DRAFT
ENVIRONMENTAL IMPACT REPORT

for the

MOSSDALE LANDING
URBAN DESIGN CONCEPT

SCH# 2001052059

VOLUME I: DEIR

Prepared for the City of Lathrop

EDAW

August 29, 2002

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VOLUME I: DEIR

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EDAW

August 29, 2002

Notice of Completion

SC# 2001052059

Mail to: State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 916/445-0613

Project Title: **Mossdale Landing Urban Design Concept**

Lead Agency: City of Lathrop | Contact Person: Deanna Walsh, Principal Planner
Street Address: 16775 Howland Road - Suite One | Phone: (209) 858-2860, etc. 269
City: Lathrop, CA | Zip: 95330 | County: San Joaquin

Project Location

County: San Joaquin | City/Nearest Community: Lathrop
Cross Street: Louise Avenue | Zip Code: 95330 | Total Acres: 477.3
Assessor's Parcel No. 191-190-02, -03, -05, -06, -11, -14, -16, -17, -22, -23, and 191-200-01
Section: SE/4 | Twp. 1S | Range: 6E | Base: Lathrop, CA
Within 2 Miles: Hwy #: I-5, I-205, SR 120 | Waterways: San Joaquin River
Airports: N/A | Railways: Union Pacific R.R. | Schools: Widmore School, Lathrop Elementary School

Document Type

CEQA
- G NOP
- G Early Cons
- G Final Document
- G Neg Dec
- O Draft EIR
- G Supplement/Subsequent
- G EIR (prior SCH No.) _____
- G Other _____

NEPA:
- G NOI
- G EA
- G Draft EIS
- G FONSI

Other:
- G Joint Document
- G Other _____

Local Action Type

- G General Plan Update
- G General Plan Amendment
- G General Plan Element
- G Community Plan
- G Specific Plan
- G Master Plan
- G Planned Unit Development
- G Site Plan
- G Rezone
- G Prezone
- G Use Permit
- O Land Division (subdivision parcel map, tract map, etc)
- G Annexation
- G Redevelopment
- G Coastal Permit
- O Other: UDC

Development Type

- O Residential: *Units* 1,690 *acres* 313.2
- G Office: *SqFt* ____ *acres* ____ *employees* ____
- O Commercial: *SqFt* 653,399 *acres* 25 *employees* ____
- G Industrial: *SqFt* ____ *acres* ____ *employees* ____
- O Educational: two elementary schools
- O Recreational: 39 acres
- G Water Facilities: *Type* ____ *Mgd* ____
- G Transportation: *Type* ____
- G Mining: *Mineral* ____
- G Power: *Type* ____ *watts* ____
- G Waste Treatment: *Type* ____
- G Hazardous Waste: *Type* ____
- O Other: drainage and recycled water facilities

Project Issues Discussed in Document

- O Aesthetic/Visual
- O Agricultural Land
- O Air Quality
- O Archeological/Historical
- G Coastal Zone
- O Drainage/Absorption
- G Economic/Jobs
- G Fiscal
- O Floodplain/Flooding
- G Forest Land/Fire Hazard
- G Geologic/Seismic
- G Minerals
- O Noise
- G Population/Housing Balance
- O Public Service/Facilities
- G Recreational/Parks
- O Schools/Universities
- G Septic System
- O Sewer Capacity
- G Soil Erosion/Compaction/Grading
- O Solid Waste
- G Toxic/Hazardous
- O Traffic/Circulation
- O Vegetation
- O Water Quality
- O Water Supply/Groundwater
- O Wetland/Riparian
- O Wildlife
- O Growth Inducing
- G Land Use
- O Cumulative Effects
- O Other Fisheries

Present Land Use/Zoning/General Plan Use: G.P. land use = Residential Low, Residential Medium, Public, Service Commercial, Village Commercial, roadways. Zoning = R-MV (Single Family Residential), RM-MV (Multi-Family Residential, CS-MC (Service Commercial), CV-MV (Village Commercial), and OS (Open Space).

