathrop shall ensure that the project applicant pays its applicable Transportation Impact Fees to provide the Phase 1 (2015) improvements listed below and in Table B-54 (under recommended "Year 2015 Base Case + Project Phase 1) by the time the River Islands project Phase 1 is completed, and to provide the Buildout (2025) improvements listed below and in Table B-33 (under recommended "Year 2025 Base Case + Project Buildout) by the time the River Islands project Buildout is completed or as needed based upon the Stewart Tract Traffic Monitoring Program.

For **Phase 1 (2015)**, the following improvements shall be provided:

- ▶ Paradise Road (River Islands Development to Arbor Avenue), provide 4 travel lanes (each 12 feet wide), 8-foot paved shoulders, left turn lanes on the approaches to all intersections and continuous two-way left turn lanes at all major driveways.
- ▶ Arbor Avenue (Paradise Road to MacArthur Drive), provide 4 travel lanes (each 12 feet wide), 8-foot paved shoulders, left turn lanes on the approaches to all intersections and continuous two-way left turn lanes at all major driveways.

For **Buildout (2025)**, the following additional improvements shall be provided:

- ▶ Paradise Road (Arbor to I-205), provide 4 travel lanes (each 12 feet wide), 8-foot paved shoulders, left turn lanes on the approaches to all intersections and continuous two-way left turn lanes at all major driveways.
- ▶ MacArthur Drive (Arbor Avenue to I-205), provide 4 travel lanes (each 12 feet wide) and 8-foot paved shoulders.
- ▶ Golden Valley Parkway (Paradise Road to River Islands Parkway), Provide 4 travel lanes (each 12 feet wide), 8-foot paved shoulders, left turn lanes on the approaches to all intersections and continuous two-way left turn lanes at all major driveways.

Implementation of Mitigation Measure 4.4-o would reduce the potential impact on rural two-lane roadway operation to less-than-significant levels by returning the roadways to acceptable LOS C operation.

4.4-p Stewart Road Operation (Year 2007 Base Case + Project). For **Phase 1a (2007)**, the City of Lathrop shall ensure that the project applicant construct Stewart Road in its existing alignment to the following criteria before the roadway is used by any project construction traffic.

- ▶ Provide two 12-foot-wide travel lanes.
- ▶ Provide two 8-foot-wide paved shoulders.
- ▶ Provide at least a 10-foot clearance between the edge of the travel lanes and any obstructing objects along the edge of the road, including the signal/gate standards at the Union Pacific Railroad crossing.
- ▶ Provide stopping light distances at all curves that provide a 250% safety factor for the posted curve speed limit.
- ▶ Provide a roadway structural section that should last at least one year beyond the projected closure of the road to project traffic.
- ▶ Provide radii of curvature to meet minimum City of Lathrop standards.

The mitigation measures noted above would improve Stewart Road to a greater extent than proposed by the project applicant. In addition, the mitigation measures noted above shall also be provided if Stewart Road is realigned.

Implementation of Mitigation Measure 4.4-p for either the existing or the proposed alignment of Stewart Road would reduce the impact of construction traffic on Stewart Road to less-than-significant levels.

- ▶ As alternative mitigation, the project proponents are proposing to have construction traffic enter the site via Manthey Road and the Paradise Cut levee road via an existing private crossing of the UPRR tracks (formerly SPRR). Due to the inadequate width of the levee to allow two opposing lanes of traffic, the levee would be used to allow west bound construction traffic onto the site, and a new temporary road would be constructed at the base of the levee to allow east bound construction traffic to exit the site. The levee would be widened at the existing rail crossing and the two directions of travel would be returned to the same grade to cross the railroad tracks side by side. The existing private at-grade railroad crossing would be used only for construction traffic during daylight hours. Use of this private railroad crossing would be subject to review and approval by UPRR and the PUC.

Implementation of Mitigation Measure 4.4-p for the alternate construction access to the site would reduce the potential impact of construction traffic on Stewart Road to less-than-significant levels by providing the required improvements to meet the AASHTO rural collector road standard.

4.4-q Degradation of Manthey Road San Joaquin River Bridge Operation (Year 2007 Base Case + Project). For Phase 1a (2007), there is no feasible cost effective measure that could widen the Manthey Road travel lanes on its bridge crossing the San Joaquin River. Prior to a determination that the traffic on Manthey Road has reached 150 vehicles per hour through the Stewart Tract Traffic Monitoring Programs, one of the alternative measures noted below shall be constructed:

1. Post (and regularly enforce) a 15- to 20-mile-per-hour speed limit on the bridge –or–
2. Stripe and sign the bridge for one-way northbound traffic flow. This would allow all non-project sand and gravel trucks as well as project construction trucks to reach the Louise Avenue interchange for freeway access. However, a secondary impact of this measure would require all inbound traffic to the project as well as local Marina/residential and sand/gravel operations to use the Mossdale Road/Manthey Road hook ramps. This would increase weaving movements to the Mossdale Road/Manthey Road hook ramps –or–
3. Stripe and sign a single travel lane on the Manthey Road bridge crossing the San Joaquin River and have alternating signal controlled northbound and southbound traffic flow.

Implementation of Mitigation Measure 4.4-q alternatives 1 and 2 would reduce the potential impact on the Manthey Road San Joaquin River Bridge to less-than-significant levels, although alternative 2 would

result in a potentially significant secondary impact. Mitigation Measure 3 would reduce the potential impact on the Manthey Road San Joaquin River Bridge to less-than-significant levels by imposing safety features or by limiting the traffic on the bridge to meet AASHTO criteria for rural collector bridges.

4.4-r Proposed Internal Circulation Plan (Year 2015 & 2025 Base Case + Project).

For Phase 1 (2015), the City of Lathrop shall ensure that the project applicant revise the Phase I tentative map to incorporate the following changes and provide requested information.

- ▶ Increase right-of-way of Broad Street by at least 24 feet to allow ultimate provision of four through travel lanes.
- ▶ Increase the right-of-way of North River Islands Parkway and South River Islands parkway by 12 feet on the approaches to major intersections to allow ultimate provision of dual left turn lanes, if and when needed.
- ▶ Consider eliminating angled parking along Water Street.
- ▶ Widen all local streets to 36 feet at curves (if parking is to be allowed on both sides of the street) –or– to maintain the proposed 34-foot curb-to-curb width, eliminate on-street parking along the inside of each curve.
- ▶ Design all local street curves to meet City of Lathrop standards.
- ▶ Redesign the tentative map to provide at least 400 feet between the following intersections:
 - J2 Street/J3 Street and J2 Street/Golden Valley Parkway
 - J2 Street/J4 Street and J2 Street/Golden Valley Parkway
 - J5 Street/Commerce Center Blvd. and Commerce Center Blvd./Golden Valley Parkway
 - J6 Street/Commerce Center Blvd. and Commerce Center Blvd./Golden Valley Parkway
 - F1 Street/F6 Street and F1 Street/South River Islands Parkway
 - G1 Street/G2 Street and G1 Street/South River Islands Parkway
 - F7 Street/F12 Street and F7 Street/South River Islands Parkway
 - G7 Street/G6 Street and G7 Street/South River Islands Parkway
 - D40 Street/Broad Street and Broad Street/South River Islands Parkway
 - D14 Street/Broad Street and Broad Street/North River Islands Parkway
 - D5 Street/D20 Street and D20 Street/North River Islands Parkway
 - A10 Street/A6 Street and A10 Street/North River Islands Parkway

- ▶ Provide a signalized intersection at the North River Islands Parkway/D27 Street-A14 Street intersection.
- ▶ Redesign A10 Street/K8 Street, K8 Street/K1 Street and both K1 Street/K2 Street intersections to have 90-degree intersection approach legs –or– consider keeping the existing plan and change to one-way couplet operation.
- ▶ Consider eliminating east-west through traffic flow on either north or south Canal Street by allowing right turns in and out only at each intersection with a north-south street. Stop sign or signal control could then be utilized, if needed, only at the Canal Street intersection allowing east-west through flow. This would eliminate the potential for two closely spaced intersections that may both require traffic control on all north-south collector roadways (such as Broad Street) that intersect both north and south Canal Street.
- ▶ Provide at least AASHTO (2001) minimum sight lines at all intersections. This may require prohibition of on-street parking or redesign of the tentative map to eliminate less-than-adequate sight lines at the following intersections:
 - D20 Street/D19 Street
 - D20 Street/D22 Street
 - C2 Street/C4 Street
 - C5 Street/C6 Street
 - C8 Street/C9 Street
 - C10 Street/C11 Street
- ▶ Have the applicant submit detailed information (for a three- to five-year historical period) regarding the safe operation of two-lane roundabouts for exactly the same design as is being proposed at three locations along South River Islands Parkway. Volume levels at the surveyed sites should also be about the same as those being projected for buildout conditions within River Islands. Based upon the data presented, if the applicant can make a convincing argument in favor of safe operation of two-lane roundabouts (for autos, pedestrians and bike riders), the City should consider their installation. Even with approval of the roundabouts, it is still recommended that right-of-way be preserved in order to provide a signalized intersection, if ever required.
- ▶ Redesign the tentative map to provide secondary or emergency vehicle access to all cul-de-sacs as required by the Lathrop-Manteca Fire District.

For **Buildout (2025)**, the City shall require full onsite circulation environmental analysis for all subsequent tentative maps.

Implementation of Mitigation Measure 4.4-r would reduce potential Phase I and Buildout onsite circulation impacts to a less-than-significant level by altering the design of the roadway system to eliminate the safety concerns of the City’s contracted traffic engineer.

4.4-s On-Site Pedestrian Circulation (Year 2015 & 2025 Base Case + Project). For Phase 1 (2015), the City of Lathrop shall ensure that the project applicant revise the Phase 1 tentative map to incorporate the following changes.

- ▶ Reserve right-of-way for a separate pedestrian trail at all locations along loop trails that are not within close proximity to sidewalks.

For **Buildout (2025)**, the City of Lathrop shall require full onsite pedestrian circulation environmental analysis for all subsequent tentative maps.

Implementation of Mitigation Measure 4.4-s would reduce the potential onsite pedestrian circulation impacts to a less-than-significant level by altering the design of the pedestrian circulation system to eliminate the safety concerns of the City's contracted traffic engineer.

4.4-t On-Site Bicycle Circulation (Year 2015 & 2025 Base Case + Project). For Phase 1 (2015), the City of Lathrop shall ensure that the project applicant revise the Phase 1 tentative map to include mitigation measures 4.4-r and 4.4-s in addition to the following measure.

- ▶ Provide informational signing along all bicycle routes indicating bicycle riders must obey all traffic laws, including giving the right-of-way to pedestrians and stopping at all stop signs and red signals.

For **Buildout (2025)**, the City shall also require full onsite bicycle circulation environmental analysis for all subsequent tentative maps.

Implementation of Mitigation Measure 4.4-t would reduce the potential onsite bicycle circulation impacts to a less-than-significant level by altering the design of the bicycle circulation roadway system and signage program to eliminate the safety concerns of the City's contracted traffic engineer.

4.4-v Construction Traffic (2007 Base Case + Project). For Phase 1a, the City of Lathrop shall ensure that the project applicant agrees to the following conditions regulating construction traffic.

- ▶ All degradation of pavement condition along Stewart Road and Manthey Road due to River Islands construction traffic will be fully repaired to the satisfaction of the City of Lathrop. City staff and the project applicant shall jointly monitor the condition of each roadway every six months.
- ▶ No project construction traffic shall be allowed to use Paradise Road.
- ▶ No construction delivery truck traffic shall be allowed on the local roadway network before 8:00 AM or after 4:30 PM.
- ▶ No construction worker traffic shall be allowed on the local roadway network between 6:30 and 8:00 AM and between 4:30 and 6:00 PM.

As alternative mitigation to the impact along Stewart Road, the project proponents are proposing to have construction traffic enter the site via Manthey Road and the Paradise Cut levee road via an existing private crossing of the UPRR tracks (formerly SPRR). Due to the inadequate width of the levee to allow two opposing lanes of traffic, the levee would be used to allow west bound construction traffic onto the site, and a new temporary road would be constructed at the base of the levee to allow east bound construction traffic to exit the site. The levee would be widened at the existing rail crossing and the two directions of travel would be returned to the same grade to cross the railroad tracks side by side. The existing private at-grade railroad crossing would be used only for construction traffic during daylight hours. Use of this private railroad crossing would be subject to review and approval by UPRR and the PUC. This segregation of construction traffic would completely mitigate the effects of construction traffic along Stewart Road.

Implementation of Mitigation Measure 4.4-v for either the construction access restrictions noted or provision of the alternate construction access to the site would reduce the potential impact of construction traffic to less-than-significant levels by limiting the traffic on Stewart Road to meet AASHTO criteria for rural collector roads.

4.5 AIR QUALITY

4.5 AIR QUALITY

This section includes a summary of local and regional air quality conditions and an analysis of potential air quality impacts associated with the proposed project. Mitigation measures are recommended, as necessary, to reduce potentially significant adverse air quality impacts. The information contained in this section is based, in part, on documents prepared by the San Joaquin Valley Air Pollution Control District (SJVAPCD), U.S. Environmental Protection Agency (EPA), California Air Resources Board (ARB), and National Oceanographic and Atmospheric Administration (NOAA). Sufficient information is provided in this section to analyze issues related to air quality at a project level of detail for both Phase 1 and Phase 2 of the proposed project.

4.5.1 REGULATORY BACKGROUND

Air quality at the proposed project site is regulated by several jurisdictions, including the EPA, ARB, City of Lathrop, and SJVAPCD. The state, regional, and local jurisdictions develop rules, regulations, policies, or plans to achieve the goals and directives imposed through legislation that shall not supercede those developed by the EPA but may be more stringent.

NATIONAL AND STATE AMBIENT AIR QUALITY STANDARDS

Ambient air quality is described in terms of compliance with state and national standards. Ambient air quality standards indicate the air pollutant concentration considered safe for the protection of public health and welfare. These standards are designed to protect people who are sensitive to respiratory distress, such as asthmatics, the elderly, children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. National Ambient Air Quality Standards (NAAQS) originally were established by the EPA in 1971 for six air pollution constituents. The NAAQS have been periodically revised since 1971. Each individual state possesses the authority to add other pollutants, to require more stringent compliance, or to include different exposure periods. California Ambient Air Quality Standards (CAAQS) and NAAQS are listed in Table 4.5-1.

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT REGULATIONS

The SJVAPCD is the agency primarily responsible for ensuring that NAAQS and CAAQS are not exceeded and that air quality conditions are maintained in the San Joaquin Valley Air Basin (SJVAB). The responsibilities of the SJVAPCD include, but are not limited to, preparing plans for the attainment of ambient air quality standards, adopting and enforcing rules and regulations concerning sources of air pollution, issuing permits for stationary sources of air pollution, inspecting stationary sources of air pollution and responding to citizen complaints, monitoring ambient air quality and meteorological conditions, and implementing programs and regulations required by the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA). In an attempt to achieve NAAQS and CAAQS and maintain air quality, the SJVAPCD has completed the following air quality attainment plans and reports: 1994 Ozone Attainment Demonstration Plan (amended in 2001), 1997 PM₁₀ Attainment Demonstration Plan, 1997–1999 PM₁₀ Progress Report, 2000 Ozone Rate of Progress Report, 2000 Annual Progress Report, and the 2000 Triennial Plan (SJVAPCD 2002a).

**Table 4.5-1
Ambient Air Quality Standards**

California ¹		National ²	
Air Pollutant	Concentration ⁵	Primary ^{3,5}	Secondary ^{4,5}
Ozone	0.09 ppm, 1-hour average	0.12 ppm, 1-hour average 0.08 ppm, 8-hour average	0.12 ppm, 1-hour average 0.08 ppm, 8-hour average
Carbon monoxide ⁶	9 ppm, 8-hour average 20 ppm, 1-hour average	9 ppm, 8-hour average 35 ppm, 1-hour average	9 ppm, 8-hour average 35 ppm, 1-hour average
Nitrogen dioxide	0.25 ppm, 1-hour average	100 $\mu\text{g}/\text{m}^3$ annual	100 $\mu\text{g}/\text{m}^3$ annual
Sulfur dioxide	0.04 ppm, 24-hour average 0.25 ppm, 1-hour average	0.03 ppm, annual average 0.14 ppm, 24-hour average	0.5 ppm, 3-hour average
Suspended particulate matter (PM ₁₀)	30 $\mu\text{g}/\text{m}^3$ annual geometric mean 50 $\mu\text{g}/\text{m}^3$, 24-hour average	50 $\mu\text{g}/\text{m}^3$ annual arithmetic mean 150 $\mu\text{g}/\text{m}^3$, 24-hour average	50 $\mu\text{g}/\text{m}^3$ annual arithmetic mean 150 $\mu\text{g}/\text{m}^3$, 24-hour average
Suspended particulate matter (PM _{2.5})	See note 6 below.	15 $\mu\text{g}/\text{m}^3$ annual arithmetic mean 65 $\mu\text{g}/\text{m}^3$, 24-hour average	15 $\mu\text{g}/\text{m}^3$ annual arithmetic mean 65 $\mu\text{g}/\text{m}^3$, 24-hour average
Lead	1.5 $\mu\text{g}/\text{m}^3$, 30-day average	1.5 $\mu\text{g}/\text{m}^3$ calendar quarter	1.5 $\mu\text{g}/\text{m}^3$ calendar quarter
Sulfates	25 $\mu\text{g}/\text{m}^3$, 24-hour average	--	--
Hydrogen sulfide	0.03 ppm, 1-hour average	--	--
Vinyl chloride	0.01 ppm, 24-hour average	--	--
Visibility-reducing particles	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer-visibility of 10 miles or more (0.07 to 30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70%.	--	--

¹ California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour averages), nitrogen dioxide, suspended particulate matter (PM₁₀), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in §70200 of Title 17 of the California Code of Regulations.

² National standards (other than ozone, PM₁₀, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when 99% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. For PM_{2.5}, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

³ National Primary Standards: the levels of air quality necessary, with an adequate margin of safety, to protect public health.

⁴ National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

⁵ The concentration is expressed in units in which it was promulgated where ppm = parts per million by volume and $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter.

⁶ On June 20, 2002, the ARB passed new, stricter standards for particulate matter (PM). The newly adopted standards include PM₁₀ annual-average standard of 20 $\mu\text{g}/\text{m}^3$, not to be exceeded, and new annual average PM_{2.5} standard of 12 $\mu\text{g}/\text{m}^3$, not to be exceeded. The standards will go into effect in late 2002 or early 2003, after going through California's review process for new regulations.

ppm = parts per million by volume

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

Source: ARB 2002a

CRITERIA AIR POLLUTANTS

The ARB and EPA currently focus on five “criteria pollutants” as indicators of air quality: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter. A brief description of each criteria air pollutant, including information on adverse health effects and formation processes, is provided below.

Ozone

Ozone (O₃) is a photochemical oxidant and the primary component of smog. O₃ is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of organic compounds and oxides of nitrogen in the presence of sunlight. Both organic compounds and oxides of nitrogen are emitted by mobile (transportation) and stationary (industrial) sources. O₃ located in the upper atmosphere (stratosphere) acts in a beneficial manner by shielding the Earth from harmful ultraviolet radiation emitted by the sun. However, O₃ located in the lower atmosphere (troposphere) is a major health and environmental concern. Because sunlight and heat serve as catalysts for the reactions between O₃ precursors, peak O₃ concentrations typically occur during summer in the northern hemisphere (EPA 2002). In general, O₃ concentrations over or near urban and rural areas reflect an interplay of emissions of O₃ precursors, transport meteorology, and atmospheric chemistry (Godish 1991).

The adverse health effects associated with exposure to O₃ pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of O₃ not only affect sensitive receptors, such as asthmatics and children, but healthy adults. Exposure to ambient levels of ozone ranging from 0.10 to 0.40 part per million (ppm) for 1–2 hours has been found to significantly alter lung functions by increasing respiratory rates and pulmonary resistance and impairing respiratory mechanics. Ambient levels of O₃ above 0.12 ppm are linked to symptomatic responses such as throat dryness, chest tightness, shortness of breath, headache, and nausea. The CAAQS and NAAQS for O₃ range from 0.08 ppm to 0.12 ppm (Table 4.5-1).

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, principally from mobile sources of pollution (e.g., cars, trucks). It is estimated that up to 78% of the nationwide CO emissions are from mobile sources. The other 22% consist primarily of CO emissions from forest fires, wood-burning stoves, incinerators, and industrial sources. Peak CO levels are often localized near areas with high concentrations of mobile sources and occur typically during calm conditions in the winter months. The CAAQS and NAAQS for CO range from 9 ppm to 35 ppm (Table 4.5-1).

CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include dizziness, headaches, slow reflexes, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (EPA 2002).

Nitrogen Dioxide

Nitrogen dioxide (NO₂) is a brownish, highly reactive gas that is present in all urban environments. The major anthropogenic (human-made) sources of NO₂ are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices primarily emit nitric oxide (NO), which reacts oxidatively in the atmosphere to form NO₂ (EPA 2002). The combined emissions of NO and NO₂ are referred to as oxides of nitrogen (NO_x), which are reported as equivalent NO₂. Because NO₂ is formed and depleted by reactions associated with photochemical smog, the NO₂ concentration in a particular geographical area may not be representative of the local NO_x emission sources.

Inhalation is the most common route of exposure to NO₂. The severity of the adverse health effects depend primarily on the concentration inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms, including cough, difficulty with breathing, vomiting, headache, and eye irritation during or shortly after exposure. After a period of approximately 4–12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, hemoptysis, cyanosis, chest pain, and rapid heartbeat. The CAAQS for NO₂ is a 1-hour average of 0.25 ppm. The NAAQS is expressed as an annual total of 100 µg/m³ (Table 4.5-1).

Sulfur Dioxide

Sulfur dioxide (SO₂) is produced by such stationary sources as coal and oil combustion, steel mills, refineries, pulp and paper mills, and nonferrous smelters. The major adverse health effects associated with SO₂ exposure pertain to the upper respiratory tract. SO₂ is a respiratory irritant with bronchoconstriction occurring with inhalation of SO₂ at 5 ppm or more. On contact with the moist mucous membranes, SO₂ produces sulfurous acid, which is a direct irritant. Concentration rather than duration of the exposure is an important determinant of respiratory effects. Exposure to high concentrations of SO₂ may result in edema of the lungs and respiratory paralysis. The CAAQS and NAAQS for SO₂ range from 0.03 ppm to 0.5 ppm (Table 4.5-1).

Particulate Matter

Respirable particulate matter with a diameter of 10 micrometers or less is referred to as PM₁₀. PM₁₀ consists of particulates directly emitted into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and exposure of disturbed surfaces, and particulates formed in the atmosphere by condensation and/or transformation of SO₂ and reactive organic gases (EPA 2002). PM₁₀ includes a subgroup of finer particle called PM_{2.5}, which have an aerodynamic diameter of 2.5 micrometers or less.

The adverse health effects associated with PM₁₀ depend on the specific composition of the particulate matter. For example, health effects may be associated with metals, polycyclic aromatic hydrocarbons, and other toxic substances adsorbed onto fine particulates. Generally, adverse health effects associated with PM₁₀ may result from both short-term and long-term exposure to elevated PM₁₀ concentrations and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular

diseases, alterations in the body's immune system, carcinogenesis, and premature death (EPA 2002). PM_{2.5} pose an increased health risk because it can deposit deep in the lung and contain substances that are particularly harmful to human health. As a result, the EPA promulgated national PM_{2.5} standards in 1997; however, these standards have yet to be implemented (ARB 2002b). The CAAQS and NAAQS for PM₁₀ range from 30 $\mu\text{g}/\text{m}^3$ to 150 $\mu\text{g}/\text{m}^3$ (Table 4.5-1). PM_{2.5} standards currently range from 15 $\mu\text{g}/\text{m}^3$ to 65 $\mu\text{g}/\text{m}^3$, with stricter CAAQS expected to go into effect in late 2002 or early 2003.