Project Description: The project would be developed as a mixed use residential community consisting of 16 neighborhoods, with single and multi-family residential uses, village and service commercial uses, parks, two schools, a fire station, pedestrian and bicycle paths, a roadway system, and levee/open space. Entitlements being sought from the lead agency include a Certified EIR, Urban Desing Concept (UDC), Vesting tentative Tract Map, Final Map, Neighborhood Design Review, Building Permits, Gold Rush Boulevard Precise Plan Line (PPL), and Williamson Act Contract Cancellations. The project would be consistent with General Plan land use designations and zoning.

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1 INTRODUCTION

This Environmental Impact Report (EIR) has been prepared by the City of Lathrop (City), as lead agency, for the Mossdale Landing Urban Design Concept , related entitlements and Gold Rush Boulevard Precise Plan Line (PPL). This chapter of the EIR provides information on the following:

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

1.1 PROPOSED PROJECT REQUIRING ENVIRONMENTAL ANALYSIS

The project applicant (Pacific Union Homes) is requesting approval of an Urban Design Concept (UDC) for a residential and mixed-use commercial development to be called Mossdale Landing (proposed project). The project site includes 477.3 acres of farmland located on a portion of the area known as the Mossdale Village component of the approved West Lathrop Specific Plan (WLSP) in the City of Lathrop. The project would be developed as 16 neighborhoods with 1,690 dwelling units, 653,399 square feet of village and service commercial uses, parks, two K-8 schools, a fire station, and open space. Water and sewer service would be provided by the City's municipal systems. Wastewater generated by the proposed project would be treated at City Wastewater Recycling Plant #1, with the majority returned to the project site for disposal for use as irrigation water.

The proposed project would be subject to the conditions of the WLSP. Under the WLSP, development within the Mossdale Village area of the City must occur under a UDC. A UDC is a discretionary permit reviewed, modified, and/or approved by the Planning Commission and City Council, which must carry a public hearing as part of any decision. It includes a UDC document that includes conceptual site plans, land use plans, circulation plans, parking plans, signage programs, and other relevant plans that set out the proposed project consistent with the development standards of the WLSP. To approve a UDC, the Planning Commission and City Council must find that the UDC is consistent with the General Plan and the WLSP. City staff has preliminarily concluded that the proposed project is consistent with the WLSP. The Planning Commission and City Council must also find the project to be consistent in order for the project to be approved.

Under the WLSP, development within the Mossdale Village area of the City must also: (1) undergo Neighborhood Design Review (whereby City Community Development staff review the proposal for consistency with WLSP development policies and guidelines); (2) obtain a Development Permit and/or vesting tentative map from the Community Development Department; and (3) undergo Building Permit Review and Plan Checking by said Department. Entitlements/approvals include the City of Lathrop for the project include: a certified EIR; UDC; vesting tentative tract map; development agreement; final map; neighborhood design review; building permits; precise plan line (PPL) for a portion of Gold Rush Boulevard, and cancellation of Williamson Act contracts.

1.2 TYPE, PURPOSE, AND INTENDED USE OF THE EIR

According to the California Environmental Quality Act (CEQA), an EIR is required whenever a proposed project may result in a significant effect on the environment. An EIR is an informational document used to inform the public agency decision-makers and the general public of the significant environmental effects of a project, identify possible ways to avoid or minimize the significant effects, and describe reasonable alternatives to the project that can reduce significant environmental impacts. The public agency is required to consider the information presented in the EIR when determining whether or not to approve a project.

The proposed Mossdale Landing UDC is a development project for CEQA purposes. For this reason, this Draft EIR has been developed to meet the requirements of a project EIR as defined by §15161 of the State CEQA Guidelines. This type of EIR focuses primarily on the changes in the physical environment that would result from the development of a project, including its planning, construction and operation.

The Mossdale Landing UDC is a development project proposed under the WLSP. The City has preliminarily determined that the project is consistent with the WLSP, which calls for the development of residential, village and service commercial, school, and park uses at the project site.[1] The WLSP was evaluated at a programmatic level in the July 1995 WLSP EIR, which analyzed the environmental impacts of all development proposed in the 6,078.5-acre WLSP area, including the 477.3-acre Mossdale Landing site (Grunwald 1995).

In accordance with §15162 of the State CEQA Guidelines, the City has determined that a "subsequent" EIR (SEIR) should now be prepared to address the potential project-level environmental impacts of the proposed Mossdale Landing project. Section 15162 of the Guidelines §describes the conditions under which an SEIR should be prepared. In summation, 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 will require major revisions of the previous EIR, are proposed in the project;
- Substantial changes occur with respect to the circumstances under which the project is undertaken (and which would require major revisions of the previous EIR); and/or
- New information of substantial importance that was not known and could not have been known with the exercise or 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

[1] The City of Lathrop planning staff has preliminarily determined that the proposed project is consistent with the WLSP based on a comparison of the land uses permitted under the WLSP with the land uses proposed under the Mossdale Landing UDC. As indicated in Table 9-1 of this EIR, both the WLSP and the proposed project call for the development of single family residential, medium density residential, public, village commercial, service commercial, and major streets at the project site. As indicated in Table 9-1, the acreages of each of the uses called for at the project site under the two plans is generally consistent, as is the proposed roadway network, the proposed schools, the proposed drainage system, etc. Hence, the proposed project has been preliminarily determined to be consistent with, and would help implement, the WLSP.

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 which 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 because:

1. The environmental conditions in effect when the EIR was certified in 1995 may have substantially changed with respect to certain issues, such as flooding, traffic, noise, air quality, and biological resources.

2. New information of substantial importance (i.e., the details of this project-level development proposal), that was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified shows that the proposed Mossdale Landing project could have one or more significant effects not discussed in the WLSP EIR.

This type of EIR tiers off the previous analysis, where appropriate, and includes additional analysis where the previous programmatic analysis (in this case, the EIR prepared for the WLSP) is not detailed enough to account for the specific environmental effects of the later project. The Initial Study prepared for the proposed project (included as Appendix A of this EIR) was used to determine what issues require additional analysis in this EIR.

Certain aspects of the water and wastewater systems proposed to serve the proposed project have also been evaluated at a programmatic level in the Lathrop Water, Wastewater and Recycled Water (Master Plan) EIR (EDAW 2001). Therefore, in addition to tiering off the WLSP EIR, this Draft EIR tiers off the Master Plan EIR, where appropriate.

1.3 SCOPE OF THE EIR

This EIR includes an evaluation of 12 environmental issue areas in addition to the CEQA mandated issues (e.g., cumulative impacts, growth inducing impacts, significant unavoidable adverse impacts, and alternatives). The 12 environmental issue areas are listed below:

- Flood Control/Drainage
- Surface Water Quality - Runoff
- Surface Water Quality - Recycled Water
- Groundwater Quality
- Traffic
- Air Quality
- Noise
- Utilities [2]
- Public Services
- Terrestrial Biology
- Fisheries
- Cultural Resources

[2] As a result of legislation effective on January 1, 2002, the requirements for analyses of the availability of a sufficient water supply have changed since the WLSP EIR. This EIR includes the substantial evidence necessary to support a required water supply finding (i.e., an SB 610 Water Supply Assessment - included in Appendix L of this EIR and Summarized in Section 4.8, Utilities).

In addition to the above, the fiscal impacts of the proposed project on the City of Lathrop and the Lathrop-Manteca Fire District have been evaluated. The evaluation compares the annual public costs of providing public services to the project against the annual tax revenues that will be generated by the project. The evaluation is contained in a separate stand-alone fiscal report prepared for the City of Lathrop by Goodwin Consulting Group and is not part of this EIR. The report is available for review by the public at the City of Lathrop Community Development Department, 16775 Howland Road - Suite One, Lathrop, CA 95330, or by calling Deanna Walsh, Principal Planner, (209) 858-2860, ext. 269.

Pursuant to CEQA and the State CEQA Guidelines, a Lead Agency may limit the 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, field work, preparation of an Initial Study (see Appendix A), a review of the project, feedback from ongoing public and agency consultation, and comments received on the Notice of Preparation (NOP) (see Appendix A of this EIR). Following the issuance of the NOP, comments were received and reviewed to determine the final scope of the EIR. As a result of the scoping process and further analysis, it was determined that the following nine environmental issues did not need further evaluation in this EIR.