TOXIC AIR CONTAMINANTS

Toxic Air Contaminants (TACs) are regulated through implementation of federal and state laws. Federal law uses the term "Hazardous Air Pollutants" (HAPs) to refer to the same types of compounds considered as TACs under state law. Both terms encompass essentially the same compounds. For purposes of this report, the term "TACs" will be used when referring to these pollutants. It is important to note that TACs are not considered criteria pollutants in that the federal and California Clean Air Acts do not address them specifically through the setting of NAAQS or CAAQS. However, enforcement of the NAAQS or CAAQS for the control of criteria pollutants, such as O₃ and PM, can result in reducing airborne emissions of TACs. For example, controls on volatile organic compound emissions to attain the O₃ standard can significantly reduce emissions of TACs from stationary sources. The following is a summary of the major current federal and state regulations and programs for controlling TACs.

Federal HAP/TAC Program

Title III of the CAA requires the EPA to promulgate National Emissions Standards for Hazardous Air Pollutants (NESHAP) for certain categories of sources that emit one or more pollutants identified as HAPs/TACs. Emission standards may be different between "major sources" and "area sources" of TACs. (Major sources are defined as stationary sources with potential to emit more than 10 tons per year [TPY] of any TAC or more than 25 TPY of any combination of TACs; all other sources are considered area sources.) The emission standards are to be promulgated in two phases. In the first phase (1992–2000), the EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring Maximum Achievable Control Technology. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), the EPA is required to promulgate health risk-based emissions standards where such standards are deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards.

The 1990 amendments to the CAA required the EPA to promulgate vehicle or fuel standards containing reasonable requirements to control toxic emissions, applying at a minimum to benzene and formaldehyde. Performance criteria were established to limit mobile source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, §219 of the CAA required the use of reformulated gasolines in selected U.S. cities (those with the most severe O₃ nonattainment conditions) to further reduce mobile source emissions, including toxics.

State and Local TAC Programs

The ARB works in partnership with the local air districts to enforce regulations that reduce TACs in the state. It has authority for motor vehicles, fuels, and consumer products. The ARB identifies the TACs, researches prevention or reduction methods, adopts standards for control, and enforces the standards. The local air districts have the authority for stationary or industrial type sources. SJVAPCD Rule 2010 requires permits for all source operations that may emit TACs. All projects that require air quality permits from the SJVAPCD are evaluated for TAC emissions (SJVAPCD 1998). The SJVAPCD limits emissions and public exposure to TACs through a number of programs. The SJVAPCD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. It requires a comprehensive health risk assessment for facilities that are put in the significant risk category pursuant to the Assembly Bill (AB) 2588 Program (Air Toxics “Hot Spot” Information and Assessment Act of 1987).

The ARB identified particulate emissions from diesel-fueled engines (diesel PM) as a TAC in August 1998. Diesel PM is currently the ARB’s primary TAC of concern for mobile sources, in part, because of all controlled TACs, diesel PM emissions are estimated to be responsible for approximately 70% of the total ambient TAC risk (ARB 2000). In 2000, the ARB developed and approved the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles and the Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines. The ARB is now implementing an aggressive plan to require cleaner diesel fuel and cleaner diesel engines and vehicles (ARB 2002b) and is currently developing regulations designed to reduce diesel PM emissions from diesel-fueled engines and vehicles. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce diesel PM emissions. These regulations will require substantial reductions in diesel PM beginning with the 2004 model year. Additional, more stringent standards will apply to engines starting in the 2007 model year. Off-road vehicles will come under more stringent regulation beginning with the 2005 model year. Each of these sets of regulations will serve to reduce diesel PM emissions and human health risks attributable to diesel-fueled vehicles and equipment. However, no regulations related to the interaction between diesel PM sources and sensitive receptors have been established.

The California legislature has also examined TAC hazards and has adopted several state bills to control TACs. Implementation of state-adopted legislation pertaining to the control of TACs is the responsibility of the ARB and local air pollution control districts. The most significant legislation potentially applicable to the proposed project is summarized below.

Tanner Toxics Act

The Tanner Toxics Act established the California toxic air contaminant control program (AB 1807, Health and Safety Code §39666 et seq.) to identify and control toxic air contaminants. Under the act, the ARB is required to identify a substance as a TAC based on the review of the scientific data and the recommendations by both the Office of Environmental and Health Hazard Assessment and the Scientific Review Panel. After designation, the ARB investigates appropriate measures to limit emissions of the TACs. These measures may include emission limitations, control technologies, operation and

maintenance requirements, closed system engineering, cost, or substitution of compounds. The ARB then prepares a report on the appropriate degree of regulation and adopts Air Toxics Control Measures. These control measures are the minimum regulations that must be imposed by each of the local air districts in the form of regulations. Districts must adopt rules that are at least as stringent as the state's.

Air Toxics "Hot Spots" Information and Assessment Act

The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) is a state law enacted in 1987. The law requires certain facilities to submit information regarding emissions of more than 550 toxic air contaminants to their local air pollution control districts. The act addresses public concerns that emissions from individual facilities might cause local concentration of air toxics "hot spots" at a level where individuals may be exposed to an excess risk of adverse health effects. The program requires facilities to notify all exposed persons if it is determined that there is a significant health risk. AB 2588 was amended in 1993 by Senate Bill (SB) 1731, Facility Toxic Air Contaminant Risk Reduction Audit and Plan. In accordance with SB 1731, local air districts are required to establish a program to reduce risks from existing facilities that are deemed to pose a significant health risk.

Waters Bill

The Waters Bill (AB 3205) (Health and Safety Code §42301.6 through §42301.9) addresses sources of hazardous air pollutants near schools. It requires new or modified sources of hazardous air emissions located within 1,000 feet of the outer boundary of a school to give public notice to the parents or guardians of children enrolled in any school located within one-quarter mile of the source and to each address within a 1,000-foot radius.

ODORS

Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable stress among the public and often generating citizen complaints to local governments and the SJVAPCD. The SJVAPCD has determined some common types of facilities that have been known to produce odors, including wastewater treatment facilities, chemical manufacturing plants, painting/coating operations, feed lots/dairies, composting facilities, landfills, and transfer stations. Because offensive odors rarely cause any physical harm and no requirements for their control are included in state or federal air quality regulations, the SJVAPCD has no rules or standards related to odor emissions other than its nuisance rule. Any actions related to odors are based on citizen complaints to local governments and the SJVAPCD. According to the SJVAPCD, significant odor problems occur when there is more than one confirmed complaint per year averaged over a 3-year period or when there are three unconfirmed complaints per year averaged over a 3-year period (SJVAPCD 1998).

Two situations typically increase the potential for odor problems. The first occurs when a new odor source is located near existing sensitive receptors. The second occurs when new sensitive receptors are developed near existing sources of odor. In the first situation, the SJVAPCD recommends operational changes, add-on controls, process changes, or a buffer zone where feasible to address odor complaints. In the second situation, the potential conflict is considered significant if the project site is at least as close

as any other site that has already experienced significant odor problems related to the odor source. For projects locating near a source of odors where there is no nearby development that may have filed complaints, and for odor sources locating near existing sensitive receptors, the SJVAPCD requires the determination of potential conflicts to be based on the distance and frequency at which odor complaints from the public have occurred in the vicinity of a similar facility (SJVAPCD 1998).

CITY OF LATHROP GENERAL PLAN

The City of Lathrop General Plan (General Plan) includes several policies specifically related to air quality. The following policies from the “Air Quality and Solid Waste Management Policies” section of the General Plan apply to the proposed project:

Policy 1: Mitigation of air quality impacts is to be achieved in part through the design and construction of an efficient system of arterial and collector streets and interchange and freeway improvements that will assure high levels of traffic service and the avoidance of unmanageable levels of traffic congestion.

Policy 3: The City shall adopt standards which require industrial process analysis before the fact of site and building permit approval to assure compliance with State air quality and water quality standards. Standards shall provide for periodic monitoring of industrial processes which could have an adverse impact on water or air quality. Industrial process review that may be required should be conducted as part of environmental assessment by an engineer licensed in California having demonstrated experience in the industrial process involved.

Policy 4: The City shall require positive control of dust particles during project construction activities, including watering or use of emulsions, parking of heavy equipment on paved surfaces, prohibition of land grading operation during days of high wind (beginning at 10 mph, with gusts exceeding 20 mph), and prohibitions of burning on vacant parcels. The City should seek the cooperation of agricultural operators to refrain from the plowing of fields on windy days, and to keep loose soils under control to the extent reasonable to avoid heavy wind erosion of soils.

WEST LATHROP SPECIFIC PLAN

The West Lathrop Specific Plan (WLSP) contains one objective that references air quality:

Objective 5B: Implement a diversified, multi-modal transportation system serving West Lathrop which will contribute to the quality of life for all residents in the Lathrop area.

In the discussion of this objective, the WLSP states that inclusion of multiple modes of transportation (e.g., buses, roadways, trails, waterways) will “minimize the project’s effect on the ambient environment, especially traffic congestion and air quality.”

4.5.2 EXISTING CONDITIONS

The proposed project site is located in the San Joaquin Valley Air Basin (SJVAB), which is under the jurisdiction of the SJVAPCD. Applicable air quality regulations and the factors affecting air quality conditions applicable to the proposed project site are discussed below.

TOPOGRAPHY, METEOROLOGY, AND DISPERSION

The dispersion of air pollution in an area is determined by such natural factors as topography, meteorology, and climate, along with atmospheric stability conditions and the presence of inversions. The factors affecting the dispersion of air pollution with respect to the SJVAB are discussed below.

Topography

The SJVAB, which occupies the southern half of the Central Valley, is approximately 250 miles long and, on average, 35 miles wide. The Coast Ranges, which have an average elevation of 3,000 feet, are located on the western border of the SJVAB. The San Emigdi Mountains, which are part of the Coast Ranges, and the Tehachapi Mountains, which are part of the Sierra Nevada, are both located south of the SJVAB. The Sierra Nevada forms the eastern border of the SJVAB, extending in the northwest direction to Mt. Whitney, which has an elevation of 14,495 feet. The SJVAB is basically flat with a downward gradient in terrain to the northwest.

Meteorology and Climate

The climate of the SJVAB is strongly influenced by the presence of mountain ranges. The mountain ranges to the west and south induce winter storms from the Pacific Ocean to release precipitation on the western slopes, producing a partial rain shadow over the valley. In addition, the mountain ranges block the free circulation of air to the east, which results in the entrapment of stable air in the valley for extended periods during the cooler half of the year.

Winter in the SJVAB is characterized as mild and fairly humid, and the summer is hot, dry, and cloudless. The climate is a result of the topography and the strength and location of a semipermanent, subtropical high-pressure cell. During summer, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface due to the northwesterly flow produces a band of cold water off the California coast. In winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms.

The annual temperature, humidity, precipitation, and wind patterns reflect the topography of the SJVAB and the strength and location of the semipermanent, subtropical high-pressure cell. Summer temperatures that often exceed 100°F and clear sky conditions are favorable to O₃ formation. Most of the precipitation in the valley occurs during more frequent periods of rainfall in winter. The winds and unstable atmospheric conditions associated with the passage of winter storms result in periods of low air pollution and excellent visibility. However, between winter storms, high pressure and light winds lead to the

creation of low-level temperature inversions and stable atmospheric conditions, resulting in high CO concentrations and PM. The orientation of the wind flow pattern in the SJVAB is parallel to the valley and mountain ranges. Summer wind conditions promote the transport of O₃ and precursors from the Bay Area through the Carquinez Strait, a gap in the Coast Ranges, and low mountain passes such as Altamont and Pacheco Pass.

With respect to the proposed project site, San Joaquin County is located in the northern portion of the SJVAB. The climate is semiarid with an annual normal precipitation of approximately 14 inches. January temperatures range from a normal minimum of 37°F to a normal maximum of 53°F. July temperatures range from a normal minimum of 61°F to a normal maximum of 95°F (NOAA 1992). The wind is predominantly from the NWN at 10 mph (ARB 1994).

Atmospheric Stability and Inversions

Stability describes the resistance of the atmosphere to vertical motion. The stability of the atmosphere depends on the vertical distribution of temperature with height. When the temperature decreases vertically at 10°C per 1,000 meters, the atmosphere is “neutral.” When the lapse rate (change in temperature with respect to height) is greater than 10°C per 1,000 meters, the atmosphere is “unstable.” When the lapse rate is less than 10°C per 1,000 meters, the atmosphere is “stable.” Stability categories range from “Extremely Unstable” (Class A), through “Neutral” (Class D), to “Stable” (Class F). Unstable conditions typically occur during daytime hours when solar heating warms the lower atmospheric layers sufficiently. Under Class A stability conditions, large horizontal wind direction fluctuations occur coupled with large vertical mixing depths. Under Class B stability conditions, wind direction fluctuations and the vertical mixing depth are less pronounced because of a decrease in the amount of solar heating. Under Class C stability conditions, solar heating is weak along with horizontal and vertical fluctuations because of a combination of thermal and mechanical turbulence. Under Class D stability conditions, vertical motions are primarily generated by mechanical turbulence. Under Class E and Class F stability conditions, air pollution emitted into the atmosphere travels downwind with poor dispersion. The dispersive power of the atmosphere decreases with progression through the classes from A to F.

With respect to the SJVAB, Classes D through F are predominate during the late fall and winter because of cool temperatures and entrapment of cold air near the surface. March and August are transition months with equally occurring percentages of Class F and Class A. During the spring months of April and May and the summer months of June and July, Class A is predominant. The fall months of September, October, and November have comparable percentages of Class A and Class F.

An inversion is a layer of warmer air over a layer of cooler air. Inversions influence the mixing depth of the atmosphere, which is the vertical depth available for diluting air pollution near the ground, thus significantly affecting air quality conditions. The SJVAB experiences both surface-based and elevated inversions. The shallow surface-based inversions are present in the morning but are often broken by daytime heating of the air layers near the ground. The deep elevated inversions occur less frequently than the surface-based but generally result in more severe stagnation. The surface-based inversions occur

more frequently in the fall, and the stronger elevated inversions usually occur during December and January.

AMBIENT AIR QUALITY

Air pollutant concentrations are measured at several monitoring stations in San Joaquin County. The Stockton-East Mariposa, -Hazelton, -Claremont, and -Wagner and the Tracy-Patterson Pass air quality monitoring stations are the closest to the proposed project site with sufficient data to meet EPA and/or ARB criteria for quality assurance. In general, the ambient air quality measurements from the stations are representative of the air quality in the vicinity of the proposed project site.

Table 4.5-2 summarizes the air quality data from 1998 to 2001 for monitoring stations located in the vicinity of the project site. Adequate data are not necessarily available from each station for all pollutants; therefore, data for each pollutant are provided from a subset of the five stations in the project vicinity. The state (1-hour) and federal (1-hour/8-hour) O₃ standards were exceeded several times at two of the air monitoring stations in the past 4 years. The suspended PM₁₀ national standard (24-hour average, 150 μg/m³) was not exceeded; however, the state standard (24 hour-average, 50 μg/m³) was exceeded an average of seven times per year, with an annual average maximum concentration of 150 μg/m³ from 1998 to 2001. With respect to CO and NO₂, neither the state nor the national standards were exceeded from 1998 to 2001.

ATTAINMENT STATUS

Under the CCAA, the ARB is required to designate areas of the state as attainment, nonattainment, or unclassified with respect to applicable standards. An “attainment” designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A “nonattainment” designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. An “unclassified” designation signifies that the data do not support either an attainment or a nonattainment status. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

Federal and state classifications for nonattainment areas are typically based on “design values” (maximum concentrations recorded at a monitoring station over a given period) and/or the region’s ability to reach attainment within the timeframes established for each designation. For instance, under the federal classification system, areas designated “severe” nonattainment (i.e., design value of 0.180 to 0.191 ppm) have until November 15, 2005, to attain the federal 1-hour ozone standard, whereas areas designated “extreme” nonattainment (i.e., design value of 0.280 ppm and greater) must reach attainment by November 15, 2010. State ozone classifications are similar to federal classifications but are based solely on design values. Federal and state nonattainment classification systems have not been established for all criteria pollutants. The state and national attainment status designations pertaining to the SJVAB are summarized Table 4.5-3. The SJVAB is currently designated as a nonattainment area with respect to the state and national PM₁₀ and ozone 1-hour standards. The attainment designations with respect to the PM_{2.5} have not yet been determined.

**Table 4.5-2
Summary of Annual Air Quality Data**

	1998	1999	2000	2001
Ozone (O₃)				
Stockton-East Mariposa Air Quality Monitoring Station				
State standard (1-hour average, 0.09 ppm)				
National standard (1-hour/8-hour average, 0.12/0.08 ppm)				
Maximum concentration (1-hour/8-hour average)	0.12/0.10	0.14/0.09	0.11/0.08	0.11/0.09
Number of days state standard exceeded	9	4	4	5
Number of days national 1-hour/8-hour standard exceeded	0/2	1/4	0/0	0/1
Stockton-Hazelton Air Quality Monitoring Station				
State standard (1-hour average, 0.09 ppm)				
National standard (1-hour/8-hour average, 0.12/0.08 ppm)				
Maximum concentration (1-hour/8-hour average)	0.13/0.10	0.14/0.11	0.11/0.08	0.10/0.09
Number of days state standard exceeded	10	6	4	5
Number of days national 1-hour/8-hour standard exceeded	1/4	2/4	0/0	0/1
Carbon Monoxide (CO)				
Stockton-Claremont Air Quality Monitoring Station				
State standard (1-hour/8-hour average, 20/9.1 ppm)				
National standard (1-hour/8-hour average, 35/9.5 ppm)				
Maximum concentration (1-hour/8-hour average)	10.2/7.9	11.3/7.8	8.1/6.6	N/A
Number of days state standard exceeded	0	0	0	0
Number of days national 1-hour/8-hour standard exceeded	0/0	0/0	0/0	0/0
Stockton-Hazelton Air Quality Monitoring Station				
State standard (1-hour/8-hour average, 20/9.1 ppm)				
National standard (1-hour/8-hour average, 35/9.5 ppm)				
Maximum concentration (1-hour/8-hour average)	8.9/7.2	8.3/5.3	6.5/3.9	8.4/6.0
Number of days state standard exceeded	0	0	0	0
Number of days national 1-hour/8-hour standard exceeded	0/0	0/0	0/0	0/0
Nitrogen Dioxide (NO₂)				
Stockton-Hazelton Air Quality Monitoring Station				
State standard (1-hour average, 0.25 ppm)				
National standard (annual, 100 µg/m ³)				
Maximum concentration (1-hour average)	0.102	0.106	0.099	0.060
Number of days state standard exceeded	0	0	0	0
Annual average (ppm)	0.023	0.024	0.021	N/A
Tracy-24371 Patterson Pass Road Air Quality Monitoring Station				
State standard (1-hour average, 0.25 ppm)				
Federal standard (annual, 100 µg/m ³)				
Maximum concentration (1-hour average)	0.079	0.074	0.068	0.087
Number of days state standard exceeded	0	0	0	0
Annual average (ppm)	0.013	0.015	0.014	NA

Table 4.5-2 Summary of Annual Air Quality Data				
	1998	1999	2000	2001
Suspended Particulate (PM₁₀)				
Stockton-Hazelton Air Quality Monitoring Station				
State standard (24-hour average, 50 µg/m ³)				
National standard (24-hour average, 150 µg/m ³)				
Maximum concentration	106	150	91	140
Number of days state standard exceeded	8	10	9	6
Number of days federal standard exceeded	0	0	0	0
Stockton-Wagner-Holt School Air Quality Monitoring Station				
State standard (24-hour average 50 µg/m ³)				
National standard (24-hour average, 150 µg/m ³)				
Maximum concentration	99	118	104	119
Number of days state standard exceeded	5	4	9	4
Number of days national standard exceeded	0	0	0	0
ppm = parts per million by volume. µg/m ³ = micrograms per cubic meter.				
Source: ARB 2002b, EPA 2002				

Table 4.5-3 SJVAB Attainment Status Designations for San Joaquin County		
Pollutant	National Designation	State Designation
Ozone, 1-hour	Nonattainment/severe	Nonattainment/severe
Ozone, 8-hour	Designation to be determined	No state standard
PM ₁₀	Nonattainment/serious	Nonattainment
PM _{2.5}	Designation to be determined	No state standard
CO - San Joaquin	Unclassified/attainment	Attainment
Nitrogen dioxide	Unclassified/attainment	Attainment
Sulfur dioxide - San Joaquin	Unclassified	Attainment
Lead (particulate)	No designation	Attainment
Hydrogen sulfide	No federal standard	Unclassified
Sulfates	No federal standard	Attainment
Visibility-reducing particulates	No federal standard	Unclassified
Source: ARB 2001, SJVAPCD 2001		

Despite the noteworthy air quality improvements over the past decade, the SJVAB failed to meet the previous federal O₃ standard deadline; thus, the valley was downgraded from nonattainment/ serious to nonattainment/severe designation by the EPA. The SJVAPCD is now required to submit a plan to the ARB that demonstrates that the valley will meet the O₃ standards by 2005, which would involve reducing the total emissions inventory by an additional 30%, or 300 tons per day. To avoid being faced with sanctions, the SJVAPCD is considering voluntarily seeking the federal government's worst air quality designation for ground-level O₃, which is the designation of nonattainment/extreme. With this designation, the new attainment date for the SJVAB would be 2010. A nonattainment/extreme designation is not a delay in implementing air pollution controls but allows the SJVAB the opportunity to benefit from improved pollution controls for industry, as well as mobile source controls being implemented by other agencies without incurring immediate sanctions. The SJVAPCD will continue to work aggressively with the business and industrial sources to improve air quality. However, if designated as nonattainment/extreme, jurisdictions within the air basin could face the stigma of being the only region other than the Los Angeles area to have this air quality designation. This could negatively affect economic development because of a lower threshold required of businesses that participate in a federal permitting program, stricter offset requirements, and installation of advanced emission control devices (SJVAPCD 2002a).

EXISTING TAC SOURCES

A records search was conducted for stationary sources of TACs monitored by the SJVAPCD within one-quarter mile of the project site (SJVAPCD 2002b). Only one TAC source, Mossdale Marina, is recorded by the SJVAPCD because it involves the use of gasoline, which is a source of TAC. The Mossdale Marina has a permit from the SJVAPCD for gasoline storage and use, so toxic emission assessment or health risk assessment have not been necessary and have not been performed for this site (Armi, pers. comm, 2002). Mobile source emissions associated with heavy-duty diesel vehicles, including those traveling on Interstate 5 (I-5) and State Route 205 (SR 205) are additional sources of TACs in the project area.

EXISTING ODOR SOURCES

Potential sources of odor in the project vicinity include agricultural and industrial operations. A records search was conducted for odor complaints reported to the SJVAPCD within 2 miles of the project site. Six odor complaints were recorded, including two related to agricultural operations (manure pile and dairy), one related to food processing (Holly Sugar), and three from unidentified odor sources. The Holly Sugar facility has since ceased to operate (SJVAPCD 2002b).

Other potential source of odors include the Bowman Road Ranch, which raises chickens, and the Lathrop Water Recycling Plant #1 (WRP #1). The Bowman Road Ranch is located approximately 2 miles north of the project site, and WRP #1 is located approximately 1.2 miles east of the nearest RID Area boundary. However, no odor complaints about the Bowman Ranch or WRP #1 were registered in the SJVAPCD records search. The San Joaquin County Environmental Health Department (SJCEHD) also has no odor complaints about these two facilities. Nonetheless, odor complaints associated with other chicken ranches near the City of Lathrop have been reported to the SJCEHD (SJCEHD 2002).

4.5.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

The SJVAPCD does not require the quantitative analysis of air pollutant emissions generated by construction activities if recommended mitigation measure of the SJVAPCD are implemented by the project. These mitigation measures would be implemented during project construction; therefore, a qualitative rather than quantitative evaluation of construction emissions was conducted. Operational air pollutant emissions were calculated using URBEMIS7G, which incorporated data from the traffic study prepared for the proposed project (see section 4.4, "Traffic"). Operational emissions were compared to the thresholds established by the SJVAPCD to determine the significance of the impacts before and after the implementation of the recommended mitigation measures.

A project-level analysis of air quality was conducted for both Phase 1 and Phase 2 rather than a project-level analysis for Phase 1 and a separate program-level analysis for Phase 2. Sufficient information is available related to emission levels and sources at full buildout to allow the project-level analysis of Phase 2. In some instances, the analysis of air quality focused on full project buildout because this approach provides a worst-case scenario regarding potential emission levels.

PRIOR WLSP EIR ANALYSIS

The WLSP EIR identified significant impacts on air quality resulting from construction emissions and releases of PM₁₀ associated with soil disturbance during construction. Operational emissions of ROG and NO_x from mobile and stationary sources were also identified as a significant impact.