- Aesthetics
- Agricultural Resources
- Land Use/Planning
- Hazards/Hazardous Materials
- Recreation
- Population/Housing
- Mineral Resources
- Geology/Soils
- Odors

The above listed environmental issues were not evaluated further in this EIR for the following reasons: (1) the issues were fully evaluated in the EIRs for the WLSP and Master Plan; and/or (2) the proposed Mossdale Landing would not result in significant impacts involving these issues. See the Initial Study prepared for the proposed project, included in its entirety as Appendix A of this EIR, for discussion of the specific reasons why each of the environmental issues listed above was excluded from further evaluation in this EIR.

Of the nine environmental issues identified above, the WLSP EIR indicated that the WLSP would result in significant unavoidable impacts to aesthetics (light/glare), agricultural resources (farmland conversion) and geology (liquefaction), while the Master Plan EIR indicated that the Master Plan would result in significant unavoidable agricultural resources (farmland conversion) and odor impacts. Although the proposed Mossdale Landing project would not exacerbate these impacts, it would contribute to them as part of the development assumed under the WLSP and the Master Plan. Therefore, the fact that the Mossdale Landing project would contribute to these impacts is discussed in Chapter 7 of this EIR, Significant Unavoidable Adverse Impacts.

The one exception to the above is geology (liquefaction). While the WLSP EIR identified liquefaction as a potentially significant and unavoidable adverse impact of the WLSP, new evidence suggests that this impact would be less than significant under the proposed project. A geotechnical report was prepared for the Mossdale Landing project by Kleinfelder, Inc. entitled "Summary of Geotechnical and Groundwater Studies - Terry and Adjacent Properties, Lathrop, California: (June 22, 2001). The report, on file for review by the public at the City of Lathrop Community Development Department, re-evaluated the liquefaction potential of the project site at a project-level (versus the programmatic level of analysis contained in the WLSP EIR). Below is an excerpt from pages 12 and 13 of the report:

The project site and its vicinity are located in an area traditionally characterized by low seismic activity. Historical records suggest that the site will likely be subject to moderate seismic shaking at least once during the design life of the project. A Seismic Shaking Hazard Map (1999) developed by the California Department of Mines and Geology (Map Sheet 48) places the project site in an area with a peak horizontal ground acceleration (10 percent probability of exceedence in 50 years) of between 0.15g and 0.20g. A deterministic evaluation using an attenuation relationship developed by Boore, Joyner, Formal (1993, 1994) indicated the potential for a peak ground acceleration of 0.19g.

Earthquakes are caused by the sudden displacement of earth along faults with a consequent release of stored strain energy. The fault slippage can often extend to the ground surface where it is manifested by sudden and abrupt relative ground displacement. Damage resulting from fault rupture occurs only where structures are located astride the fault traces that move. The subject site is not located within, nor is it adjacent to, any Fault-Rupture Hazard Zones (formerly Alquist-Priolo Special Studies Zones) (Hard 1990). The closest known active fault to the site is the Greenville fault, located about 35 miles to the southwest.

A common secondary hazard as a result of strong ground shaking is the potential for soil liquefaction and subsidence. Liquefaction describes a phenomenon in which saturated soil loses shear strength and deforms as a result of increased pore water pressure induced by strong ground shaking during an earthquake. Dissipation of the excess pore pressures will produce volume changes within the liquefied soil layer, which can manifest at the ground surface as settlement of structures, floating of buried structures, and failure of retaining walls. Factors known to influence liquefaction include soil type, grain size, relative density, confining pressure, depth to groundwater, and the intensity and duration of ground shaking. Soils most susceptible to liquefaction are saturated, loose sandy soils.