The EIR includes multiple mitigation measures intended to address these impacts. Measures provided to reduce construction emissions reflect standard practices, such as keeping diesel engines in good operating order, using water or chemical dust suppressants for dust control, ceasing grading and earth moving when wind speeds exceed 20 mph, minimizing the area of disturbance, and prohibiting burning. Measures to reduce operational emissions are divided among mobile sources (reducing vehicle trips) and stationary sources. For mobile sources, 12 Transportation Demand Management (TDM) measures are provided, which represent fairly typical trip reduction approaches, such as establishment of an onsite transit system; providing incentives to use alternative transportation; creating a pedestrian-friendly environment by including sidewalks of adequate width, curbing, and night lighting; and providing bicycle routes. Measures to reduce stationary source emissions focus on residential uses and include limiting the number of fireplaces, installing energy-efficient low-NO_x heating /cooling systems, and providing outdoor natural gas and electrical outlets to support use of these energy sources for outdoor tools and appliances (e.g., barbecues, lawnmowers, leaf blowers). However, considering the poor regional air quality conditions for some pollutants and the volume of overall project emissions, implementation of these mitigation measures was not considered sufficient to reduce air quality impacts associated with the WLSP to less-than-significant levels.

Since completion of the WLSP EIR, the regulatory environment relative to air quality has changed (e.g., federal TAC emission standards); new air quality monitoring data are available; the SJVAPCD has

completed various air quality attainment plans; and for some pollutants, air quality has declined in the basin, resulting in increased incidence of exceeding air quality standards. In addition, there are agency actions related to air quality that will or may occur in the near future (e.g., ARB approach to diesel PM emissions, SJVAPCD consideration of voluntary designation as extreme/nonattainment for O₃) that could not have been considered in the WLSP EIR. Given these changes, an independent analysis of air quality impacts is included in this SEIR.

THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following applicable thresholds of significance, as identified in the SJVAPCD Guide for Assessing and Mitigating Air Quality Impacts (SJVAPCD 1998), shall be used to determine whether implementing the proposed project would result in a significant air quality impact:

- ▶ **Short-term increases in regional criteria pollutants.** Construction impacts associated with the proposed project would be considered significant if the feasible control measures for construction in compliance with Regulation VIII as listed in the SJVAPCD guidelines are not incorporated or implemented.
- ▶ **Increases in Toxic Air Contaminant.** TAC impacts associated with the proposed project would be considered significant if the project would expose the public to substantial levels of TAC so that the probability of contracting cancer for the Maximally Exposed Individual exceeds 10 in 1 million.
- ▶ **Increases in odorous emissions.** Odor impacts associated with the proposed project would be considered significant if the project has the potential to frequently expose members of the public to objectionable odors.
- ▶ **Increases in local mobile source CO concentrations.** Local mobile source impacts associated with the proposed project would be considered significant if the project contributes to CO concentrations that exceed the CAAQS of 9.0 ppm for 8 hours or 20 ppm for 1 hour.
- ▶ **Long-term increases in regional criteria pollutants.** Regional (operational) impacts associated with the proposed project would be considered significant if the project generates emissions of ROG and NO_x that exceed 10 TPY.

IMPACT ANALYSIS

Impact
4.5-a

Air Quality - Increases in Regional Criteria Pollutants during Construction.

*Construction activities associated with the proposed project would result in the generation of NO_x, ROG, and PM₁₀ emissions in addition to the potential airborne entrainment of asbestos associated with demolition of existing structures. This impact is considered **significant**.*

The SJVAPCD does not require a quantitative analysis of air pollutant emissions generated by construction activities if mitigation measures recommended by the SJVAPCD are implemented as part of the project. The City of Lathrop would require adherence to these measures. Therefore, this analysis assumes that these mitigation measures would be implemented during project construction, and a qualitative rather than quantitative evaluation of construction emissions is provided below.

Although construction-generated emissions are typically short term and temporary in duration, they still have the potential to represent a significant air quality impact, particularly for PM₁₀ emissions. In addition, the proposed project is planned for a 20-year buildout period, with some level of construction likely occurring at all times. Therefore, construction emissions associated with the proposed project would be considered more than short term or temporary.

Construction emissions may potentially result in substantial increases in localized PM₁₀ concentrations; adverse health effects; and nuisance concerns, such as reduced visibility and soiling of exposed surfaces. With respect to the proposed project, the construction and development of residential, commercial, and public uses, as well as the levee improvements and lake excavations, would result in the generation of NO_x, ROG, and PM₁₀ emissions attributable to site grading and excavation, road paving, application of architectural coatings, motor vehicle exhaust associated with construction equipment and worker trips, and movement of construction equipment, especially on unpaved surfaces. In addition, the demolition of the existing farm-related structures and residential units located on the proposed project site would potentially result in the airborne entrainment of asbestos from the disturbance of asbestos-containing materials that may exist in these older buildings (see section 4.9, "Hazardous Materials and Public Health"). Asbestos is listed as a TAC by the ARB and as a HAP by the EPA. The risk of disease depends on the intensity and duration of exposure. Asbestos fibers when inhaled may remain in the lungs and are linked to such diseases as asbestosis, lung cancer, and mesothelioma (ARB 2002b).

Emissions of fugitive dust generated during construction along the project perimeter or construction of offsite facilities (e.g., roads, utility alignments) also may result in the transmission of dust to nearby agricultural crops. The accumulation of dust on the leaves of nearby agricultural plants may result in reduced crop yields from decreased rates of plant photosynthesis. In addition, a repeated or long-term accumulation of dust on the leaves of plants may encourage the development or increased activity of spider mites and other pests or diseases. A report entitled Evaluation of Potential Effects of the Carmel River Dam and Reservoir Project on Cachagua Valley Vineyards (Ballanti & Kasimatis 1997), prepared for the Monterey Peninsula Water Management District, analyzed dust impacts on vineyards. The report found that increased spider mite activity is most noticeable within approximately 100 feet downwind of dust-generating activities.

Construction activities associated with the proposed project would result in the generation of NO_x, ROG, and PM₁₀ emissions; the potential airborne entrainment of asbestos from demolition of existing buildings; and potential adverse effects on nearby crops from emission of fugitive dust. Thus, the construction-related emissions of air pollutants by the proposed project would be considered a significant air quality impact. If feasible control measures to minimize these effects were not implemented, this impact would be considered significant.

Impact
4.5-b

Air Quality - Increases in Odorous Emissions. *Odors associated with agricultural processes would result in less-than-significant impacts given the City's Right-to-Farm Ordinance and required buffers between agriculture and development. Because the City's industrial and wastewater facilities have not received odor complaints from nearby residents, it is expected that these facilities would have a **less-than-significant** odor impact on the project site.*

The proposed project would locate residential communities near existing agricultural uses. Odors associated with agricultural processes, including the use of manure as fertilizer, may be considered a nuisance to residents on the project site. Residents may also associate odors with pesticide use and make nuisance complaints based on the perceived health risk. Excessive complaints may reduce the feasibility of nearby agricultural operations.

The City of Lathrop Right-to-Farm Ordinance protects agricultural landowners from nuisance complaints related to cultivation, irrigation, spraying, fertilizing, and other activities related to normal agricultural operations. A disclosure statement, which is required whenever adjacent property is sold or building permit applications are submitted, notifies the buyer of the possible discomforts related to adjacent agriculture operations (City of Lathrop 2001). The focus of the ordinance is to reduce the loss of agricultural resources in the City by clarifying the circumstances under which agricultural operations may be considered a nuisance.

To reduce the potential for odorous emissions to adversely affect nearby sensitive land uses, the SJVAPCD recommends providing sufficient distance between the source of the odors and the nearby receptors. Residences, schools, and other sensitive receptors associated with the proposed project would be separated from offsite agricultural uses by the natural buffers of Old River, the San Joaquin River, and Paradise Cut and levees surrounding the project site. Buffers of at least 150 feet also would be maintained between sensitive receptors and onsite agricultural operations, which would continue as development proceeds (see section 4.13, "Agricultural Resources").

The project site is also located within 1 mile of existing industrial facilities and within 1.2 miles of the City's wastewater treatment facility. According to the SJVAPCD, there have been no odor complaints about these facilities from existing residences in the City, which are located closer to these facilities than the proposed project. For this reason, it is expected that the sensitive receptors on the project site would not experience odor problems caused by these facilities.

Because buffers would be maintained between sensitive receptors associated with the proposed project and agricultural operations and because no odor conflicts between existing odor-generating land uses and nearby sensitive receptors have been reported to the SJVAPCD, potential odor impacts from agricultural, industrial, and wastewater facilities are considered less than significant.

Impact
4.5-c

Air Quality - Increases in Stationary Source Toxic Air Contaminants. *Development associated with the proposed project would include sensitive receptors (e.g., residences, schools) and facilities that might emit TACs (e.g., manufacturing in the Employment Center). Onsite and offsite facilities that may emit TACs would be required to comply with established*

*emission standards through the SJVAPCD permit process. Impacts on sensitive receptors from routine emissions of TACs are considered **less than significant**.*

The proposed Employment Center would permit the operations of research/development and manufacturing facilities, primarily intended for high-technology companies. Manufacturing processes may involve the use of TACs in these facilities. The proposed project also would include facilities that would accommodate sensitive receptors. No sensitive receptors would be immediately adjacent to the Employment Center, and the nearest school would be at least 1,400 feet from any potential manufacturing facilities. However, the nearest residential use would be within 300 feet of the Employment Center. TACs emitted from sources outside the project area (e.g., Mossdale Marina) could also potentially affect proposed sensitive receptors in the immediate vicinity (e.g., homes).

Under SJVAPCD Rule 2010, all sources having the potential to emit TACs are required to obtain permits from the SJVAPCD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including Rule 2201 (New and Modified Stationary Source Review Rule), Rule 4001 (New Source Performance Standards), and Rule 4002 (National Emissions Standards for Hazardous Air Pollutants). Given that compliance with applicable standards are required for the construction and operation of facilities that may emit TACs, the TAC emissions from the routine use of TACs in manufacturing processes, both on and off the project site, are expected to be within established standards. No significant impact would result.

Emissions of TACs from accidental release of hazardous materials are discussed in section 4.9, "Hazardous Materials and Public Health."

Impact
4.5-d

Air Quality - Increases in Mobile Source Toxic Air Contaminants. Diesel PM emissions from diesel-fueled delivery trucks associated with development of commercial- and industrial-related land uses may exceed health risk standards at nearby sensitive receptors. This impact is considered **potentially significant**.

PM emissions from diesel-fueled vehicles and engines are the ARB's primary TAC of concern for mobile sources. The proposed project includes retail commercial uses and allows for light industrial uses that may result in concentrated use of diesel-fueled trucks (e.g., delivery, shipping) in a particular area. Some passenger vehicles and watercraft also might use diesel fuels. However, because of the limited volume and infrequent use of diesel-fueled passenger vehicles and watercraft at any single location, diesel PM emissions from these sources are not expected to result in concentrations that exceed thresholds.

Specific occupants of the Employment Center and retail commercial areas have not been identified for the project site (which is to be expected in this early phase of project development). However, the proposed project would permit regional commercial and manufacturing uses that would require large-sized delivery and shipping trucks that typically use diesel fuel. The diesel PM emissions generated by these trucks, including idling trucks and refrigerated units, would be produced primarily at single locations on a regular basis. Diesel PM emissions might be blown to nearby sensitive receptors, including adjacent residential units and schools. This impact is considered potentially significant because it is unknown at this time whether the concentration of diesel PM at any sensitive receptor

locations might exceed the threshold for acceptable cancer risk for the Maximally Exposed Individual. It is also unclear what effects new ARB diesel engine emission standards and diesel PM regulations would have on the level of emissions from any one facility.

Impact
4.5-e

Air Quality - Increases in Local Mobile Source CO Concentrations. Implementation of the proposed project would result in the generation of CO at nearby intersections from increased vehicular traffic on the local transportation network. However, the proposed project would not contribute to CO concentrations that exceed CAAQS of 9.0 ppm for 8 hours or 20 ppm for 1 hour. Therefore, the proposed project's contribution to localized mobile source CO concentrations at sensitive receptors is considered to have a **less-than-significant** air quality impact.

The following analysis is based on full project buildout conditions because those conditions represent the worst-case scenario relative to mobile source emissions.

Under specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels with respect to local sensitive land uses, such as residential units, hospitals, and childcare facilities. The Transportation Project-Level Carbon Monoxide Protocol (Garza et al. 1997) states that signalized intersections at level of service (LOS) E or F represent a potential for a CO violation. Thus, modeling of CO concentrations is recommended for receptors located near roadway intersections that are projected to operate at LOS E or F.

With respect to the proposed project, 1-hour and 8-hour CO concentrations were estimated using the CALINE4 model as recommended by the SJVAPCD. Modeling results are provided in Appendix C. CO concentrations were estimated for anticipated traffic conditions in 2025 with and without the proposed project (2025 base case and 2025 base case + project conditions) at the Louise Avenue/I-5 northbound and southbound ramp intersections, which are projected to operate at an unacceptable LOS (see section 4.4, "Traffic"). One-hour and 8-hour CO concentrations were estimated based on worst-case meteorological conditions, p.m. peak-hour traffic volumes as presented in the traffic analysis, and 2002 composite emission factors modeled using the CT-EMFAC computer model. As indicated in Table 4.5-4, the estimated maximum 1-hour and 8-hour CO concentrations for 2025 base case + project conditions would be 18.3 ppm and 8.9 ppm at the Louise Avenue/I-5 northbound ramp intersection and 18.4 ppm and 8.85 ppm at the Louise Avenue/I-5 southbound ramp intersection. The estimated 1-hour and 8-hour CO concentrations do not exceed the recommended significance thresholds of 20 ppm and 9 ppm as outlined above. Therefore, this impact is considered less than significant.

Impact
4.5-f

Air Quality - Increases in Long-Term Regional Emissions. Implementation of the proposed project would result in long-term regional emissions, primarily associated with mobile sources, that would exceed the SJVAPCD's recommended significance threshold of 10 TPY for ROG and NOx. This impact is considered **significant**.

The following analysis is based on full project buildout conditions because these conditions would represent a worst-case scenario relative to long-term emissions.

Table 4.5-4 Localized Mobile Source Carbon Monoxide Concentrations			
Intersection	Time Period	Maximum CO Concentration (ppm) ¹	
		2025 Base Case	2025 Base Case Plus Project
Louise Avenue/I-5 northbound ramp	1 hour	12.7	18.3
	8 hour	6.12	8.9
Louise Avenue/I-5 southbound ramp	1 hour	9.7	18.4
	8 hour	4.86	8.85
Significance thresholds²	1 hour	20	
	8 hour	9	
<p>¹ 1-hour and 8-hour CO concentrations were estimated using the CALINE4 model based on the assumptions outlined above, 1-hour and 8-hour CO background concentrations of 7.0 ppm and 3.6 ppm, 2002 composite emission factors from CT-EMFAC, and a persistence factor of 0.7, interpolated from the 2000 and 2001 Stockton-Hazelton air quality monitoring station data.</p> <p>² Based on the more stringent California Ambient Air Quality Standards.</p> <p>ppm = parts per million.</p> <p>Source: EDAW 2002</p>			

Regional area and mobile source emissions of ROG, NO_x, and PM₁₀ associated with the proposed project were estimated using the ARB-approved URBEMIS7G version 5.1.0 computer program, which is designed to model emissions for land use development projects. URBEMIS7G allows land use selection that includes project location specifics and trip generation rates along with a double-counting option that is designed to minimize double counting of internal vehicle trips between residential and nonresidential land uses and a pass-by trips option that estimates vehicle-trip emissions based on the percentage of primary trips, diverted linked trips, and pass-by trips assumed for specific land uses.

The default settings for the SJVAB contained in the model were used for this analysis, based on 2025 emission rates and trip generation rates obtained from the transportation analysis prepared for this project (see section 4.4, "Traffic"). Modeling results are provided in Appendix C.

Exhaust from recreational watercraft also would contribute to increases in regional criteria air pollutants. Emissions from recreational watercraft were calculated assuming a total of 921 gasoline- or diesel-powered boats, one boat for each of the proposed berths on the external water system. Emission factors were based on annual average watercraft emission rates for San Joaquin County, obtained from the ARB's Development of an Improved Emissions Inventory from Pleasure Craft in California (1995).

Based on the modeling conducted, implementation of the proposed project would potentially result in long-term regional emissions of approximately 784 TPY of ROG, 433 TPY of NO_x, and approximately 94 TPY of PM₁₀. As summarized in Table 4.5-5, project-generated emissions of ROG and NO_x are associated primarily with mobile sources, whereas potential emissions of PM₁₀ are attributable primarily to the use of wood-burning fireplaces. Implementation of the proposed project would result in long-term regional emissions that would exceed the SJVAPCD's recommended significance threshold of 10 TPY for ROG and NO_x, and predicted increases in PM₁₀ would contribute to the basin's existing and projected nonattainment conditions. Given the emission levels associated with full project buildout (exceeding

200 TPY for ROG and NO_x), it is reasonable to assume that development of Phase 1 alone would also exceed the SJVAPCD's emission threshold of 10 TPY. Thus, both Phase 1 and Phase 2 of the proposed project would be considered to generate a significant air quality impact with respect to long-term regional emissions.

Table 4.5-5 Summary of Estimated Regional Emissions: Buildout Conditions			
Sources	Emissions Generated (TPY)		
	ROG	NO _x	PM ₁₀
Natural gas usage	3.43	44.77	0.09
Wood-burning fireplaces	505.16	5.74	76.33
Landscape maintenance	0.49	0.12	0.00
Consumer products	98.21	--	--
On-highway mobile sources	139.71	377.95	16.18
Pleasure craft	36.65	4.79	1.15
Total - unmitigated	783.65	433.37	93.75
Total - mitigated	239.14	427.63	17.42
Thresholds (TPY)	10	10	--
<p>Based on URBEMIS7g modeling results. Area source emissions associated with landscaping, natural gas, and consumer products were estimated based on default model settings. "Mobile sources" include road-based vehicles and recreational watercraft. Mobile source emissions are based on 2025 default emission factors and trip generation rates obtained from the traffic analysis prepared for this project under buildout conditions. Water craft emissions are based on equivalent annual average emission rates for watercraft in San Joaquin County of 0.03979 TPY per boat ROG, 0.0052 TPY per boat NO_x, and 0.00125 TPY per boat PM₁₀ (ARB 1995).</p> <p>TPY = tons per year.</p> <p>Source: EDAW 2002</p>			

Impact
4.5-g

Air Quality - Consistency with Air Quality Plans. Predicted increases in regional emissions would be consistent with the emissions inventories used for air quality planning purposes. This impact is considered **less than significant**.

To demonstrate attainment with state and federal ambient air quality standards, the SJVAPCD has adopted several air quality plans. The emissions inventories developed by the SJVAPCD and contained in these plans are based on projected population growth and vehicle miles traveled for the region based, in part, on the predicted growth identified by local and regional planning agencies and reflected in regional and community plans. If growth in population is greater than assumed in the emissions inventories, then population-based emissions are also likely to increase in excess of the projections contained in the regional air quality plans. Accordingly, the consistency of the proposed project with the regional attainment plans would be assessed by comparing the projected population growth associated with the project to population forecasts adopted by the San Joaquin Council of Governments (SJCOG).

As discussed in the description of the traffic analysis methods (section 4.4, “Traffic”), although implementing the proposed project would result in growth in the City of Lathrop that is greater than anticipated by the SJCOG, the SJCOG projections for growth in the County would not be altered. Unanticipated or greater-than-expected growth in Lathrop would be offset by less-than-expected growth in other communities (see section 4.4, “Traffic,” for further discussion). As a result, predicted increases in regional emissions would be consistent with the emissions inventories used for air quality planning purposes. Consequently, this impact would be less than significant.

4.5.4 MITIGATION MEASURES

No mitigation measures are required for the following less-than-significant impacts.

As indicated in the discussion of Impact 4.5-d, implementation of the proposed project would result in a potentially significant increase in mobile source TACs, associated primarily with diesel trucks generated by commercial and industrial-related land uses. Mobile source TACs are a relatively new concern for the ARB, so specific guidelines and practices regarding assessing impacts and providing mitigation are not available. It is also unclear what effects new ARB diesel engine emission standards and diesel particulate matter regulations would have on the level of impact and the necessity for, or type of, mitigation. Therefore, the specific conditions of mobile source TAC impacts cannot be determined at this time. The only available mitigation of completely separating emission sources (diesel vehicles) from all sensitive receptors is not feasible. Therefore, no mitigation is available for Impact 4.5-d to reduce the impact to a less-than-significant level. Thus, implementing the proposed project would result in a significant and unavoidable adverse impact with respect to mobile source TACs.

The following mitigation measures are provided for significant impacts.

4.5-a: Increases in Regional Criteria Pollutants during Construction. The SJVAPCD emphasizes implementation of effective and comprehensive control measures rather than requiring a detailed quantification of construction emissions. The SJVAPCD requires that all feasible control measures (dependent on the size of the construction area and the nature of the construction operations) shall be incorporated and implemented.

Based on available information, it appears that the application of standard construction mitigation measures for the control of fugitive dust (i.e., the application of water or soil stabilizers) are effective methods of reducing dust-related impacts on agricultural crops.

In accordance with SJVAPCD guidelines (SJVAPCD 1998), the following mitigation, which includes SJVAPCD Basic, Enhanced, and Additional Control Measures, shall be incorporated and implemented. In addition to the mitigation measures identified below, construction of the proposed project is required to comply with applicable SJVAPCD rules and regulations, including the requirement of a California Occupational Safety and Health Administration-qualified asbestos survey before demolition.

- ▶ All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, or vegetative ground cover.
- ▶ All onsite unpaved construction roads and offsite unpaved construction access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
- ▶ All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- ▶ During demolition of buildings all exterior surfaces of the building shall be wetted.
- ▶ When materials are transported offsite, all material shall be covered, effectively wetted to limit visible dust emissions, or at least 6 inches of freeboard space from the top of the container shall be maintained.
- ▶ All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.)
- ▶ Following the addition of materials to, or the removal of materials from, the surfaces of outdoor storage piles, piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- ▶ Onsite vehicle speeds on unpaved roads shall be limited to 15 mph.
- ▶ Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from adjacent project areas with a slope greater than 1 percent.
- ▶ Wheel washers shall be installed for all exiting trucks and equipment, or wheels shall be washed to remove accumulated dirt prior to leaving the site.
- ▶ Excavation and grading activities shall be suspended when winds exceed 20 mph.
- ▶ The overall area subject to excavation and grading at any one time shall be limited to the fullest extent possible.
- ▶ Onsite equipment shall be maintained and properly tuned in accordance with manufacturers' specifications.
- ▶ When not in use, onsite equipment shall not be left idling.

Implementation of Mitigation Measure 4.5-a would reduce impacts resulting from emissions associated with construction activities to less-than-significant levels.

4.5-f Increases in Long-Term Regional Emissions. The project applicant shall implement the following mitigation measures, where applicable and feasible, as recommended in the SJVAPCD Guide for Assessing and Mitigating Air Quality Impacts (SJVAPCD 1998). It should be noted that many of these measures are already included in the proposed project design; however, they are repeated here to allow a complete listing of the SJVAPCD guidelines.

- ▶ Provide transit enhancing infrastructure that includes transit shelters, benches, street lightening, route signs and displays, and/or bus turnouts/bulbs.
- ▶ Provide park and ride lots and/or satellite telecommuting centers.
- ▶ Provide pedestrian enhancing infrastructure that includes sidewalks and pedestrian paths, direct pedestrian connections, street trees to shade sidewalks, pedestrian safety designs/infrastructure, street furniture and artwork, street lightening, and/or pedestrian signalization and signs.
- ▶ Provide bicycle enhancing infrastructure that includes bikeways/paths connecting to a bikeway system, secure bicycle parking, and/or employee lockers and showers.
- ▶ Use solar, low-emissions, central, or tankless water heaters (residential and commercial), increase wall and attic insulation beyond Title 24 requirements (residential and commercial), orient buildings to take advantage of solar heating and natural cooling and use passive solar designs (residential, commercial, and industrial), replace wood-burning stoves and fireplaces with gas-fired fireplaces or inserts.

With implementation of Mitigation Measure 4.5-f, long-term regional emissions would be reduced, but not to levels below the SJVAPCD's recommended significant threshold of 10 TPY for ROG and NO_x (Table 4.5-5). Thus, long-term increases to regional criteria pollutants attributable to the proposed project would be considered a significant and unavoidable impact.

4.5.5 RESIDUAL SIGNIFICANT IMPACTS

Impacts related to increases in mobile source TACs are considered significant, and no feasible mitigation is available for this impact. Therefore, this impact is considered significant and unavoidable. Impacts related to long-term regional emissions would remain at a significant level after implementation of the mitigation measures discussed above.

4.6 NOISE

4.6 NOISE

This section presents an analysis of the noise impacts associated with the construction and operation of the proposed project. Mitigation measures are recommended as necessary to reduce potentially significant project impacts. This section also presents a discussion of acoustic fundamentals; the existing noise environment in the project vicinity; and applicable federal, state, and local noise regulations. Sufficient detail is provided in this section to analyze noise-related issues at a project level of detail for both Phase 1 and Phase 2 of the proposed project.

4.6.1 REGULATORY BACKGROUND

CITY OF LATHROP GENERAL PLAN

The Noise Element of the 1991 City of Lathrop General Plan (General Plan) identifies goals, standards, and policies designed to ensure that City residents are not subjected to noise beyond acceptable levels. A general objective of the Noise Element is to protect existing noise-sensitive development (e.g., hospitals, schools, churches, and residences) from new uses that would generate noise levels incompatible with those uses and, conversely, discourage noise-sensitive uses from locating near sources of high noise levels. The Noise Element identifies exterior noise performance standards for various land uses potentially affected by nontransportation noise sources (Table 4.6-1). In each land use category, the standard varies by time of day and whether the ambient environment is rural suburban, suburban, or urban. The Noise Element also establishes noise criteria for determining land use compatibility for new land uses. The City's land use compatibility criteria are summarized in Exhibit 4.6-1.

Several goals and policies in the General Plan specifically address noise issues. Those applicable to the proposed project are listed below.

Goal No. 9, Noise Hazards: It is a goal of the General Plan to protect citizens from the harmful effects of exposure to excessive noise, and to protect the economic base of the City by preventing the encroachment of noise-sensitive land uses by such sources of adverse noise as vehicular freeway and street traffic, railroad traffic and industrial operations.

Interstate and State Route Freeways, Policy No. 2: Land use designations along freeway sections should take into consideration the visual and noise impacts associated with existing and future traffic levels on these major traffic carrying facilities.

Noise Policy No. 1: Areas within the City shall be designated as noise-impacted if exposed to existing or projected future noise levels exterior to buildings exceeding 60 dB CNEL or the performance standards prescribed in Table VI-1 [reproduced as Table 4.6-1 in this SEIR].

Noise Policy No. 2: New development of residential or other noise sensitive land uses will not be permitted in noise-impacted areas unless effective mitigation measures are incorporated into project designs to reduce noise to the following levels:

**Table 4.6-1
City of Lathrop Maximum Allowable Exterior Noise Level Standards -
Nontransportation Sources (dB)**

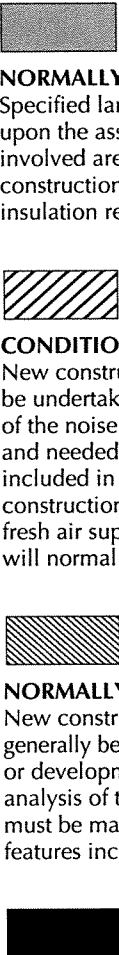
Land Use	Nighttime (10 p.m. to 7 a.m.)			Daytime (7 a.m. to 10 p.m.)		
	Rural Suburban	Suburban	Urban	Rural Suburban	Suburban	Urban
One- and two-family residential	40	45	50	50	55	60
Multifamily residential	45	50	55	50	55	60
Public space	50	55	60	50	55	60
Limited commercial	--	55	--	--	60	--
Commercial	--	60	--	--	65	--
Light industrial	--	70	--	--	70	--
Heavy industrial	--	75	--	--	75	--

Notes: This table applies to noise exposure as a result of nontransportation noise sources. Noise standards are applied at the residential or other noise-sensitive land use and not on the property of the noise-generating land use.
dB = decibel

Source: City of Lathrop 1991

- a. Noise sources preempted from local control, such as railroad and highway traffic:
 - 60 dB CNEL or less in outdoor activity areas;
 - 45 dB CNEL within interior living spaces or other noise-sensitive interior spaces.
 - Where it is not possible to achieve reductions of exterior noise to 60 dB CNEL or less by using the best available and practical noise reduction technology, an exterior noise level of up to 65 dB CNEL will be allowed.
 - Under no circumstances will interior noise levels be allowed to exceed 45 dB CNEL with windows and doors closed.

- b. For noise from other sources, such as local industries:
 - 60 dB CNEL or less in outdoor activity areas;
 - 45 dB CNEL or less within interior living spaces, plus the performance standards contained in Table VI-1 [reproduced as Table 4.6-1 in this SEIR].

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE L _{dn} or CNEL, dB						LEGEND
	55	60	65	70	75	80	
RESIDENTIAL - LOW-DENSITY SINGLE-FAMILY, DUPLEX, MOBILE HOMES							 <p>NORMALLY ACCEPTABLE Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.</p> <p>CONDITIONALLY ACCEPTABLE New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.</p> <p>NORMALLY UNACCEPTABLE New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.</p> <p>CLEARLY UNACCEPTABLE New construction or development should generally not be undertaken.</p>
RESIDENTIAL - MULTIFAMILY							
TRANSIENT LODGING - MOTELS, HOTELS							
SCHOOLS, LIBRARIES, CHURCHES, HOSPITALS, NURSING HOMES							
AUDITORIUMS, CONCERT HALLS, AMPHITHEATERS							
SPORTS ARENA, OUTDOOR SPECTATOR SPORTS							
PLAYGROUNDS, NEIGHBORHOOD PARKS							
GOLF COURSES, RIDING STABLES, WATER RECREATION, CEMETERIES							
OFFICE BUILDINGS, BUSINESS COMMERCIAL AND PROFESSIONAL							
INDUSTRIAL, MANUFACTURING UTILITIES, AGRICULTURE							

CONSIDERATIONS IN DETERMINATION OF NOISE-COMPATIBLE LAND USE

A. NORMALIZED NOISE EXPOSURE INFORMATION DESIRED

Where sufficient data exist, evaluate land use suitability with respect to a "normalized" value of CNEL or L_{dn}.

B. NOISE SOURCE CHARACTERISTICS

The land use-noise compatibility recommendations should be viewed in relation to the specific source of the noise. For example, aircraft and railroad noise is normally made up of higher single noise events than auto traffic but occurs less frequently. Therefore, different sources yielding the same composite noise exposure do not necessarily create the same noise environment. The State Aeronautics Act uses 65-dB CNEL as the criterion that airports must eventually meet to protect existing residential communities from unacceptable exposure to aircraft noise. To facilitate the purposes of the act, one of which is to encourage land uses compatible with the 65-dB-CNEL criterion wherever possible, and to facilitate the ability of airports to comply with the act, residential uses located in Community Noise Exposure Areas greater than 65 dB should be discouraged and considered located within normally unacceptable

areas.

C. SUITABLE INTERIOR ENVIRONMENTS

One objective of locating residential units relative to a known noise source is to maintain a suitable interior noise environment at no greater than 45-dB CNEL of L_{dn}. This requirement, coupled with the measured or calculated noise reduction performance of the type of structure under consideration, should govern the minimum acceptable distance to a noise source.

D. ACCEPTABLE OUTDOOR ENVIRONMENTS

Another consideration, which in some communities is an overriding factor, is the desire for an acceptable outdoor noise environment. When this is the case, more restrictive standards for land use compatibility, typically below the maximum considered "normally acceptable" for that land use category, may be appropriate.

Source: City of Lathrop 1991

Noise Policy No. 3: New development of industrial, commercial or other noise generating land uses will not be permitted if resulting exterior noise levels will exceed 60 dB CNEL in areas containing residential or other noise-sensitive land uses. Additionally, new noise generating land uses which are not preempted from local noise regulation by the State of California will not be permitted if resulting noise levels will exceed the performance standards contained in Table VI-1 [reproduced as Table 4.6-1 in this SEIR] in areas containing residential or other noise-sensitive land uses.

Noise Policy No. 4: Noise level criteria applied to land uses other than residential or other noise-sensitive uses shall be consistent with the recommendations of the California Office of Noise Control.

WEST LATHROP SPECIFIC PLAN

The West Lathrop Specific Plan (WLSP) includes one objective related to noise that is applicable to the proposed project:

Objective 9A: Arrange and design the land uses and street corridors to maximize safety and minimize the impacts of traffic noise.

Under this objective, the WLSP identifies that on Stewart Tract (as well as in Mossdale Village) land uses that are not adversely affected by noise from Interstate 5 (I-5) and the railroad lines are located near these noise sources. These land uses, both by their form and scale and by occupying freeway frontage, would act as buffers for more noise-sensitive land uses.

CITY OF LATHROP NOISE ORDINANCE

Noise regulations for the City of Lathrop are presented in Chapter 8.20 of the municipal code, the Noise Ordinance. Section 8.20.100 prohibits the operation of machinery, equipment, fans, air conditioning, and similar devices so as to create noise that would cause the noise level at the property line of any property to exceed the “ambient base noise level” by more than 5 decibels (dB). The ambient base noise level is the greater of the “ambient noise” or the values shown in Table 4.6-2. Ambient noise is the noise level obtained when the noise level is averaged over 15 minutes without the inclusion of noise from isolated identifiable sources.

Noise ordinance section 8.20.110 prohibits, unless a permit has been obtained, construction work in a residential zone, or within 500 feet of a residential zone, between 10 p.m. and 7 a.m. on Sunday through Thursday and between 11 p.m. and 9 a.m. on Friday, Saturday, and legal holidays.

The City of Lathrop does not specifically exempt construction noise from the limits of section 8.20.100 and those presented in Table 4.6-2, which are established for regulating long-term noise sources. This exemption is specifically stated in the noise ordinances of most jurisdictions. However, discussion with members of the City’s staff indicated that the limits of section 8.20.100 are not intended to be applied to construction activities.

Table 4.6-2 Ambient Base Noise Levels (dBA)				
Zone	Time	Community Environment Classification		
		Very Quiet (rural, suburban)	Slightly Quiet (suburban, urban)	Noisy (urban)
R1 and R2	10 p.m. to 7 a.m.	40	45	50
R1 and R2	7 a.m. to 7 p.m.	50	55	60
R1 and R2	7 p.m. to 10 p.m.	45	50	55
R3 and R4	10 p.m. to 7 a.m.	45	50	55
R3 and R4	7 a.m. to 10 p.m.	50	55	60
Commercial	10 p.m. to 7 a.m.	50	55	60
Commercial	7 a.m. to 10 p.m.	55	60	65
M1	Anytime	70	70	70
M2	Anytime	75	75	75

Note: dBA = A-weighted decibel

Source: City of Lathrop 1991

STATE OF CALIFORNIA

Title 24 of the California Code of Regulations establishes standards governing interior noise levels that apply to all new multifamily residential units in California. These standards require that acoustical studies be performed before construction at building locations where the existing day-night average noise level (L_{dn}) exceeds 60 dBA. Such acoustical studies are required to establish mitigation measures that will limit maximum L_{dn} levels to 45 dBA in any inhabitable room. Although there are no generally applicable interior noise standards pertinent to all uses, many communities in California have adopted an L_{dn} of 45 as an upper limit on interior noise in all residential units.

4.6.2 EXISTING CONDITIONS

ACOUSTIC FUNDAMENTALS

Amplitude and Frequency

Noise is often defined as unwanted sound. Sound is a mechanical form of radiant energy transmitted by pressure waves in the air. It is characterized by two parameters: amplitude (loudness) and frequency (tone).

Amplitude

Amplitude is the difference between ambient air pressure and the peak pressure of the sound wave. It is measured in decibels on a logarithmic scale. For example, a 10-dB sound is 10 times the pressure difference of a 0-dB sound; a 20-dB sound is 100 times the pressure difference of a 0-dB sound. Another feature of the decibel scale is the way in which sound amplitudes from multiple sources add together. A 65-dB source of sound, when joined by another identical 65-dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). Amplitude is interpreted by the ear as corresponding to different degrees of loudness. Laboratory measurements correlate a 10-dB increase in amplitude with a perceived doubling of loudness and establish a 3-dB change in amplitude as the minimum audible difference perceptible to the average person.

Frequency

Frequency is the number of fluctuations of the pressure wave per second. The unit of frequency is the Hertz (Hz). One Hz equals one cycle per second. The human ear is not equally sensitive to sound of different frequencies. Sound waves below 16 Hz or above 20,000 Hz cannot be heard at all, and the ear is more sensitive to sound in the higher portion of this range than in the lower. To approximate this sensitivity, environmental sound is usually measured in A-weighted decibels (dBA). On this scale, the normal range of human hearing extends from approximately 10 dBA to approximately 140 dBA. Listed in Exhibit 4.6-2 are several examples of the noise levels associated with common situations.

Noise Descriptors

The intensity of environmental noise fluctuates over time, and several descriptors of time-averaged noise levels are used. The three most commonly used descriptors are L_{eq} , L_{dn} , and CNEL. The energy-equivalent noise level, L_{eq} , is a measure of the average energy content (intensity) of noise over any given period. Many communities use 24-hour descriptors of noise levels to regulate noise. The day-night average noise level, L_{dn} , is the 24-hour average of the noise intensity, with a 10-dBA “penalty” added for nighttime noise (10 p.m. to 7 a.m.) to account for the greater sensitivity to noise during this period. CNEL, the community equivalent noise level, is similar to L_{dn} but adds an additional 5-dBA penalty for evening noise (7 p.m. to 10 p.m.).

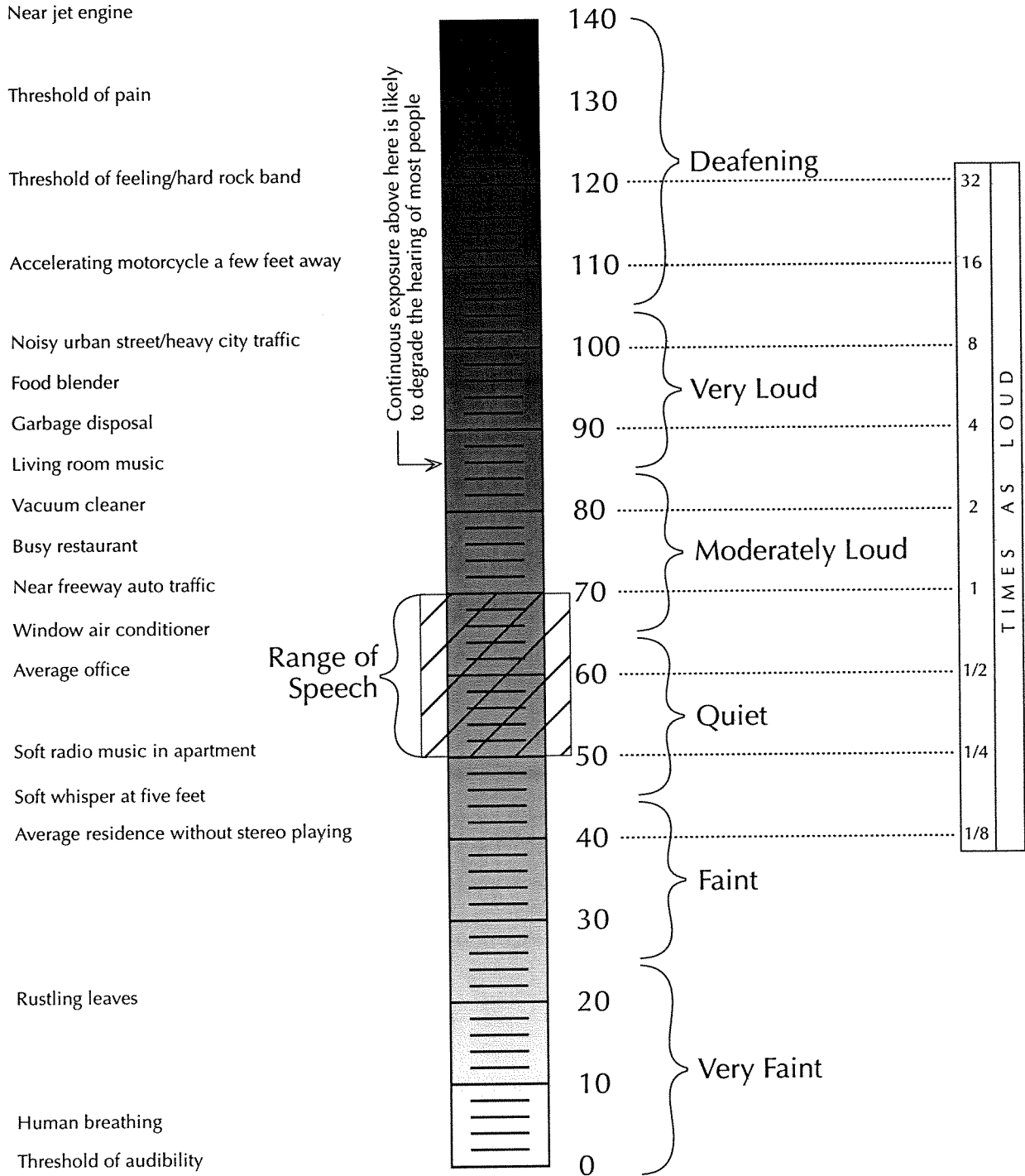
Characteristics of Sound Propagation and Attenuation

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks, and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations. Noise generated by mobile sources typically attenuates (is reduced) at a rate between 3.0 to 4.5 dBA per doubling of distance. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Hard and flat surfaces, such as concrete or asphalt, have an attenuation rate of 3.0 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of approximately 4.5 dBA per doubling of distance. Noise generated by stationary sources typically attenuates at a rate of between 6.0 dBA and approximately 7.5 dBA per doubling of distance.

EXAMPLES

DECIBELS (dB)*

SUBJECTIVE EVALUATIONS



* dB are "average" values as measured on the A-scale of a sound-level meter.

Sources: Egan 1972, U.S. Department of Housing and Urban Development 2002

Common Noise Sources and Levels

Sound levels can be reduced by placing barriers between the noise source and the receiver. In general, barriers contribute to decreasing noise levels only when the structure breaks the “line of sight” between the source and the receiver. Buildings, concrete walls, and berms can all act as effective noise barriers. Wooden fences or broad areas of dense foliage also can reduce noise but are less effective than solid barriers.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks demanding concentration or coordination. Hearing loss can occur at the highest noise intensity levels. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases. The acceptability of noise and the threat to public well-being are the basis for land use planning policies preventing exposure to excessive community noise levels.

Because construction activities typically are short term, the associated effects of construction-generated noise typically are limited to annoyance and interference with speech. In an exterior noise environment, noise levels in excess of 60 dBA are generally considered to have an appreciable effect on speech interference. The level at which speech interference occurs is based on an average sentence comprehension rate of approximately 98% at 5 meters. Greater speaker-listener distances would be possible indoors at the same level of vocal effort and speech intelligibility because sound pressure levels diminish more slowly than predicted by the inverse square law, which is typically used in the exterior environment (EPA 1971).

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and habituation to noise over differing individual experiences with noise. Thus, an important way of determining a person’s subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted: the so-called “ambient” environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by the hearers. Regarding increases in A-weighted noise levels, knowledge of the following relationships will be helpful in understanding this report (EPA 1971):

- ▶ Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived by humans.
- ▶ Outside of the laboratory, a 3-dB change is considered a just-perceivable difference.
- ▶ A change in level of at least 5 dB is required before any noticeable change in community response would be expected.
- ▶ A 10-dB change is subjectively heard as approximately a doubling in loudness and would almost certainly cause an adverse change in community response.

EXISTING NOISE ENVIRONMENT

Noise-Sensitive Land Uses

Noise-sensitive land uses are generally considered those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are also considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

Existing noise-sensitive land uses located in the vicinity of the proposed project consist primarily of rural residential dwellings. No additional noise-sensitive land uses have been identified close to the project site that would be potentially affected by short-term or long-term increases in ambient noise levels.

Ambient Noise Survey

An ambient noise survey was conducted on June 12, 2002, to document the existing noise environment at various locations in the project area. Measurements were taken for a period of 15 minutes at each location during the nonpeak traffic hours using a Larson Davis model 820 sound level meter placed at approximately 4.5 feet above the ground surface. Exhibit 4.6-3 depicts the locations at which ambient noise measurements were taken during the survey. Ambient noise levels measured at each location are summarized in Table 4.6-3. Based on the measurements conducted, average daytime noise levels (in dBA L_{eq}) in the project vicinity generally range from the mid-40s to upper 50s, dependent primarily on distance from nearby roadways.

Existing Noise Sources

The existing noise environment within the project area is influenced primarily by surface transportation noise emanating from vehicular traffic on area roadways and rail traffic along the Union Pacific Railroad (UPRR). Secondary noise sources contributing to the existing background noise levels include occasional agriculture-related activities; water craft operating on Old River, the San Joaquin River, and other area waterways; and aircraft flyovers (although the project site is not located within the 60-dBA noise contour of any nearby public airports or private airstrips). Noise levels associated with the primary noise sources (roadways and railroads) are discussed separately and in more detail, as follows.

Roadway Traffic

Ambient noise levels at the project site and surrounding area are influenced primarily by vehicular traffic on I-5 and State Route 205 (SR 205). Vehicular traffic noise levels along area roadways were calculated using the Federal Highway Administration (FHWA) Traffic Noise Prediction Model (FHWA-RD-77-108). Traffic data used in the analysis were obtained from the data generated by Crane Transportation

**Table 4.6-3
Daytime Ambient Noise Levels**

Site	Location	Time	Noise Level (dBA)		
			L _{min}	L _{max}	L _{eq}
1	73 Stewart Road	10:30-10:45	47.7	75.6	57.1
2	16777 Cohen Road	11:22-11:37	36.4	77.9	54.9
3	Paradise Avenue and Cohen Road	11:50-12:05	35.6	62.7	44.6
4	Stewart Road near Old River	12:20-12:35	33.2	63.2	44.5
5	Paradise Road near Paradise Cut	12:55-1:10	32.2	80.5	53.3
6	Delta Avenue and Tom Payne Avenue	1:20-1:35	29.9	72.4	50.9
7	20800 Cedar Avenue	2:00-2:15	35.3	60.0	44.5

Note: Site numbers correspond to locations identified in Exhibit 4.6-3 of this report.
dBA = A-weighted decibel
L_{eq} = energy-equivalent noise level
L_{max} = maximum noise level: the maximum instantaneous noise level during a specific period
L_{min} = minimum noise level: the minimum instantaneous noise level during a specific period

Source: EDAW 2002

Group used to prepare the traffic section for this Subsequent Environmental Impact Report (SEIR) (section 4.4, “traffic”), as well as from the California Department of Transportation (Caltrans). Additional input data included day/night percentages of autos, medium and heavy trucks, vehicle speeds, ground attenuation factors, and roadway widths. Table 4.6-4 presents the average daily traffic noise levels calculated at 50 feet from the centerline of the near travel lane for major area roadways in the project area. Noise contours associated with the major roadway segments affecting the project site (e.g., I-5 and SR 205) are depicted in Exhibit 4.6-3. However, it should be noted that the predicted noise contours do not take into account shielding or reflection of noise from existing structures. As a result, the noise contours should be considered to represent bands of similar noise exposure rather than absolute lines of demarcation. Actual noise levels will vary from day to day, dependent on a number of factors, including local traffic volumes, shielding from existing structures, variations in attenuation rates attributable to changes in surface parameters, and meteorological conditions.

Union Pacific Railroad

Only the UPRR west of I-5 is evaluated in this analysis. The UPRR alignment east of I-5 is too distant from potential project-related sensitive receptors to influence the noise environment.

The UPRR is located along the southeastern boundary of the River Islands Development Area (RID Area) and is currently used exclusively for freight transportation. On average, approximately two trains per day travel along this segment of the UPRR at speeds of approximately 20 mph (Hickindotham, pers. comm., 2002). The Federal Transit Administration’s Transit Noise and Vibration Impact Assessment Guidelines



Source: EDAW 2002

Monitoring Locations and Traffic Noise Contours (dBA CNEL) - Existing Conditions

River Islands at Lathrop
 JN 1T013.01 8/02

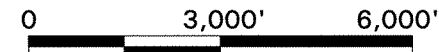


Table 4.6-4 Existing Traffic Noise Levels or Major Roadways		
Roadway Segment	50 feet from Centerline of Near Travel Lane dBA L_{dn}/CNEL	Distance to 60-dBA Contour (feet)
I-205 west of MacArthur Drive interchange	80.9	1,894
I-205 west of I-5	80.9	1,910
I-5 north of I-205	84.4	3,541
SR 120 east of Yosemite Avenue interchange	81.0	1,725
I-5 south of SR 120	84.5	3,560
SR 120 east of I-5	81.2	1,787
I-5 north of SR 120	83.0	2,836
Louise Avenue east of I-5	66.0	140
Lathrop Road east of I-5	66.8	157
I-5 north of Lathrop Road	83.1	2,883

Notes: Traffic noise levels were calculated using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) based on average daily traffic volumes obtained from the data generated by Crane Transportation Group used to prepare the traffic section for this SEIR, as well as roadway conditions obtained from the Caltrans. Calculated noise levels do not consider any shielding or reflection of noise by existing structures or terrain features or noise contribution from other sources.

Sources: Crane Transportation Group 2002, Caltrans 1994 and 2002

(1995) were used for the calculation of wayside noise levels generated by the trains traveling along this rail segment. Wayside noise levels were calculated based, in part, on average train speeds, train length, track conditions, and the number of trains traveling along the segment during a 24-hour period. Table 4.6-5 presents the calculated average daily noise levels for this segment of the UPRR at 50 feet. Based on the modeling conducted, existing wayside noise levels along this segment of the UPRR are estimated at approximately 69-dBA CNEL at 50 feet from the track centerline.

Table 4.6-5 Union Pacific Railroad Existing Noise Levels		
Railway	Wayside Noise Levels (dBA L_{dn}/CNEL)	
	50 Feet from Track Centerline	Distance to 60 dBA CNEL Contour (feet)
Union Pacific Railroad ¹	69.1	450

¹ Based on an average of two trains per day, 20 cars per train, and a speed of 20 mph (Hickindotham, pers. comm., 2002). Assumes jointed track at grade, average single-event noise levels and rail cars of 92 dBA and 82 dBA, respectively, at 50 feet (FTA 1995).

Source: EDAW 2002

4.6.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

Data included in the project description (Chapter 3, “Description of the Proposed Project”) and the River Islands Development Concept Plan (Exhibit 3-6) were used to determine potential locations of sensitive noise receptors and potential noise-generating land uses on the project site. Noise levels generated from stationary and mobile sources on and near the project site were estimated using applicable models. Anticipated noise conditions on the project site were then compared against the City’s Noise Ordinance standards and other suitable criteria to determine potential conflicts between sensitive receptors and projected noise levels.

A project-level analysis of noise conditions was conducted for both Phase 1 and Phase 2 rather than a 17 project-level analysis for Phase 1 and a separate program-level analysis for Phase 2. Sufficient information is available regarding noise sources, levels of noise generation, and locations of sensitive receptors to allow an equitable project-level analysis for both phases.

PRIOR WLSP EIR ANALYSIS

The WLSP EIR identified that traffic noise from I-5 has the potential to exceed City standards for exterior noise in planned residential areas on Stewart Tract. Similarly, railroad noise was noted as having the potential for adverse impacts on residential areas planned along the west side of the western UPRR tracks on Stewart Tract. Mitigation recommendations consisted of various noise-attenuating measures, such as using setbacks between sensitive receptors and noise sources; using buildings, sound walls, and other structures to shield sensitive receptors from noise; employing building designs that shield sensitive areas (e.g., bedrooms, yards) from noise; and using noise-attenuating building materials where necessary (e.g., acoustical glazing on windows).

The WLSP EIR also stated that the noise effects of proposed commercial recreation development on Stewart Tract (e.g., theme park-related uses) would have the potential for adverse impacts on the Mossdale Village residential environment close to the San Joaquin River and recreation residential and lodging areas proposed for Stewart Tract. However, the land use proposals for Stewart Tract included in the WLSP would provide a wide spatial buffer of golf courses between commercial and recreational development and residential areas. These buffers were considered adequate to attenuate noise effects of theme parks and related activities. In addition, sound walls and landscaping were planned to further attenuate sound emanating from commercial recreation areas.

Although the River Islands project would also be affected by noise generated by I-5, traffic conditions on this highway, as well as on other surrounding roadways, have changed since preparation of the WLSP EIR, altering the noise conditions on the project site. In addition, the River Islands project does not contain theme park-related uses, which have relatively unique noise-generating issues (e.g., rollercoasters). Given these conditions, an independent analysis of anticipated noise impacts is included in this SEIR.

THRESHOLDS OF SIGNIFICANCE

For purposes of this analysis, the following applicable thresholds of significance shall be used to determine whether implementing the proposed project would result in a significant noise impact:

- ▶ **Short-term construction noise impacts.** Construction noise impacts would be considered significant if construction noise levels would exceed the City of Lathrop Noise Ordinance standards (Table 4.6-1) or construction were to occur in, or within 500 feet of, a residential zone during the nighttime or weekend hours prohibited by the noise ordinance (i.e., between 10 p.m. and 7 a.m. on Sunday through Thursday and between 11 p.m. and 9 a.m. on Fridays, Saturdays, and legal holidays).
- ▶ **Long-term operational stationary source noise impacts.** Long-term stationary source noise impacts would be considered significant if the proposed project would result in noise levels that exceed the City of Lathrop Noise Ordinance Standards at nearby noise-sensitive land uses (see Table 4.6-1).
- ▶ **Long-term traffic noise impacts.** Long-term traffic noise impacts would be considered significant if implementation of the proposed project would result in a noticeable increase (i.e., 3 dBA or greater) in traffic noise levels.
- ▶ **Land use compatibility with projected noise levels.** Development of the proposed land uses would have a significant impact if the proposed project would contribute to projected noise levels that would exceed the City's "normally acceptable" land use compatibility criteria.

IMPACT ANALYSIS

Impact
4.6-a

Noise - Increases in Short-Term Construction-Generated Noise. Depending on the activities being performed, as well as the duration and hours during which activities occur, construction-generated noise levels at nearby residences could violate City of Lathrop Noise Ordinance standards. Activities occurring during the more noise-sensitive evening and nighttime hours could result in increased levels of annoyance and sleep disruption to occupants of nearby residences. This impact is considered **significant**.

Construction noise in any one particular area would be temporary and would include noise from activities such as site preparation, levee improvements, truck hauling of material, pouring of concrete, and use of power hand tools. Construction noise typically occurs intermittently and varies depending on the nature of the construction activities being performed. Noise generated by construction equipment, including excavation equipment, material handlers, and portable generators, can reach high levels for brief periods.

When noise levels generated by construction operations are being evaluated, activities occurring during the more noise-sensitive evening and nighttime hours are of increased concern. Because exterior ambient noise levels typically decrease during the late evening and nighttime hours as community activities (e.g., industrial activities, vehicle traffic) decrease, construction activities performed during these more noise-

sensitive periods of the day can result in increased annoyance and potential sleep disruption to occupants of nearby residential dwellings.

The U.S. Environmental Protection Agency (EPA) has found that the average noise levels associated with construction activities typically range from approximately 76 dBA to 84 dBA L_{eq} , with intermittent individual equipment noise levels ranging from approximately 75 dBA to more than 88 dBA for brief periods. Table 4.6-6 lists typical uncontrolled noise levels generated by individual construction equipment at a distance of 50 feet. These equipment noise levels were obtained from the EPA and are currently the most thorough and comprehensive data listing of construction equipment noise levels available. However, it should be noted that these equipment noise levels are more than 30 years old. Newer equipment models typically have noise control features (e.g., mufflers, engine shrouds, insulation) and, as a result, are anticipated to generate noise levels that are substantially less than those presented in Table 4.6-6. Consequently, it is reasonable to assume that the equipment noise levels presented in Table 4.6-6 would represent “worst-case” construction-generated noise levels.

Table 4.6-6 Noise Levels Generated by Typical Construction Equipment		
Type of Equipment	Range of Sound Levels	Suggested Sound Levels for Analysis
	(dBA at 50 feet)	
Pile driver	81–96	93
Rock drill	83–99	96
Jack hammer	75–85	82
Pneumatic tools	78–88	85
Pumps	68–80	77
Dozer	85–90	88
Tractor	77–82	80
Front-end loader	86–90	88
Hydraulic backhoe	81–90	86
Hydraulic excavator	81–90	86
Grader	79–89	86
Air compressor	76–86	86
Truck	81–87	86
Sources: EPA 1971, BBN Layman Miller 1987		

Noise from localized point sources (such as construction sites) typically decreases by approximately 6 dBA with each doubling of distance from source to receptor. Given this noise attenuation rate and assuming no noise shielding from either natural or human-made features (e.g., trees, buildings, fences), outdoor receptors within approximately 1,600 feet of construction sites could experience maximum instantaneous noise levels of greater than 60 dBA when onsite construction-related noise levels exceed

approximately 90 dBA at the project site boundary. Depending on the activities being performed, as well as the duration and hours during which activities occur, construction-generated noise levels at nearby existing or project-related residences could violate City of Lathrop Noise Ordinance standards, and activities occurring during the more noise-sensitive evening and nighttime hours could result in increased levels of annoyance and sleep disruption to occupants of nearby residences. As a result, noise-generating construction activities would be considered to have a significant impact.

Impact
4.6-b

Noise - Stationary Source Noise Generated by Onsite Land Uses. *Increases in stationary source noise associated with the proposed project land uses could potentially exceed the City's maximum allowable noise standards. This impact is considered **significant**.*

The proposed River Islands land use concept features a mix of various land uses, including residential, commercial, office, and public/institutional. The sources and levels of noise typically associated with these land uses are discussed separately, as follows.

Residential Land Uses

Occupancy of proposed residential dwellings would expose nearby residences to minor increases in ambient noise levels. Noise typically associated with such development includes amplified music, voices, and lawn and garden maintenance equipment. Activities associated with these land uses would result in only minor increases in ambient noise levels primarily during the day and evening hours and less frequently at night as perceived at the closest residential receptors. Noise levels generated by stationary sources, primarily residential central air conditioning units, typically average approximately 60 dBA at 3 feet from the source (EPA 1971). Depending on distance between residential dwellings, noise levels associated with air conditioning units located in side yard areas of residential land uses could potentially exceed the City's maximum allowable noise level of 50 dBA at neighboring one- and two-family residences in urban settings (Table 4.6-1). As a result, increased noise levels associated with the proposed residential land uses are considered a potentially significant impact.

Commercial and Public Land Uses

As previously discussed, the proposed project includes plans for the development of a Town Center, Employment Center, and a small (10 acres) office/retail center, including various commercial and public land uses, on a total of approximately 360 acres. However, the specific types of land uses to be developed have not yet been determined. Potential sources of noise associated with these types of land uses can vary substantially. Whereas noise associated with office and public land uses might be limited to occasional parking lot-related noise (e.g., opening and closing of doors, people talking), commercial and light-industrial land uses may include additional noise sources, such as the use of forklifts for the loading and unloading of materials, as well as the operation of hydraulic lifts and air compressors at automotive repair facilities. Noise from such equipment can reach intermittent levels of approximately 90 dBA at 50 feet from the source (EPA 1971). Early morning truck deliveries also may be a source of elevated noise levels at nearby receptors.

Operational noise levels associated with the proposed Town Center and Employment Center, and office/retail center could potentially exceed the City's maximum allowable exterior noise standards at nearby existing and future noise-sensitive receptors. In addition, increases in single-event noise levels, such as backup alarms from material delivery trucks, occurring during the more noise-sensitive evening and nighttime hours, could result in increased levels of disturbance and sleep disruption to occupants of nearby residential dwellings. This impact is considered potentially significant.

Schools and Neighborhood Parks

The proposed project includes development of approximately 136 acres for school-related uses (including associated joint use park facilities) and approximately 190 acres dedicated as parks. Noise typically associated with schools and parks includes the voices of adults and children, the opening and closing of vehicle doors in parking lots, and mechanical noise associated with building ventilation systems. During periods when children are using exterior recreational areas, exterior noise levels can exceed 60 dBA L_{eq} at 50 feet. In addition, mechanical noise associated with the operation of the ventilation equipment required to service school facilities could generate high noise levels depending on the type of equipment and extent of use (hours of operation). Use of large heating and ventilation systems can result in noise levels of approximately 90 dBA at 3 feet from the source. Community parks, middle schools, and high schools can result in additional noise extending into the evening and nighttime hours associated with the operation of recreational facilities during competitive sporting events, such as soccer games, football games, and track and field events. Noise sources commonly associated with these types of events include elevated voices from crowds, exterior public address systems, and musical instruments. Noise levels typically associated with recreational events, including noise from spectators and players, can reach approximately 75 dBA at 50 feet. If an amplified speaker system is used during sporting events, additional increases in ambient noise levels could occur. Depending on distances between source and receptor, noise generated by these land uses has the potential to exceed the City's maximum allowable exterior noise standards at nearby existing and proposed land uses. Sensitive receptors most likely to be affected would be homes located near the proposed school/community park complexes in the Town Center, West Village, and Woodlands districts (Exhibit 3-6). This impact is considered potentially significant.

Golf Course

The proposed project includes development of approximately 310 acres as golf courses and related facilities. Development of this proposed land use would occur during Phase 2 of the project. Activities occurring on a golf course have the potential to produce two types of noise that could be detectable at nearby noise-sensitive land uses: (1) noise primarily associated with the striking of golf balls and human conversation, and (2) noise primarily associated with the operation of maintenance equipment. The anticipated noise associated with these golfing activities and maintenance equipment is discussed in the following sections.

Golfing Activities

Based on measurements conducted at a driving range by an EDAW noise specialist (EDAW 1997), intermittent sound levels generated by a golf club striking a golf ball are approximately 61 dBA L_{max} . The instantaneous noise level at the time of impact would attenuate to 39 dBA at 40 feet from the source. It is important to note that the measured sound levels were instantaneous and that their contribution to average ambient noise levels would be substantially less than indicated, when averaged over a 1-hour period, because of the sporadic nature of the activity and the short duration of the noise event.

Regarding other potential noise sources on golf courses, electric golf carts would be nearly inaudible at distances greater than 25 feet, and normal human conversation typically falls in the 50- to 60-dBA range. Conversation would be sporadic and would not be expected to exceed 60 dBA at 25 feet. As a result, although human voices and noise generated by the striking of golf balls might be detectable at nearby noise-sensitive land uses for brief periods, substantial increases (i.e., 3 dBA or greater) in average hourly ambient noise levels would not be anticipated. This impact is considered less than significant.

Maintenance Equipment

Equipment used for maintenance of golf courses includes lawnmowers, tillers, and sprayers. Representative manufacturers' specifications for decibel levels measured at the operator's seat of these types of equipment are listed in Table 4.6-7, with a description of function and predicted noise levels. Mowing operations at golf courses typically occur several times per week and produce irregular sound levels because of fairly rapid movement and limited time exposure relative to nearby land uses. Noise levels from maintenance equipment are also influenced by factors such as direction of movement, location, speed, and local wind conditions. Noise levels shown in Table 4.6-7 are the highest levels expected, based on direct exposure measurement of stationary equipment.

Equipment and Function	Location of Primary Function	Sound Level at Operator's Position	Estimated Sound Level at 50 Feet
Mower (Reelmaster 5000)	Fairways	86 dBA, L_{eq}	62 dBA, L_{eq}
Mower (Groundmaster 325D)	Rough	90 dBA, L_{eq}	66 dBA, L_{eq}
Multi Pro 1100 Sprayer	All areas	84 dBA, L_{eq}	60 dBA, L_{eq}

Notes: Sound levels at operator's position are based on manufacturers' specifications. Predicted sound levels at 40 feet assume a near-noise field of 3 feet and a 6-dBA reduction in noise levels per doubling of distance from the source.

Source: EDAW 1997

Assuming a maximum noise level of 90 dBA associated with the potential mowing of rough areas along the outer perimeter of the golf course, noise-sensitive land uses within approximately 100 feet of the golf course (i.e., some homes in the Lakeside and Woodland districts) could be exposed to levels in excess of 60-dBA L_{eq} . Depending on the distance between source and receptor and the hour of day during which

such activities were to occur, operational noise levels associated with maintenance equipment could potentially exceed the City of Lathrop's maximum allowable noise standards or result in a noticeable increase in ambient noise levels at nearby noise-sensitive land uses. This impact is considered potentially significant.

Summary of Stationary Source Noise

Stationary source noise levels associated with several proposed land uses could result in noise levels that would exceed the City's maximum allowable noise ordinance standards. In addition, increases in single-event noise levels, such as backup alarms from material delivery trucks at commercial land uses and exterior public address systems at schools and recreational facilities, could result in increased levels of disturbance and sleep disruption to occupants of nearby residential dwellings, particularly during the more noise-sensitive evening and nighttime hours. This impact is considered significant.

Impact
4.6-c

Noise - Increases in Existing Traffic Noise Levels. *Implementation of the proposed project would not result in a noticeable increase in ambient noise levels (i.e., 3 dBA or greater) at nearby existing noise-sensitive land uses as a result of increases in traffic noise levels. This impact is considered less than significant.*

The increase in daily traffic volumes resulting from implementation of the proposed project would generate increased noise levels along nearby roadways. The FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) was used to calculate traffic noise levels along affected roadways for existing baseline traffic conditions, with and without implementation of the proposed project, based on the trip distribution estimates obtained from the data generated by Crane Transportation Group and used to prepare the traffic section for this SEIR (section 4.4, "Traffic"). The project's contribution to the existing traffic noise levels along area roadways was determined by comparing the predicted noise levels with and without project-generated traffic.

Table 4.6-8 summarizes the calculated noise level at 50 feet from the centerline of the near travel lane for affected roadways located in the vicinity of the project site. Predicted traffic noise levels were calculated assuming a noise reduction of 3 dBA per doubling of distance from the source. Based on the traffic modeling conducted, buildout of the proposed project would result in a maximum projected increase in traffic noise levels of approximately 1.3 dBA or less along area roadways, which is less than half the 3-dBA increase normally perceptible by the human ear. Predicted increases in ambient noise levels attributable to the early phases of development (1a, 1) would be substantially less than the levels indicated in Table 4.6-8 and, likewise, would not result in a noticeable increase in ambient noise levels. As a result, increases in traffic noise levels associated with implementation of the proposed project would be considered less than significant.

Impact
4.6-d

Noise - Compatibility of the Proposed Land Uses with Projected onsite Noise Levels. *Predicted noise levels at some noise-sensitive receptors associated with the proposed project would exceed the City's "normally acceptable" land use compatibility noise standards. As a result, this impact is considered significant.*

**Table 4.6-8
Predicted Traffic Noise Levels**

Roadway Segments	Noise Level (dBA CNEL/Ldn) at 50 Feet		
	Existing	Existing + Project	Difference
Existing Roadway Network			
I-205 west of MacArthur Drive interchange	80.9	81.7	0.8
I-205 west of I-5	80.9	81.0	0.1
I-5 north of I-205	84.4	84.6	0.2
SR 120 east of Yosemite Avenue interchange	81.0	81.8	0.9
I-5 south of SR 120	84.5	84.7	0.2
SR 120 east of I-5	81.2	82.1	0.9
I-5 north of SR 120	83.0	83.6	0.6
Louise Avenue east of I-5	66.0	67.3	1.3
Lathrop Road east of I-5	66.8	66.7	-0.1
I-5 north of Lathrop Road	83.1	83.8	0.7
Notes: Traffic noise levels were modeled using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) based on traffic information (e.g., average daily traffic, vehicle speeds, roadway width) obtained from the data generated by Crane Transportation Group used to prepare the traffic section for this SEIR and assuming no natural or human-made shielding (e.g., vegetation, berms, walls, buildings). Refer to Appendix D for modeling input assumptions and output results.			
Source: EDAW 2002			

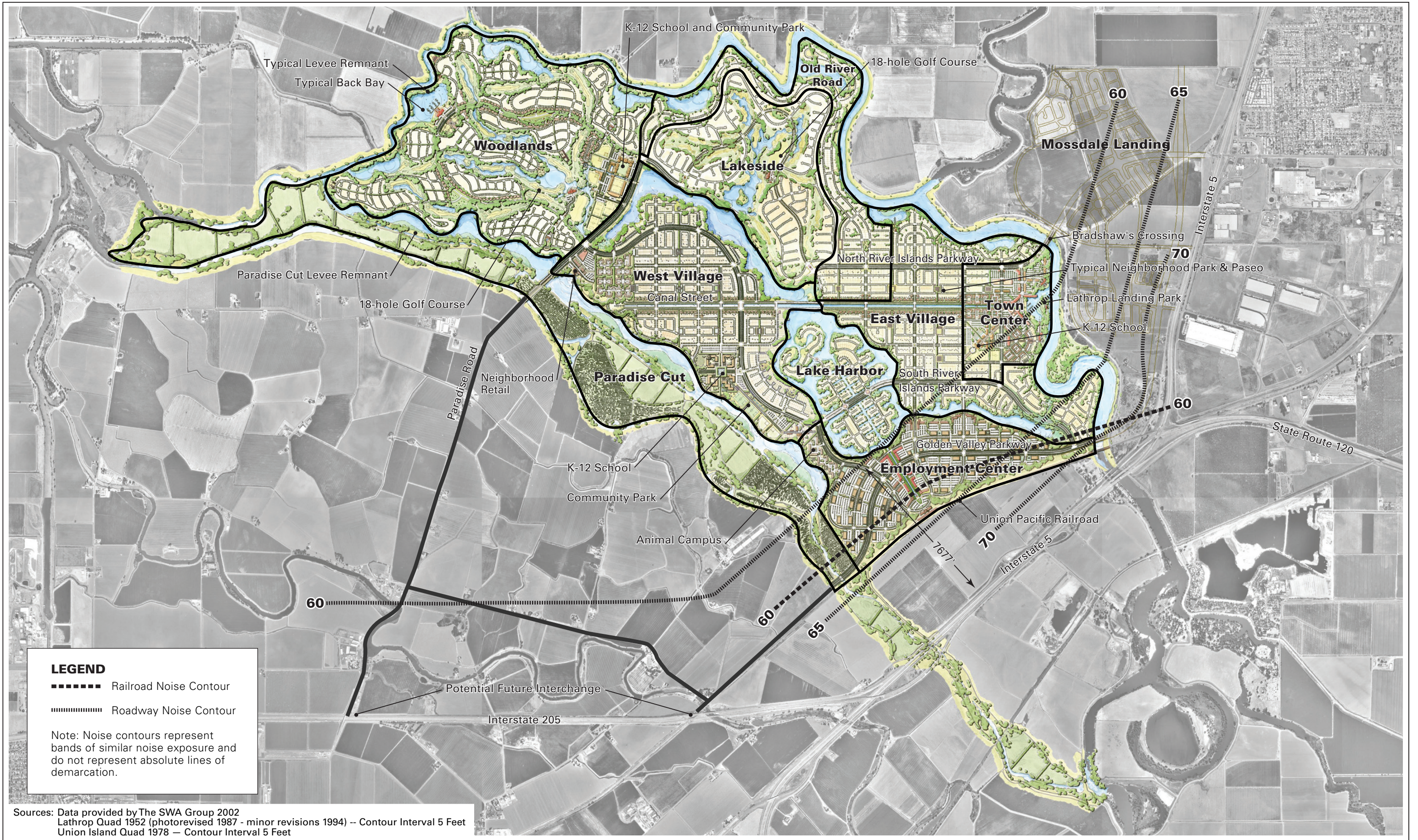
As previously discussed, noise levels within the plan area are influenced primarily by traffic noise associated with vehicle traffic along area highways and, to a lesser extent, rail traffic along the UPRR, although noise generated by other sources, such as agricultural operations and watercraft, may also play a role. Predicted transportation noise contours (in dBA CNEL) for highways in the project area under buildout (year 2025) cumulative conditions (traffic base case 2025 plus project; see section 4.4, “Traffic”), as well as the UPRR, are presented in Exhibit 4.6-4 and summarized in Table 4.6-9. The predicted noise contours do not take into account shielding or reflection of noise from existing structures. As a result, the noise contours should be considered to represent bands of similar noise exposure, rather than absolute lines of demarcation. Actual noise levels will vary from day to day, dependent on a number of factors, including local traffic volumes, shielding from existing structures, variations in attenuation rates due to changes in surface parameters, and meteorological conditions. The compatibility of the proposed land uses in comparison to predicted transportation noise levels as well as other noise sources, are discussed separately below.

Roadway Traffic Noise Levels

Predicted traffic noise levels in the plan area were calculated using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) based on traffic information (e.g., average daily traffic, vehicle speeds, roadway width) obtained from the data generated by Crane Transportation Group and used to prepare the

**Table 4.6-9
Predicted Roadway Traffic Noise Levels 2025**

Major Roadway Segments	Noise Level (dBA CNEL)			
	50 Feet from Near Travel Lane Centerline	Distance to CNEL Contour (feet)		
		60 dBA	65 dBA	70 dBA
Existing Roadway Segments				
I-205 west of MacArthur Drive interchange	84.5	3,548	1,648	766
I-205 west of I-5	84.4	3,480	1,616	751
I-5 north of I-205	89.2	7,611	3,534	1,641
SR 120 east of Yosemite Avenue interchange	85.6	3,517	1,633	758
I-5 south of SR 120	89.5	7,677	3,565	1,655
SR 120 east of I-5	86.1	3,788	1,759	817
I-5 north of SR 120	86.7	5,021	2,332	1,083
Louise Avenue east of I-5	71.4	375	175	83
Lathrop Road east of I-5	72.9	403	187	87
I-5 north of Lathrop Road	86.2	4,638	2,154	1,001
Proposed Roadway Segments				
Paradise Road, I-205 to South River Islands Parkway	69.5	240	112	52
North River Islands Parkway, east of Commercial Street	72.0	353	164	76
North River Islands Parkway, Commercial Street to Broad Street	71.8	342	159	74
North River Islands Parkway, Broad Street to D Street	69.1	226	105	<50
North River Islands Parkway, D Street to Lakeside Drive	67.6	179	83	<50
North River Islands Parkway, between Lakeside Drive intersections	66.1	142	66	<50
North and South Woodlands Drive	68.1	193	90	<50
South River Islands Parkway, Golden Valley Parkway to Broad Street	67.0	164	76	<50
Golden Valley Parkway, east of Lake Harbor Boulevard	71.7	335	156	72
South River Islands Parkway, Paradise Road to Canal Street	69.2	228	106	<50
South River Islands Parkway, Canal Street to Lake Harbor Blvd	68.8	214	100	<50
South River Islands Parkway, Lake Harbor Boulevard to Broad Street	67.4	173	80	<50
<p>Notes: Based on 2025 cumulative traffic conditions (year 2025 base case plus project). Traffic noise levels were modeled using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) based on traffic information (e.g., average daily traffic, vehicle speeds, roadway width) obtained from the data generated by Crane Transportation Group used to prepare the traffic section for this SEIR and assuming no natural or human-made shielding (e.g., vegetation, berms, walls, buildings) between the roadway and receptor. Refer to Appendix D for modeling input assumptions and output results.</p> <p>Source: EDAW 2002</p>				



LEGEND

- Railroad Noise Contour
- Roadway Noise Contour

Note: Noise contours represent bands of similar noise exposure and do not represent absolute lines of demarcation.

Sources: Data provided by The SWA Group 2002
 Lathrop Quad 1952 (photorevised 1987 - minor revisions 1994) -- Contour Interval 5 Feet
 Union Island Quad 1978 -- Contour Interval 5 Feet

Traffic Noise Contours (dBA CNEL) - Year 2025

River Islands at Lathrop
 CITY OF LATHROP
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traffic section for this SEIR (section 4.4, "Traffic"). Input data used in the model included average daily traffic levels for nearby area roadways, day/night percentages of autos and medium and heavy trucks, vehicle speeds, ground attenuation factors, and roadway widths. Predicted traffic noise levels were calculated for future buildout (year 2025) cumulative conditions (year 2025 base case plus project).

As previously discussed, noise levels on the project site are affected primarily by vehicle traffic on I-5. Based on the modeling conducted, the 60-dBA CNEL noise contour for I-5 extends onto the southeastern portion of the project site at a distance of approximately 7,680 feet from the near travel lane centerline. Areas primarily affected by I-5 traffic noise include the proposed Employment Center and Town Center districts, as well as the southeastern portion of the East Village district. As shown in Exhibit 4.6-4, predicted noise levels at proposed onsite single-family dwellings, such as those planned along a portion of South River Islands Parkway, could potentially exceed the City of Lathrop's "normally acceptable" land use compatibility standard of 60-dBA CNEL. Predicted traffic noise levels at other proposed noise-sensitive land uses, including multiple-family dwellings, motels, and hotels, located within approximately 3,560 feet of I-5 would be anticipated to potentially exceed the City's 65-dBA CNEL land use compatibility threshold for these land uses.

In addition, although outside of the projected 60-dBA CNEL noise contour for I-5, the remaining proposed land uses, including schools, parks, recreational facilities, and commercial and public land uses, could be affected by noise associated with vehicles traveling along the proposed onsite roadways. As summarized in Table 4.6-9, the 60-dBA CNEL noise contour along major proposed area roadways, such as North River Islands Parkway, can extend well beyond the roadway right-of-way. Consequently, traffic noise levels along proposed area roadways also may result in noise levels that would exceed the City's land use compatibility thresholds.

Railroad Noise Levels

Noise levels generated by rail traffic along the UPRR were calculated, based on railroad operational data obtained from UPRR. Based on conversations with UPRR representatives, the segment of railroad located along the southeastern boundary of the project site currently averages approximately two trains during a 24-hour period. No changes in freight transport are anticipated to occur during future years, although this segment of rail may be used for expansion or relocation of commuter rail service for the Altamont Commuter Express (ACE). At present, the ACE averages approximately six trains per day to and from the City of Lathrop. Predicted railroad noise contours for future years were calculated taking into account potential expansion of the ACE along this rail line, assuming an average of eight trains per day (six commuter and two freight). To ensure a conservative analysis, rail activity was assumed to include the more noise-sensitive morning and evening daytime hours (e.g., 7 a.m. to 7 p.m.), based on the existing ACE train schedule (ACE 2002). The predicted rail noise level and distances to noise contours are summarized in Table 4.6-10.

Based on the modeling conducted, residential dwellings located within approximately 1,300 feet of the rail line and commercial, office, and public land uses developed within approximately 130 feet of the rail line (Exhibit 4.6-4) could potentially exceed the City's maximum allowable land use compatibility noise standards of 60- and 70-dBA CNEL, respectively.

Table 4.6-10 Union Pacific Railroad Predicted Noise Levels			
Railway	Wayside Noise Levels (dBA L _{dn} /CNEL)		
	50 Feet from Track Centerline	Distance to CNEL Contour (feet)	
		60 dBA	70 dBA
Union Pacific Railroad ¹	73.8	1,300	130
¹ Based on an average of eight trains per day, 20 cars per train, and a speed of 20 mph (Hickindotham, pers. comm., 2002). Assumes jointed track at grade, average single-event noise levels for locomotives and rail cars of 92 dBA and 82 dBA, respectively, at 50 feet (FTA 1995).			
Source: EDAW 2002			

Additional Noise Sources

The project site is also affected on an intermittent basis by various other sources of noise, including agricultural activities on adjacent parcels, watercraft on adjacent waterways, nearby non-project-related construction activities, and occasional aircraft overflights. However, it should be noted that the project site is not located in the 60-dBA noise contour of any nearby public airports or private airstrips. Exposure to aircraft noise typically occurs for only short periods and, as a result, aircraft noise does not contribute significantly to average daily noise levels at the site. Various types of heavy equipment will be used adjacent to the project site for agricultural activities and for construction and removal of the temporary fish barrier operated by the California Department of Water Resources (DWR) at the Head of Old River. The operation of these types of equipment can generate noise levels of approximately 85-dBA L_{eq} at 50 feet (EPA 1985). Depending on the duration and time of day when these activities occur, resultant noise levels at nearby noise-sensitive receptors could potentially exceed the City's land use compatibility noise standards. DWR may replace the Head of Old River temporary fish barrier with a permanent facility in the future. If this occurs, noise generated by the biannual construction and removal of the temporary barrier would no longer occur.

Noise levels associated with the operation of watercraft can vary from approximately 74 dBA to more than 90 dBA at 50 feet, with throttles at half- and full-open positions, respectively. Although the creation of "no-wake zones" adjacent to project docks would limit water craft-related noise generation, some homes located on high-ground corridors at the ends of the no-wake zones could be exposed to noise levels exceeding the City's land use compatibility noise standards as boats accelerate when leaving the speed-restricted area.

Land Use Compatibility Summary

Based on the transportation noise analyses conducted, predicted onsite transportation noise levels for I-5 and the UPRR would exceed the City's applicable land use compatibility noise standards for those proposed land uses located close to these sources. In addition, noise generated by nearby agricultural

operations, installation and removal of the Head of Old River temporary fish barrier, and operation of watercraft also may result in noise levels that would exceed applicable land use compatibility noise standards at nearby noise-sensitive receptors. Consequently, this impact is considered significant.

4.6.4 MITIGATION MEASURES

No mitigation measures are required for the following less-than-significant impacts.

4.6-c Increases in Existing Traffic Noise Levels

The following mitigation measures are provided for significant impacts.

4.6-a Increases in Short-Term Construction-Generated Noise. Per the City of Lathrop Noise Ordinance, construction activities in, or within 500 feet of a residential zone (i.e., an area containing occupied residences) shall be prohibited between 10 p.m. and 7 a.m. Sunday through Thursday and between 11 p.m. and 9 a.m. on Fridays, Saturdays, and legal holidays.

In addition, all construction vehicles or equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and acoustical shields or shrouds, in accordance with manufacturers' recommendations. Construction equipment and truck routes shall be arranged to minimize travel adjacent to occupied residences. Stationary construction equipment and staging areas shall be located as far as possible from sensitive receptors, and temporary acoustic barriers may be installed around stationary equipment if necessary.

Implementation of Mitigation Measures 4.6-a would reduce construction-related noise impacts to less-than-significant levels.

4.6-b Stationary Source Noise Generated by Onsite Land Uses. As individual facilities, subdivisions, and other project elements are permitted by the City, the City will evaluate the element for compliance with the City's Noise Ordinance and noise policies in the General Plan. Where individual project elements do not clearly comply with interior noise standards included in these guidelines, mitigation measures shall be required to reduce projected interior and exterior noise levels to within acceptable levels.

Mitigation measures include, but are not limited to, the following:

- ▶ Dual-pane, noise-rated windows, mechanical air systems, exterior wall insulation, and other noise-reducing building materials shall be used.
- ▶ Mechanical equipment (e.g., air conditioning and ventilation systems) and area source operations (e.g., loading docks, parking lots, recreational use areas) shall be located at the furthest distance from and/or be shielded from nearby existing and future noise-sensitive land uses.

In addition, the following measures will apply to noise-generating activities associated with the golf course.

- ▶ Onsite landscape maintenance equipment shall be equipped with properly operating exhaust mufflers and engine shrouds, in accordance with manufacturers' specifications.
- ▶ For maintenance areas located within 500 feet of noise-sensitive land uses, the operation of onsite landscape maintenance equipment shall be limited to the least noise-sensitive periods of the day, between the hours of 7 a.m. and 7 p.m.
- ▶ Areas of the golf course that would require frequent turf maintenance (e.g., fairways, tees) shall be located at a minimum distance of 100 feet from the property line of nearby existing residences.

Compliance with the City's noise control ordinance and implementation of any additional mitigation measures for the control of stationary source noise, such as those identified above, would reduce stationary source noise impacts to less-than-significant levels.

4.6-d Compatibility of the Proposed Land Uses with Projected Onsite Noise Levels. As individual facilities, subdivisions, and other project elements are permitted by the City, the City will evaluate the element for compliance with the City's Noise Ordinance and noise policies in the General Plan. Where individual project elements do not clearly comply with interior noise standards included in these guidelines, mitigation measures such as use of dual-pane windows, mechanical air systems, exterior wall insulation, and other noise-reducing building materials and methods shall be required as appropriate to reduce interior noise exposure to the "normally acceptable" levels identified by the City (Exhibit 4.6-1). Where individual project elements do not clearly comply with exterior noise standards included in the City guidelines (Table 4.6-1), mitigation measures such as use of sound walls, vegetative screening, buildings for screening, and setbacks between noise sources and receptors, shall be implemented as appropriate to minimize exterior noise levels. Where there is a question regarding premitigation or postmitigation noise levels in a particular area, site-specific noise studies may be conducted to determine compliance/noncompliance with City guidelines.

Title 24 of the California Code of Regulations requires the preparation of an acoustical analysis for multifamily residences that demonstrates how interior noise levels will achieve a 45-dBA CNEL/ L_{dn} , where the exterior noise levels exceed 60-dBA CNEL/ L_{dn} . As a result, a Title 24 analysis shall be prepared as part of the final design of any proposed multifamily residential dwellings. To the extent necessary, noise control measures shall be designed according to the type of building construction and specified sound rating for each building element to achieve an interior noise level of 45-dBA CNEL/ L_{dn} .

Implementation of Mitigation Measure 4.6-d would be effective in reducing impacts associated with interior noise levels to less-than-significant levels. However, exterior noise levels in some locations would be anticipated to exceed applicable noise standards adopted by the City even after mitigation

because of one or more of the noise sources identified: roadway traffic (particularly on I-5), railroad traffic, nearby agricultural operations, construction and removal of the Head of Old River temporary fish barrier, and use of watercraft on adjacent waterways. Site-specific studies would be required to determine the precise location of sensitive receptors that would be exposed to exterior noise levels exceeding City standards; however, the most likely areas would be homes on the high-ground corridors near I-5, the Head of Old River, and the confluence of Old River and Paradise Cut. As a result, impacts associated with exterior noise level compatibility with proposed land uses are considered significant and unavoidable.

4.6.5 RESIDUAL SIGNIFICANT IMPACTS

Impacts related to compatibility/incompatibility between proposed land uses and projected onsite exterior noise levels would remain at a significant level after the implementation of the mitigation measures discussed above.

4.7 GEOLOGY, SOILS, AND MINERAL RESOURCES

4.7 GEOLOGY, SOILS, AND MINERAL RESOURCES

This section describes current conditions in the River Islands project area relative to geology, soils, seismicity, and mineral resources. It also includes an analysis of potential environmental impacts and mitigation measures recommended to reduce significant or potentially significant impacts to less-than-significant levels. Sufficient detail is provided in this section to analyze issues related to geology, soils, and mineral resources at a project level of detail for both Phase 1 and Phase 2 of the proposed project.

The primary sources of information used in this analysis are two geotechnical studies prepared by ENGEO Incorporated (ENGEO) for the River Islands at Lathrop project: Baseline Geotechnical Assessment: River Islands, Lathrop, California (March 26, 2002) and Preliminary Levee Evaluation: River Islands, Lathrop, California (March 26, 2002). These studies are available for review at the City of Lathrop Community Development Department/Planning Division, 16775 Howland Road, Suite One, Lathrop, California 95330 (209/858-2860, extension 327).

4.7.1 REGULATORY BACKGROUND

CITY OF LATHROP GENERAL PLAN

The Hazard Management Element of the General Plan outlines goals and policies associated with earth issues. The following policies relate to the proposed project:

Policy 2: All new building construction shall conform to the latest seismic requirements of the Uniform Building Code as a minimum standard.

Policy 4: Facilities needed for emergency service should be capable of withstanding a maximum credible earthquake and remain operational to provide emergency response.

Policy 6: Soil compaction tests, and geotechnical analysis of soil conditions and behavior under seismic conditions, shall be required of all subdivisions and of all commercial, industrial and institutional structures over 6,000 square feet in area.

Policy 7: A preliminary soils report is to be prepared by a registered geo-technical engineer for any residential development project, based upon adequate test borings. If the report indicates the presence of critically expansive soils or other soil problems which, if not corrected, would lead to structural defects, the developer shall provide for and submit the findings of a soil investigation of each lot or housing site proposed. The soil investigation shall be prepared by a state-registered civil engineer and shall recommend corrective action likely to prevent structural damage to each dwelling to be constructed. Prior to the issuance of a building permit, any recommended action approved by the Building Official shall be incorporated into the construction of each dwelling.

Policy 8: A preliminary geologic report, prepared by a state-certified engineering geologist and based on adequate test borings, shall be submitted to the Building Official for every subdivision,

planned development or other residential project at the time of submitting a tentative map or other type of development application to the City.

Policy 9: If the preliminary geologic report indicates the presence of critically expansive soils or other soil problems (e.g., potential for liquefaction which if not corrected could lead to structural defects), the developer shall provide such additional soils investigation for each development site as may be requested by the Building Official. The geologic investigation shall be prepared by a state-certified engineering geologist and shall recommend further corrective action likely to prevent structural damage to dwelling units. Prior to the issuance of a building permit, any recommended action approved by the Building Official shall be incorporated into site preparation and the construction of each dwelling.

The Resource Management Element of the General Plan outlines goals and policies associated with mineral resources. The following mineral resource policies relate to the proposed project:

Policy 1: Land classified by the State Department of Conservation as MRZ-2 as shown on Figure V-1 [of the General Plan] and as designated by the State Mining and Geology Board as shown on Figure V-2 [of the General Plan], are urged for protection to assure their availability for mining under applicable provisions of State law and local ordinance. If determined practical and feasible, these lands are to be mined and reclaimed in accordance with the provisions of the California Surface Mining and Reclamation Act of 1975, as amended, prior to their being utilized for the various urban purposes depicted on the General Plan Diagram and described in this document [City General Plan].

Policy 2: While the depth of the known sand deposits of regional significance is considerable, the potential for mining to this depth is recognized only for the lands between the I-5/SR 120 merge and the Union Pacific Railroad. Lands classified MRZ-2 between the merge and the Southern Pacific Railroad may be mined to a much lesser depth, or not at all, because of the potential of this site location for Regional Commercial development.

Policy 3: Lands classified MRZ-2 as described above shall be zoned by the City with a combining “mineral resource open space zone” to identify the presence of known mineral deposits and which may restrict the encroachment of incompatible land uses in those areas for which mineral conservation is urged. As an alternative, such restriction may be included in any Specific Plan applicable to the affected property.

Policy 4: In consideration of mineral policy #2, above, lands classified MRZ-2, and designated, may be developed for urban use without first being mined only if compelling reasons can be stated by the City in writing in support of such action and upon fulfilling the requirements of Section 2562 (d) and Section 2763 (a) of the Surface Mining and Reclamation Act of 1975, as amended. Action by the City shall consider the need to balance mineral values against alternative land uses, and the importance of these mineral deposits to the regional market demand for their use.

WEST LATHROP SPECIFIC PLAN

The WLSP identifies objectives designed to achieve the goals outlined in the General Plan. One of these objectives is intended to address seismic events:

Objective 7A: Ensure the life safety of residents and visitors in West Lathrop at all times, providing adequate emergency services, fire and police response times.

Emergency response is addressed more thoroughly in section 4.10, “Public Services and Utilities,” of the WLSP. No objectives in the WLSP apply to mineral resources.

CITY OF LATHROP SURFACE MINING AND RECLAMATION ACT ORDINANCE

On June 16, 1998, the City of Lathrop adopted its own Surface Mining and Reclamation Act (SMARA) ordinance, which is modeled after the state’s SMARA guidelines (see below). The City’s SMARA ordinance is designed to preserve mineral resources while protecting people, property, and the environment from hazards caused by excavations.

CALIFORNIA UNIFORM BUILDING CODE

The State of California provides minimum standards for building design through the California Building Standards Code (California Code of Regulations, Title 24). Where no other building codes apply, Chapter 29 regulates excavation, foundations, and retaining walls. The California Uniform Building Code (UBC) also applies to building design and construction in the state and is based on the national UBC used widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The California UBC has been modified for California conditions with numerous more detailed and/or more stringent regulations.

The state earthquake protection law (California Health and Safety Code 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the UBC. The UBC identifies seismic factors that must be considered in structural design.

Chapter 18 of the UBC regulates the excavation of foundations and retaining walls, and Appendix Chapter A33 regulates grading activities, including drainage and erosion control, and construction on unstable soils, such as expansive soils and liquefaction areas.

CALIFORNIA SEISMIC HAZARDS MAPPING ACT

The Seismic Hazards Mapping Act of 1990 (California Public Resources Code §2690-2699.6) addresses seismic hazards other than surface rupture, such as liquefaction and seismically induced landslides. The Seismic Hazards Mapping Act specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are

incorporated into plans to reduce hazards associated with seismicity and unstable soils (Merced County 2001).

ALQUIST-PRIOLO FAULT ZONING ACT

The Alquist-Priolo Earthquake Fault Zoning Act was passed by the California Legislature to mitigate the hazard of surface faulting to structures. The act’s main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The act addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. Local agencies must regulate most development in fault zones established by the State Geologist. Before a project can be permitted in a designated Alquist-Priolo Fault Study Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults (CGS 2002).

CALIFORNIA SURFACE MINING AND RECLAMATION ACT

SMARA was enacted in 1975 by the State Legislature to regulate activities related to mineral resource extraction. The act requires the prevention of adverse environmental effects caused by mining, the reclamation of mined lands for alternative land uses, and the elimination of public health and safety hazards from the effects of mining activities. At the same time, SMARA encourages both the conservation and production of extractive mineral resources, requiring the State Geologist to identify and attach levels of significance to the state’s varied extractive resource deposits. As stated above, in 1998 the City of Lathrop adopted its own SMARA ordinance, modeled after the state’s SMARA guidelines. The City’s SMARA ordinance is designed to preserve mineral resources while protecting people, property, and the environment from hazards caused by excavations.

CDMG MINERAL LANDS CLASSIFICATION SYSTEM

In compliance with the SMARA, the California Department of Conservation, Division of Mines and Geology (CDMG) has established a classification system to denote both the location and significance of key extractive resources. An explanation of the classification system is presented in Table 4.7-1.

Table 4.7-1 Mineral Classification System Description	
MRZ-1	Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.
MRZ-2	Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists.
MRZ-3	Areas containing mineral deposits, the significance of which cannot be evaluated from existing data.
MRZ-4	Areas where available data is inadequate for placement in any other MRZ zone.
Source: City of Lathrop 1991	

FEDERAL EARTHQUAKE HAZARDS REDUCTION ACT

In October 1977, the U.S. Congress passed the Earthquake Hazards Reduction Act to “reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program.” To accomplish this, the act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990 by the National Earthquake Hazards Reduction Program Act (NEHRPA) by refining the description of the agency responsibilities, program goals, and objectives.

To meet the above goal, NEHRP’s mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improved building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improved mitigation capacity; and accelerated application of research results. The NEHRPA designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns several planning, coordinating, and reporting responsibilities. Other NEHRPA agencies include the National Institute of Standards and Technology, National Science Foundation, and U.S. Geological Survey (USGS).

4.7.2 EXISTING CONDITIONS

TOPOGRAPHY AND DRAINAGE

Lathrop is located in the northern portion of the San Joaquin Valley, which lies between the Coast Ranges on the west and the Sierra Nevada on the east. The floor of the valley tends to be relatively flat, with elevations ranging from near sea level to up to a few hundred feet above sea level. The topography of the project site (excluding the perimeter levees) slopes very gently to the west, ranging from a high of approximately +16 feet National Geodetic Vertical Datum (NGVD) in the northeastern corner of the site to +3 feet NGVD in the southwestern corner, approximately 5½ miles away.

Levees surround Stewart Tract and extend to elevations of approximately +19 to +32 feet NGVD. The levees bordering the RID Area range from approximately 9 feet above the adjacent ground surface along portions of Paradise Cut to approximately 16 feet above ground level at the northeastern corner of the site. The project levees have slopes ranging from approximately 1.5:1 to 3:1 (horizontal to vertical). A roughly 2.5-acre pond is located in the south-central portion of the RID Area, and drainage ditches supporting agricultural operations are located throughout the project site. The main site drainage feature is a southwest-trending drainage channel that terminates at Paradise Cut. At the terminus, three pumps operate to move water from the drainage ditch over the levee and into Paradise Cut.

GEOLOGY

The project site is located in the Great Valley Geomorphic Province of California. The Great Valley is an asymmetric trough filled with a thick sequence of sediments from Jurassic (180 million years ago) to recent age. The sediments in the Great Valley vary between 5 and 10 kilometers in thickness and were

derived primarily from erosion of the Sierra Nevada to the east, with lesser material from the Coast Ranges to the west.

Most of the sediments in the Sacramento-San Joaquin Delta were deposited between 175 million and 25 million years ago and were accumulated in marine environments. Younger deposits (25 million years ago to recent) are generally described as nonmarine; however, some of the younger deposits may have formed in shallow seas and estuaries as marine deposits. The depositional history of the Sacramento-San Joaquin Delta during the late Quarternary (past 1 million years) probably was controlled by several cycles related to fluctuations in regional and global climate in which each cycle consisted of a period of deposition followed by a period of nondeposition and erosion. Thus, the Delta region during the late Quarternary time had stages of wetlands and floodplain creation as tidewaters rose in the valley from the west, areas of erosion when tidewaters receded, deposition of alluvial fans that were reworked by wind to create extensive sand dunes, and alluvial fan deposition from streams emanating from the adjacent mountain ranges.

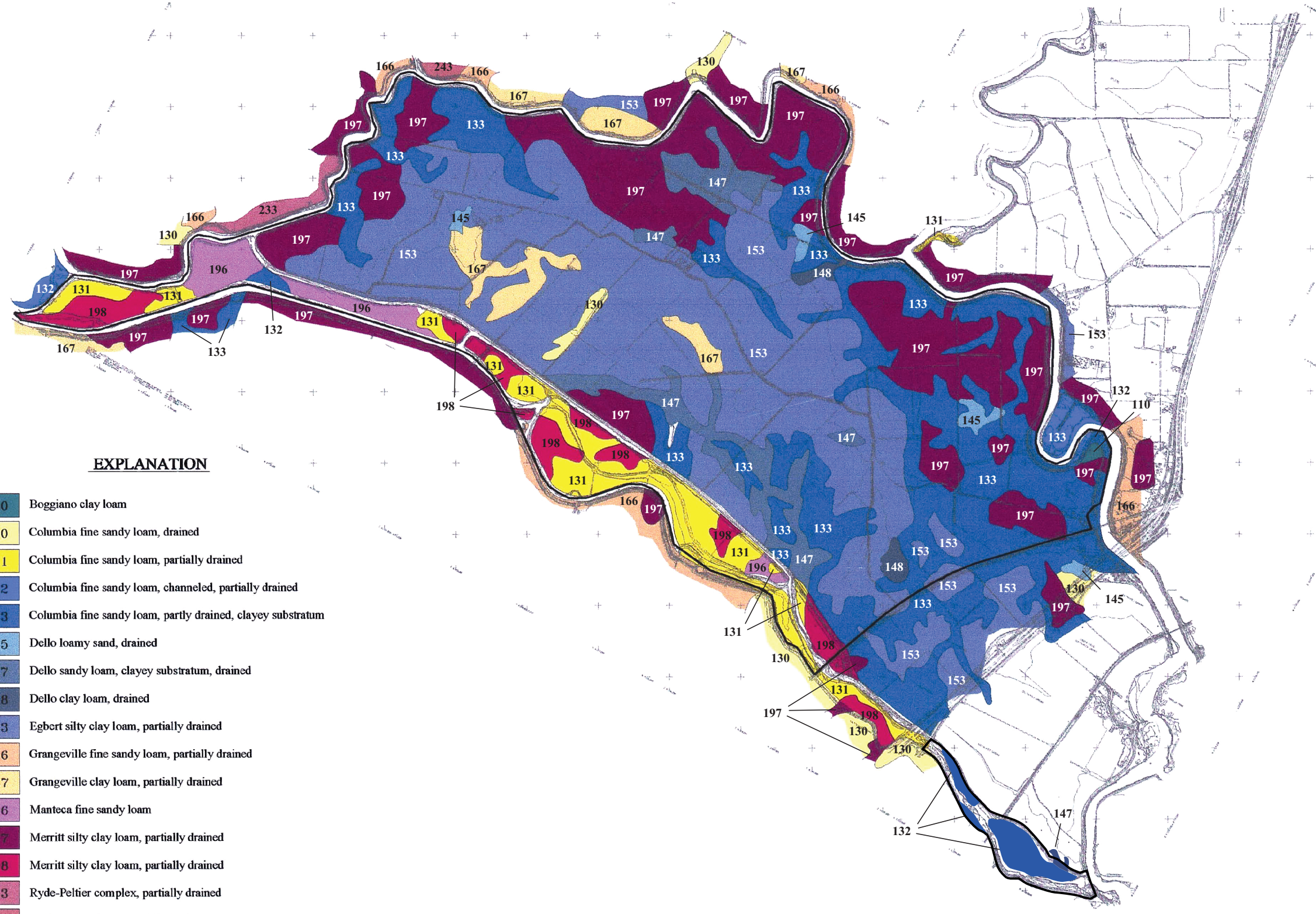
The River Islands site is located immediately west of the margin between Alluvial-Fan deposits derived from glaciated drainage basins and Alluvial-Flood Plain deposits. The surface deposits at the site are mapped as Holocene (10,000 years old to present) supratidal (above mean high tide level) alluvial-flood plain deposits. Interpreted waterways “subject chiefly or wholly to non-tidal flow” with general probable flow directions that trend to the northwest are also mapped. Because the site is proximate to the mapped Alluvial-Fan deposits, it is likely that these deposits extend to the subsurface of the project site. The geomorphology of the area in relation to the path of the San Joaquin River suggests that the site was previously the outfall location of the San Joaquin River into a delta environment of braided streams and marshlands.

Sediments underlying the site documented in earlier studies consist of unconsolidated and discontinuous layers and lenses of silt, sand, clay, and gravel. The subsurface of the site is highly variable in both thickness and distribution of deposits.

SOILS

The project site soils are alluvial (deposited by water) in origin and were placed over approximately the last one million years (Late Quaternary) during episodes of deposition followed by periods of nondeposition and erosion. The site soils, as mapped by the U.S. Soil Conservation Service (1992), are shown in Exhibit 4.7-1. Most of the site consists of three U.S. Department of Agriculture (USDA) soil types: 133 - Columbia fine sandy loam, clayey substratum, partially drained; 153 - Egbert silty clay loam, partially drained; and 197 - Merritt silty clay loam, partially drained. These soil units are similar in nature and generally are silty clays to silty sands. Detailed USDA Soil Survey Soil descriptions are presented in the Baseline Geotechnical Assessment for the River Islands Project, prepared by ENGEO. Table 4.7-2 presents the summary of soil characteristics of the primary soil types.

The actual surface soils observed at the site were mapped in previous geotechnical investigations as silty sands, clayey to sandy silts, and two areas of moderately to highly plastic clays. The descriptions of the underlying soils are similar, consisting of silty sands, poorly to well-graded sands, clayey to sandy silts,



EXPLANATION

- 110 Boggiano clay loam
- 130 Columbia fine sandy loam, drained
- 131 Columbia fine sandy loam, partially drained
- 132 Columbia fine sandy loam, channeled, partially drained
- 133 Columbia fine sandy loam, partly drained, clayey substratum
- 145 Dello loamy sand, drained
- 147 Dello sandy loam, clayey substratum, drained
- 148 Dello clay loam, drained
- 153 Egbert silty clay loam, partially drained
- 166 Grangeville fine sandy loam, partially drained
- 167 Grangeville clay loam, partially drained
- 196 Manteca fine sandy loam
- 197 Merritt silty clay loam, partially drained
- 198 Merritt silty clay loam, partially drained
- 233 Ryde-Peltier complex, partially drained
- 243 Scribner clay loam, partially drained

Sources: U.S. Soil Conservation Service 1992 and ENGEO 2002a

Project Site Soils

River Islands at Lathrop
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EXHIBIT 4.7-1



and moderately to highly plastic clays. In general, the site soils appear sandier in the eastern portion of the site, with localized clayey pockets. The central portion of the site is generally silty with lesser amounts of clay and sand and localized clayey zones. The western portion is generally sandy with localized clays and silts.

Table 4.7-2 Summary of Soil Characteristics			
Soil Group	Texture	Shrink-Swell Potential	Wind/Water Erosion Potential
Columbia	Fine sandy loam, clayey substratum	Moderate	Low
Egbert	Silty clay loam	High	Moderate (wind) Low (water)
Merritt	Silty clay loam	Moderate	Low

Source: U.S. Soil Conservation Service 1992

The soil stratigraphy in the existing levees generally consists of a highly variable mixture of loose to medium-dense sands and medium-stiff silts. Occasional lenses of medium-stiff sandy and silty clay were also encountered. The native soils encountered beneath the existing levee soils generally consisted of an interlayered mixture of clays, silts and sands.

GROUNDWATER

Numerous groundwater monitoring wells are located on the project site. On the basis of data collected from these wells, groundwater levels range from approximately 2 to 14 feet below the ground surface; however, during previous flood stages, water has been observed to reach the existing ground surface at the lower elevations on the project site. Current agricultural irrigation and pumping of water from the central drainage ditch causes localized changes in the groundwater flow and elevation.

SHRINK-SWELL POTENTIAL

Expansive soils shrink and swell as a result of moisture changes. Specifically, expansive soils swell when wet and shrink when dry. Soils with high clay contents tend to be most affected. The soil at the project site displays a Plasticity Index ranging from low (nonplastic) to high (expansive soils). Shrink-swell potentials for the three primary soil types on the project site range from moderate to high, as shown in Table 4.7-2. The shrinking and swelling of soils can cause differential movement and settlement of structures constructed on these soils unless proper engineering techniques are used.

CORROSION POTENTIAL

Corrosion is the gradual degradation of materials by stray electrochemical currents. Site-specific corrosion testing for concrete and buried metals has not yet been performed at the project site. However, chemical testing on soil was performed previously in support of past development plans. In general, it

appears that the site soils may have moderate chlorides and sulfates and have a moderate to low potential for corrosion of buried metals.

Factors that are applicable to soil corrosion potential for concrete and steel in contact with the site soils include pH and electrical resistivity. The site soils were tested had electrical resistivities of 4,020 to 26,800 ohm-cm, which is considered slightly to moderately corrosive to buried unprotected metals. The pH values ranged from 6.4 to 8.6, which is generally considered slightly acidic to neutral.

SEEPAGE POTENTIAL

Permeability of the soil in the existing levees and associated seepage could result in levee failures. Levee seepage potential, based on onsite soil conditions, was evaluated in the project geotechnical studies to establish a practical “minimum” levee section for preliminary project planning and design. The “minimum” levee section was defined as the narrowest section, constructed of existing levee soils and other onsite soils, capable of preventing detrimental instability of the in-board levee slopes under the assumed head. Based on in-board levee side slopes of 3:1, a flood-stage head differential of 19 feet (water level on one side of the levee is 19 feet above the ground level on the opposite side), and use of appropriate onsite soils, the project geotechnical studies indicate that a levee crest width of 25 feet would be sufficient to reduce potential detrimental seepage.

SUBSIDENCE

Subsidence, or the gradual lowering of the ground surface, can occur from the compaction or loss of surface materials, the oxidation of organic soils, or from extraction of groundwater, gas, or oil. It also can be triggered by seismic activities. Subsidence is occurring in various Delta areas in San Joaquin County; rates of which vary based on site-specific conditions (San Joaquin County 1991).

Localized, shallow subsidence is related primarily to a reduction in the thickness of the alluvium by oxidation of organic peaty soils. Other causes of shallow subsidence or depletion are wind erosion and consolidation of soft clays following the lowering of the water table or the placement of fill. No areas of significant organic peaty soils were encountered on the project site. However, potentially compressible layers of clay were encountered in portions of the existing levees.

The potential for regional subsidence or uplift is considered very low because of the absence of active faults underlying the central portion of the San Joaquin Valley and the lack of sufficient ground motion to induce regional subsidence. More specifics on seismicity are provided below.

SEISMICITY

Seismic hazards include earthquake-induced ground shaking or rupture, subsidence, liquefaction, and tsunamis or seiches. Strong earthquakes generated along a fault system create ground shaking, which attenuates with distance from the epicenter. The area affected by strong ground shaking would depend on the characteristics of the earthquake, such as intensity and duration and the location of the epicenter.

In general, loose or soft, saturated sediments may liquefy from ground shaking and result in damage to structures.

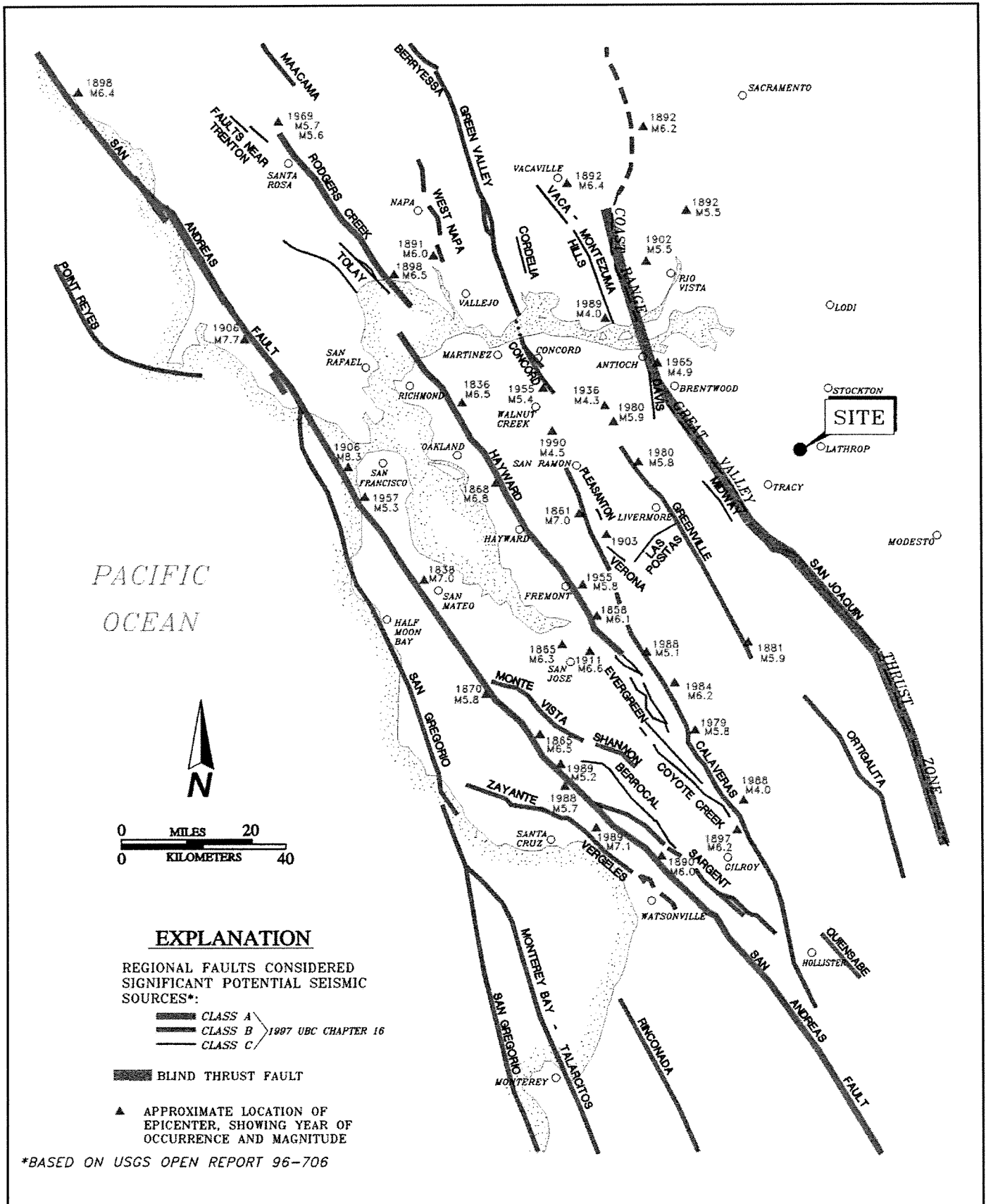
No active faults are mapped across the project site by the California Geological Survey (CGS) or USGS. The location of the site relative to regional faults is shown in Exhibit 4.7-2. The nearest known surface trace of a fault designated as active by the CGS is the Greenville fault, located approximately 20 miles west of the project site. The next significant fault zone designated active by the CGS is the Calaveras fault, located approximately 30 miles west of the site. The closest trace of the San Andreas fault is located approximately 55 miles to the west of the site.

Recent geologic studies have indicated that a tectonic boundary exists along the western margin of the San Joaquin Valley of California, referred to as the Great Valley Fault System. The magnitude 6.7 Coalinga earthquake in 1983 and a >6.0 magnitude earthquake in 1892 near Vacaville and Winters occurred on segments of the Great Valley Fault System. Because of this relatively recent earthquake activity, this zone is considered seismically active. These earthquakes probably were caused by blind thrust faults, which do not intersect the ground surface; therefore, no known surface fault rupture has been observed as a result of these earthquakes.

The location and nature of the Great Valley Fault System and associated blind-thrust faults are not well known. Based on preliminary segmentation of the Great Valley Fault System, a 30-kilometer-long segment with a characteristic earthquake magnitude of 6.7 is indicated approximately 10 miles to the west of the River Islands project site (ENGE0 2002a). The recurrence intervals for the average Great Valley fault segments, as estimated from historical seismicity, are 360–440 years. However, the Great Valley fault is not accounted for in the 1997 report titled “Determining Distances from Faults within and Bordering the State of California for the 1997 Uniform Building Code,” which was jointly published by the CGS and the International Conference of Building Officials.

The geotechnical reports prepared by ENGE0 (2002a, 2002b) for the project predict that a horizontal ground surface acceleration of 0.23 gravity (g) (equivalent to $\pm 23\%$ of the earth’s normal gravitational strength) would have a 10% probability of being exceeded in a 50-year design life. Damage to a single-family dwelling typically begins at 0.2 g (Risk Prediction Initiative 1996). This prediction is considered to be highly conservative in comparison to the seismic history of the project site. A search of historical earthquakes was performed to calculate the maximum historical site acceleration experienced at the River Islands project site. The highest ground acceleration at the site was approximately 0.16 g as a result of the 1906 San Francisco magnitude 8.25 earthquake. Of the 640 earthquakes that occurred during the last 200 years, the 1906 earthquake was the only event that produced a ground acceleration above 0.10 g in the project vicinity.

Potential seismic hazards resulting from a nearby moderate to major earthquake generally can be classified as primary and secondary. The primary effect is fault ground rupture, also called surface faulting. Because there are no known active faults crossing the site and because the site is not located in an Alquist-Priolo Special Study Zone, fault ground rupture is unlikely. The common secondary seismic hazards include ground shaking, ground lurching, soil liquefaction, dynamic densification, and lateral spreading. These potential hazards are discussed in the following sections.



Source: ENGEO Incorporated 2002

Regional Fault Lines

River Islands at Lathrop
CITY OF LATHROP

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EXHIBIT 4.7-2

EDAW

Additional potential hazards associated with seismic events include landslides, tsunamis, and seiches. Based on topographic and soil data, the risk of landslides is considered negligible for most of the project site (ENGEO 2002a), with the exception of the levees. The potential for tsunamis at the subject site is considered very low to negligible because of the distance from the San Francisco Bay and the Pacific Ocean. The potential for damaging seiches is considered very low because of the absence of a deep, large open body of water adjacent to or in the project site.

Ground Shaking

The active faults in the Bay Area and the potentially active faults on the margins of the San Joaquin Valley could generate earthquakes producing strong ground shaking. Intensity of ground shaking is related to the size of an earthquake, the distance from the epicenter, and the response of the geologic materials at the site. Ground shaking can be described in terms of peak acceleration (movement) of the ground. Peak accelerations that could be expected in the project vicinity from an earthquake would typically be in the range of 0.10 to 0.20 g (Grunwald & Associates 1995b). As mentioned above, the highest known ground acceleration experienced at the project site was 0.16 g as a result of the 1906 San Francisco earthquake.

Ground Lurching

Ground lurching occurs as a result of the rolling motion imparted to the ground surface during an earthquake. The deformation of the ground surface by such rolling motion can cause ground cracks to form. The potential for the formation of these cracks is considered greater at contacts between material with significantly different properties, such as deep, soft soil and bedrock. Such an occurrence is possible at the project site, but with probabilities similar to those in other locations in the San Joaquin Valley.

Soil Liquefaction

Soil liquefaction occurs when ground shaking from an earthquake causes the sediment layer saturated with groundwater to lose strength and take on the characteristics of fluids. Primary factors in determining the liquefaction potential are soil type, the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater. Silts, sands, and sensitive marine clays are susceptible to liquefaction. Age also is a factor in the potential of soils to liquefy, with Holocene deposits being the most sensitive to liquefaction. The stability of most clayey silts, silty clays, and clays deposited in fresh water environments is not normally adversely affected by vibratory motion.

One consequence that may result from the occurrence of liquefaction is an associated surface expression. If the seismic event occurs over an extended duration, the liquefied soils may migrate toward the surface, resulting in ejection and subsequent sand boiling at the surface. If not mitigated, this phenomenon of surface expression can result in ground settlement and heave.

The project site has relatively high groundwater. In general, excluding the effects of irrigation, which raises the groundwater table to near the existing ground surface elevation, the groundwater table ranges

from 2 to 14 feet below the ground surface. In addition, the project site contains areas of relatively clean sands that are loose to medium dense. Therefore, it may be expected that there are localized areas at the River Islands project site that may be susceptible to the effects of liquefaction and subsequent settlement should a seismic event with sufficient ground motion occur during the expected life of the proposed project.

Dynamic Densification

Dynamic densification of loose granular soils may cause settlement because of earthquake-induced vibrations, which could reduce the air voids in the soil matrix. Dynamic densification occurs in loose, nonsaturated soils above the groundwater table. Because of the stiffness and cohesive nature of some of the overlying soil layers at the River Islands site, the relatively shallow groundwater table, and density of the granular materials sampled in the borings above the groundwater table, potential densification of any granular layers above the water table would be considered negligible on the project site.

Lateral Spreading and Landsliding

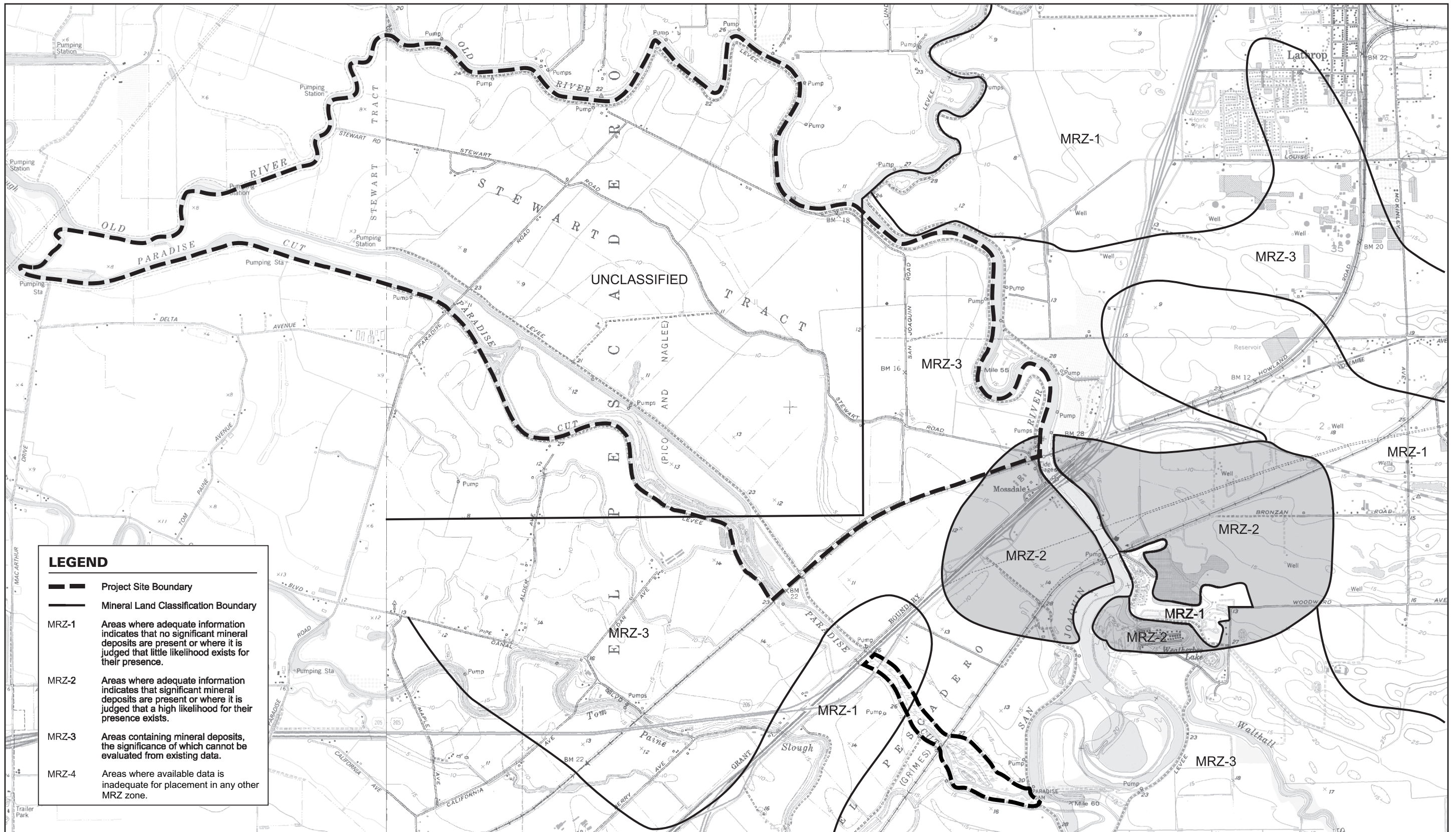
Lateral spreading is a movement in a nearly horizontal soil zone (possibly attributable to liquefaction) that causes the overlying soil mass to shift toward a free face or down a gentle slope. Because the topography at the site is relatively flat, the potential for lateral spreading is generally considered low for the central portions of the site. Because of the relatively low strength of the soil materials combined with the slope angles, the lateral spreading potential for the existing unimproved levees may be considered moderate under the design seismic event. The geotechnical reports for the project indicate that maximum lateral deformation of up to 12–18 inches could occur along the top of slope at the existing levee locations. There may also be areas such as these within a few hundred yards of the proposed setback and improved levees and the proposed human-made lakes in which lateral spreading may be a potential hazard.

MINERAL RESOURCES

The General Plan identifies deposits of sand used in the making of high-quality Portland Cement Concrete as a mineral resource in the City that requires preservation. Land containing these sand deposits have been classified by the CDMG as MRZ-2 (Exhibit 4.7-3).

A small, approximately 10-acre area in the eastern corner of the RID Area is classified as MRZ-2 by the CDMG. If 100-foot setbacks are provided for utilities, roads, and rail lines, the mineable area in this location is approximately 5 acres. This area is zoned by the City as Regional Commercial with opportunities for Resource Conservation - Extraction, Reclamation, and/or Recreation Commercial.

The remainder of the River Islands project site is either not classified by the CDMG or is classified as MRZ-3 (potentially containing significant mineral resources). A portion of the PCIP area is classified as MRZ-1 (does not contain or unlikely to contain significant mineral deposits).



Source: City of Lathrop 1991; Base Map Source: Lathrop Quad, 1952 (photorevised 1987 - minor revisions 1994), Union Island Quad, 1978

Mineral Land Classification: Sand Deposits

River Islands at Lathrop
 CITY OF LATHROP
 G 1T013.01 10/02



EDAW

4.7.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

The examination of geology, soils, and mineral resources in this section of the SEIR is based on information obtained from reviews of

- ▶ plans for the proposed project;
- ▶ available literature, including documents published by city, county, state, and federal agencies, and texts dealing with geotechnical conditions in the San Joaquin Valley area;
- ▶ review of applicable elements from the San Joaquin County and City of Lathrop General Plans and the West Lathrop Specific Plan; and
- ▶ geotechnical reports prepared for the River Islands project by ENGE0.

In almost all cases, impact mechanisms and recommended mitigation would be similar for each project phase (1a, 1, 2); therefore, the impact analysis evaluates the proposed project as a whole rather than taking a phase-by-phase approach. In addition, a project-level analysis of geology, soils, and mineral resources was conducted for both Phase 1 and Phase 2 rather than a project-level analysis for Phase 1 and a separate program-level analysis for Phase 2. The less specifically defined Phase 2 elements do not preclude a project-level analysis of geology, soils, and mineral resources, because site conditions, the general character of proposed development, associated risks related to seismic events, mitigation approaches, and other factors are very similar (or the same) across the Phase 1 and Phase 2 areas. Geotechnical reports used for this analysis addressed the entire RID Area, PCC Area, and PCIP Area, providing sufficient data to support a project-level analysis across all these locations.

PRIOR WLSP EIR ANALYSIS

The WLSP EIR identified significant, unavoidable adverse impacts resulting from soil liquefaction during a major seismic event, the severity of which is unknown, and for which unacceptable levels of damage cannot be wholly prevented by project design and construction planned in the WLSP. A levee breach causing large sections of Stewart Tract or Mossdale Village to flood is one such impact. A statement of overriding consideration that included this significant, unavoidable impact was approved with the certification of the WLSP EIR.

The WLSP EIR concluded that significant impacts related to soil erosion and foundation failures caused by seismic hazards (liquefaction, lateral spreading, and settlement) and soil properties would be mitigated to less-than-significant levels with the recommended measures presented in the WLSP EIR and the policies of the WLSP.

Several differences between the River Islands project and the project analyzed in the WLSP EIR alter the evaluation of potential seismic impacts, including the creation of high-ground corridors/wide levees and

the absence of amusement park elements. Therefore, an independent analysis of seismicity, as well as all other elements related to geology, soils, and mineral resources, has been included in this SEIR.

THRESHOLDS OF SIGNIFICANCE

The River Islands project would cause a significant impact on earth resources if it would:

- ▶ expose people or structures to potential substantial adverse impacts, including risk of loss, injury, or death through the rupture of a known earthquake fault, strong seismic shaking, seismic-related ground failure, soil liquefaction, or landslides;
- ▶ locate project facilities on a geologic unit that is unstable, or that would become unstable as a result of the proposed project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse;
- ▶ locate project facilities on expansive soil, creating substantial risks to property;
- ▶ result in substantial soil erosion or the loss of topsoil;
- ▶ result in the loss of availability of a known mineral resources that would be of value to the region and the residents of the state; or
- ▶ result in the loss of availability of a locally important mineral resources recovery site delineated on a local general plan, specific plan, or other land use plan.

IMPACT ANALYSIS

Impact
4.7-a

Geology, Soils, and Mineral Resources - Construction-Related Erosion.

*Construction activities during project implementation would involve extensive excavations, fills, and movement and stockpiling of earth, which could expose soils to erosion and the loss of topsoil. This impact is considered **less than significant**.*

Construction activities during project implementation would involve substantial excavating, moving, filling, and temporary stockpiling of soil in the project site. Phase 1a development would disturb soils over approximately 415 acres in the RID Area and also would involve the excavation of three back bays and the construction of associated setback levees along the San Joaquin River. Phase 1 development would disturb approximately 1,355 additional acres in the RID Area and also would involve construction of two additional back bays, a bridge across the San Joaquin River, improvement of existing levees, construction of the setback levee along Paradise Cut, and construction of the “cross” levee adjacent to the UPRR right-of-way. Phase 2 development would disturb approximately 2,345 acres of soil area over the remainder of the project site and is anticipated to include four additional back bays, a bridge over the San Joaquin River, and a bridge over Paradise Cut. Phase 2 development also might include construction of additional high-ground areas.

The extensive earthwork activities to support project development could expose soils to erosion during all project phases. However, topography at the project site (with the exception of the levees) is flat,

minimizing the potential for water erosion. In addition, the levees surrounding the RID Area create a closed system, containing sediments in the levees. Sediment entering the central drainage canal in the RID Area could potentially be pumped over the levees into Paradise Cut. However, construction contractors would be required to comply with a Storm Water Pollution Prevention Plan (SWPPP) as part of the project design and implement best management practices (BMPs) included in the SWPPP to minimize potential erosion.

BMPs also would be applied during earthwork associated with bridge construction, levee breaches for the back bays and in Paradise Cut, and other activities outside or on the perimeter of the RID Area. Implementation of these BMPs, as well as the relatively small area affected by these activities, would prevent substantial soil erosion.

Given the sediment-containment function provided by the levees surrounding the RID Area, the relatively small size of disturbance outside the RID Area, and the implementation of erosion controls/BMPs included in SWPPPs, substantial amounts of soil erosion are not expected to occur. Therefore, erosion impacts relative to geology and soils are considered less than significant. Potential impacts of erosion on other resources, such as fisheries and water quality, are evaluated separately in the corresponding sections of this document.

Impact
4.7-b

Geology, Soils, and Mineral Resources - Seismic Hazards (Ground Shaking). *Ground shaking on the project site could expose people or structures to substantial risk of loss, injury, or death. This impact is considered **significant**.*

Seismic activity in the nine-county San Francisco Bay Area (San Andreas, Hayward, and Calaveras faults) and the Great Valley Fault System could generate strong ground shaking on the project site. Because of this potential fault activity, ground shaking is an unavoidable hazard for facilities in the San Joaquin Valley. Intensity of the ground shaking would depend on the magnitude of the earthquake, the distance of a structure from the epicenter, and the duration of shaking. The damage sustained and degree of hazard depend on the seismic hazards of each specific site, the type of structure and its building materials, and construction quality. The proposed project involves the development of residential and commercial uses, as well as associated site and utility improvements. The proposed development would be anticipated to experience at least one major earthquake during the operational lifetime of the project. Although the project area would not likely experience a fault rupture, ground shaking could cause structural damage to levees, the high-ground corridors, buildings, pipelines, bridges, and other permanent developments proposed as part of the project.

The proposed development would be required to comply with the provisions of the UBC. Seismic design provisions of current building codes generally prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces of dead-and-live loads. The UBC-prescribed lateral forces generally are substantially smaller than the expected peak forces that would be associated with a major earthquake. Therefore, when built under UBC standards, structures are anticipated to (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse but with some structural as well

as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake; however, it is reasonable to expect that a well-designed and well-constructed structure would not collapse or cause loss of life in a major earthquake.

At this time, the UBC requirements (based on the probabilistic seismic event) are considered the design minimum. As mentioned above, the Great Valley fault is not accounted for in the 1997 report “Determining Distances from Faults within and Bordering the State of California for the 1997 Uniform Building Code.” Because of the relatively close presence of the Great Valley fault, it is conceivable that the site may experience ground shaking higher than the UBC-specified ground shaking (produced by the more distant Greenville fault), but the probability of occurrence is lower. In the event of a moderate to major seismic event along the Great Valley fault, ground shaking could result in lateral forces exceeding the capabilities of structures built to minimum UBC design standards. Severe structural and nonstructural damage and associated hazards resulting from such a seismic event would represent a significant impact.

Impact
4.7-c

Geology, Soils, and Mineral Resources - Seismic Hazards (Liquefaction).

*Earthquake-induced liquefaction at the project site could result in substantial risk of structural damage and could expose residents, workers, and visitors on the project site to substantial risk of bodily injury. This impact is considered **significant**.*

In accordance with the 1997 UBC, the site is located in Seismic Zone 3. Based on site conditions, the soil profile at the site can preliminarily be classified as SD (a stiff soil profile) to SF (soil requiring site-specific evaluation) as defined in UBC Table 16-J. On the basis of the preliminary exploration, it appears that portions of the soil profile at the site may be potentially liquefiable under seismic loading, thus requiring the SF classification and further study. On the basis of preliminary design assumptions and the UBC/CGS fault data and requirements, the results of preliminary liquefaction analyses of the existing soil boring data indicate that the potential for liquefaction and settlement may be considered low for ground accelerations below 0.10g. Therefore, based on historic seismicity discussed above, the risk of liquefaction appears low. However, as discussed previously, there may be a potentially active blind thrust fault (Great Valley fault) located along the western margin of the San Joaquin Valley that may have the potential to produce higher ground accelerations, which have not occurred in this region since 1800. The results of the liquefaction analyses show that portions of the site may be expected to experience liquefaction if a probabilistic seismic event with a ground acceleration of 0.23 g were to occur. The project geotechnical study estimated that settlement of up to 7 inches may be expected for portions of the project site at a seismic event with 0.23 g ground acceleration for the available upper 20–25 feet of the soil horizon.

The project site has relatively high groundwater levels and areas of relatively clean sands that are of loose to medium density. According to the project geotechnical studies, liquefaction-induced settlements of the existing levee areas, including the high ground, may be approximately 3½ to 5½ inches. Furthermore, the potentially liquefiable soils at the site are relatively shallow and are not generally capped by a sufficient thickness of nonliquefiable soils to prevent venting. As such, there is a relatively high probability that some of the sand layers susceptible to liquefaction would be vented to the surface

during a seismic event, and the above-estimated settlements could be experienced. Given the above, it may be expected that there are localized areas at the River Islands project site that may be susceptible to the effects of liquefaction should a seismic event with sufficient ground motion occur during the expected life of the proposed project. Liquefaction of soils in these areas during a seismic event could result in structural failures of buildings, levees, or other facilities. Therefore, this impact is considered significant.

Impact
4.7-d

Geology, Soils, and Mineral Resources - Seismic Hazards (Ground Lurching and Soil Settlement). *Ground lurching and settlement induced by dynamic densification during a seismic event at the project site could result in risk of structural damage and could expose residents, workers, and visitors on the project site to risk of bodily injury. However, these risks are considered minor because of onsite soil conditions. This impact is considered **less than significant**.*

Ground lurching, which is the deformation of the ground surface by earthquake-induced rolling motion, can cause ground cracks to form. The potential for the formation of these cracks is considered greater at contacts between material with significantly different properties, such as deep, soft soil and bedrock. Soil conditions prone to ground cracks are not present at the project site.

Earthquake-induced ground motions can cause ground to settle through the densification of the soil particles, which reduces the air voids in the soil matrix. Buildings, levees, bridges, and other facilities could become damaged if significant soil settlement occurs under the proposed development. However, because of the stiffness and cohesive nature of some of the overlying soil layers at the project site, the relatively shallow groundwater table, and density of the granular materials above the groundwater table; the potential densification of any granular layers above the water table is considered minor. Because of soil conditions at the project site, there is only minor potential for structural damage and failure from ground lurching and settlement. Therefore, this impact is considered less than significant.

Impact
4.7-e

Geology, Soils, and Mineral Resources - Seismic Hazards (Lateral Spreading and Landslide). *Seismically induced lateral spreading and landslide could result in levee failures at the project site, exposing residents, workers, and visitors to the risk of flooding, structural damage, and body injury. This impact is considered **significant**.*

Lateral spreading and earthquake-induced landsliding involve lateral ground movements caused by earthquake vibrations. These lateral ground movements are often associated with a weakening or failure of an embankment or soil mass overlying a layer of liquefied sands or weak soils. The potential for lateral spreading appears to be high in the portions of the existing site underlain by liquefiable sands. However, because the site topography is relatively flat, the potential for lateral spreading is generally considered low for the central portions of the project site. Because of the relatively low strength of the soil materials combined with the slope angles, the lateral spreading potential for the unimproved levees may be considered moderate under the design seismic event. Preliminary lateral spreading analysis conducted as part of the past geotechnical studies indicate maximum lateral deformation of up to 12–18 inches could occur along the top of slope at the existing levee locations. Water seepage through the levees could increase the potential for lateral spreading and landslides.

The project proposes new levees, new high-ground corridors, and improvements to the existing levees, all of which may be detrimentally affected by earthquake-induced lateral spreading and landslides. The improved levees and high ground may incorporate the existing levees, which contain potentially liquefiable soils that can experience a temporary reduction in strength because of cyclic stresses and increased pore pressure as a result of strong ground shaking. Soils susceptible to lateral spreading and landslide also may be used to construct new levees. Because levees could potentially fail because of seismically induced lateral spreading and landslide, this impact is considered significant.

Impact
4.7-f

Geology, Soils, and Mineral Resources - Shrink-Swell Potential. *The shrinking and swelling of soils could result in damage to structures, underground utilities, and other facilities on the project site during the operation of the proposed development. This impact is considered **significant**.*

Expansive soils shrink and swell as a result of moisture changes. These volume changes can result in damage over time to building foundations, underground utilities, and other subsurface facilities if they are not designed and constructed appropriately to resist the changing soil conditions. Volume changes of expansive soils also can result in the consolidation of soft clays following the lowering of the water table or the placement of fill. This phenomenon, known as shallow ground subsidence, is widespread throughout the Delta. The soil at the site displays a Plasticity Index ranging from low (nonplastic) to high (expansive soils). Specifically, potentially compressible layers of clay were encountered in portions of the existing levees. These soils can lead to consolidation settlements. On the basis of the previous laboratory data, anticipated settlements of approximately ½ inch could be expected from every 2 to 3 feet of fill placed above existing levee grades. Structural damage is a potential consequence of shallow ground subsidence. Because of the potential for shrink-swell soils and associated shallow ground subsidence to damage buildings, levees, underground utilities, and other facilities, this impact is considered significant.

Impact
4.7-g

Geology, Soils, and Mineral Resources - Corrosive Soils. *The moderate corrosiveness of onsite soils could cause damage to buried concrete slabs and foundations and buried metal pipes during the operation of the River Islands project. This impact is considered **significant**.*

Site-specific corrosion testing for concrete and buried metals has not yet been performed at the River Islands site. However, on the basis of previous studies, it appears that the site soils may have a moderate to low potential for corrosion to buried metals. Corrosion of buried concrete is also a possibility. Because corrosive soils could cause failures to underground structures over the long term, this impact is considered significant.

Impact
4.7-h

Geology, Soils, and Mineral Resources - Mineral Resources. *The development of permanent structures on land classified MRZ-2 would result in the loss of access to potentially significant sand deposits classified by the CDMG. However, the loss of mineable surface area (5 acres) is small relative to the available MRZ-2 lands in the area (roughly 1,100 acres). This impact is considered **less than significant**.*

Approximately 10 acres in the eastern portion of the RID area contain sand deposits classified as MRZ-2 by the CDMG. Locations classified as MRZ-2 are “areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.” If 100-foot setbacks are provided for existing utilities, roads, and rail lines, the mineable area in this location is approximately 5 acres. The MRZ-2 area would be developed during Phase 1a and 1 of the River Islands project. There are no plans to extract the sand from the area before development; therefore, project implementation would result in a loss of access to these sand deposits. However, the area classified as MRZ-2 in the project vicinity (Exhibit 4.7-3) covers approximately 1,100 acres. Although portions of this area have already been developed, or are planned for future development (e.g., roughly 100 acres in the Remaining Stewart Tract, up to 150 acres in the Oakwood Lakes Sector [Lathrop General Plan]), well over 500 acres are still available for sand extraction. Development of 10 acres of land classified as MRZ-2 would remove less than 2% of the available MRZ-2 lands in the project vicinity. In addition, the small size (5 acres of mineable land) and isolated nature (bordered by the San Joaquin River and UPRR rail line) of the sand deposits in the RID Area may make it undesirable economically to mine this resource. Based on these conditions, the development of the MRZ-2 lands in the project area is considered a less-than-significant impact.

4.7.4 MITIGATION MEASURES

No mitigation measures are necessary for the following less-than-significant impacts.

- 4.7-a Construction-Related Erosion
- 4.7-d Seismic Hazards (Ground Lurching and Soil Settlement)
- 4.7-h Mineral Resources

The following mitigation measures are provided for significant impacts.

4.7-b Ground Shaking. Project facilities shall be designed for maximum horizontal ground surface accelerations of at least 0.23 g. Geotechnical reports completed by ENGEO in 2002 for the proposed project (Baseline Geotechnical Assessment: River Islands, Lathrop, California and Preliminary Levee Evaluation: River Islands, Lathrop, California) predict that a horizontal ground surface acceleration of 0.23 g at the River Islands site would have a 10% probability of being exceeded in a 50-year project design life. This estimate incorporates the possibility of a seismic event associated with the Great Valley Fault System. A surface acceleration of 0.23 g exceeds the maximum ground surface accelerations previously recorded in the area (estimated at 0.16 g), which occurred during the 1906 San Francisco earthquake. If project facilities are designed to meet minimum safety standards during a seismic event with ground surface accelerations of at least 0.23 g, risks of loss, injury, or death from ground shaking would be substantially reduced.

Implementation of Mitigation Measure 4.7-b would reduce potential impacts associated with ground shaking to less-than-significant levels.

4.7-c Liquefaction. A design-level geotechnical study shall be completed for each project development (e.g., housing subdivision, Employment Center subdivision, school, levee segment) before a grading permit is issued, focusing on the liquefaction potential in the area and identifying appropriate means to minimize/avoid damage from liquefaction. Geotechnical design recommendations included in each study shall be implemented during project construction. Potential recommendations may include overexcavating and recompacting the area with engineered fill or in-place soil densification. In-place densification measures may include deep dynamic compaction, compaction grouting, vibro-compaction, and the use of nonliquefiable caps. Where existing levee soils cannot be densified, the potential liquefaction-induced settlement shall be accounted for in the final design grades and setbacks for the project.

Implementation of Mitigation Measure 4.7-c would reduce impacts related to soil liquefaction to less-than-significant levels. This conclusion differs from that in the WLSP EIR, in which impacts associated with soil liquefaction during a major seismic event were considered significant and unavoidable. However, because levee designs under the proposed project are more resistant to liquefaction (e.g., high-ground corridors/wide levees), there are no amusement park-related features that could be particularly sensitive to seismic events (e.g., rollercoasters), and the additional earth moving associated with lake and levee construction would allow more selective use of appropriate fill under project structures, a conclusion of “less than significant” after mitigation is considered appropriate.

4.7-e Lateral Spreading and Landslide. A design-level geotechnical study shall be completed for each project development (e.g., housing subdivision, Employment Center subdivision, school, levee segment) before a grading permit is issued. The geotechnical studies for levees and levee improvements shall include additional site explorations and a laboratory testing program to more accurately determine subsurface stratigraphy and soil strength characteristics for slope stability analyses. Final levee designs shall be analyzed for various stability conditions using the strength parameters developed from the additional exploration and testing. Levee designs shall address issues such as long-term slope stability for static and seismic conditions, lateral spreading, and potential effects of seepage on levee stability. Measures to address levee slope instability where it may occur will be implemented during project construction and may include the construction of keyways beneath levee toes, removal and replacement of all surface soils beneath the new levee footprint, in-place soil densification, widening the levee to address seepage, or placement of geotextile stabilization fabrics. The appropriate mitigation methods and extent of required mitigation would depend on the actual subsurface soils encountered at the levee location. Where existing levee soils cannot be modified, designs for improvements to the existing levee shall address any deficiencies in the existing levee.

Implementation of Mitigation Measure 4.7-e would reduce impacts associated with lateral spreading and landslide to a less-than-significant level.

4.7-f Shrink-Swell Potential. A design-level geotechnical study shall be completed for each project development (e.g., housing subdivision, Employment Center subdivision, school, levee segment) before a grading permit is issued. The study shall specifically address whether expansive soils are present in the development area and include measures to address these soils where they

occur. Methods to address expansive soils include regrading areas with appropriate soils and adding special design features to foundations and other underground facilities. Measures included in the report will be implemented as appropriate, based on the specific soil conditions and the type of facility being constructed.

Implementation of Mitigation Measure 4.7-f would reduce impacts associated with shrink-swell potential and expansive soils to less-than-significant levels.

4.7-g Corrosive Soils. A design-level geotechnical study shall be completed for each project development (e.g., housing subdivision, Employment Center subdivision, school, levee segment) before a grading permit is issued. The study shall specifically address corrosion potential and include measures to address corrosive soils where damage to underground facilities may occur. Potential methods to address corrosive soils include the use of cathodic protection or sacrificial anodes for buried metals, use of concrete with a lower water-to-cement ratio and/or sulfate-resistant concrete, and the use of Type II or Type II Modified cement. Appropriate measures identified in each geotechnical study shall be implemented during project construction.

Implementation of Mitigation Measure 4.7-g would reduce impacts associated with corrosive soils to less-than-significant levels.

4.7.5 RESIDUAL SIGNIFICANT IMPACTS

No residual significant impacts on earth resources would occur with implementation of the recommended mitigation measures.