The potential for an earthquake with the intensity and duration characteristics capable of promoting liquefaction is a possibility during the design life of the project. A majority of the subsurface soils encountered during our investigation are generally high in clay content, relatively dense, and consequently not susceptible to liquefaction. However, discontinuous or localized strata of loose to medium dense silty sands were encountered in the deeper CPT soundings. Results of our evaluation (Seed 1985) indicate these sand strata, where located below groundwater, may have a potential for liquefaction in the event of a large magnitude earthquake along the CRSBBZ or Greenville faults. Presented in Appendix B is a summary of our calculations. The potential for liquefaction generated by the more distant faults to the west and southwest is considered remote. Based on empirical procedures developed by Seed and Tokimatsu (1984), we estimate that seismically-induced settlement at the top of the liquefiable sand layers could be in the range of 1 inch or less. Liquefaction is not expected to be widespread since potentially liquefiable sand layers are discontinuous and confined. Furthermore, ground surface settlements should be significantly less due to bridging effects within the overlying soil. For these reasons, we do not feel that any mitigation measures are warranted.

Based on the above, the Mossdale Landing project would not contribute to any significant unavoidable adverse liquefaction impacts of the WLSP. Therefore, this impact is not identified as a significant unavoidable adverse impact of the project in Chapter 7.

1.4 AGENCY ROLES AND RESPONSIBILITIES

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.

A Responsible Agency is an agency, other than the Lead Agency, that has a legal responsibility for reviewing, carrying out, or approving elements of a project. Responsible Agencies must review the Lead Agency's CEQA document, and use the document when making a decision on project elements. Several agencies may have responsibility and/or jurisdiction over the implementation of elements of the proposed project. These agencies may include the following:

Overall Project Approval (Lead Agency)

City of Lathrop

- Certified EIR
- Urban Design Concept (UDC)
- Vesting Tentative Tract Map
- Development Agreement
- Final Map
- Neighborhood Design Review
- Building Permits
- Gold Rush Boulevard Precise Plan Line (PPL)
- Williamson Act contract cancellations

Federal Actions/Permits

U. S. Fish and Wildlife Service (USFWS)

- Potential incidental take permit (not anticipated as required at this time)
- Potential Federal Endangered Species Act formal/informal consultation (not anticipated as required at this time)

National Marine Fisheries Service (NMFS)

- Potential incidental take permit (not anticipated as required at this time)
- Potential Federal Endangered Species Act formal/informal consultation (not anticipated as required at this time)

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 & Harbors Act Permit for work in navigable Waters of the U.S.
- Nationwide Permit 33 for any dewatering
- Nationwide Permit 25 for any structural discharge

State Actions/Permits

Regional Water Quality Control Board - Central Valley Region #5 (RWQCB)

- National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit
- Discharge Permit for Stormwater
- Potential Discharge Permit for Wastewater
- General Order for Dewatering
- Section 401 Clean Water Act certification of 404 permits

State Department of Health Services

- Permit for land application of recycled water

California Department of Fish and Game (CDFG)

- Potential incidental take permit
- Potential California Endangered Species Act informal/formal consultation

California Department of Water Resources (State Reclamation Board)

- Encroachment permit to work on or adjacent to levees.

Regional/Local Actions/Permits

San Joaquin County

- Permit for land application of recycled water

Reclamation Districts Nos. 2107 and 2602

- Encroachment Permit to work on or adjacent to levees

COG/City of Lathrop

- San Joaquin County Multi-Species Habitat and Open Space Conservation Plan

San Joaquin Local Agency Formation Commission (LAFCO)

- Potential reconsideration of Annexation of WLSP area to City of Lathrop[3]

1.5 STANDARD TERMINOLOGY/ACRONYMS

This EIR uses the following terminology and acronyms.

1.5.1 STANDARD TERMINOLOGY

"no impact" means the project will not change from existing environmental conditions and no impact will occur;

"less-than-significant impact" means no substantial adverse change in the physical environment (no mitigation needed);

"potentially significant impact" means an impact that would potentially cause a substantial adverse change in the physical environment (mitigation is recommended, as potentially significant impacts are treated as significant physical in the absence of mitigation);

"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 cannot be avoided or reduced to a less-than-significant level, even with the implementation of mitigation;

"Master Plan" means the proposed 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);

"proposed project" means the Mossdale Landing Urban Design Concept, related entitlements and Gold Rush Boulevard Precise Plan Line (PPL);

"UDC" means Urban Design Concept;

"project site" means the area covered by the Mossdale Landing UDC; and

"West Lathrop Specific Plan" or "WLSP" refers to the master planned residential specific plan approved by the City in 1996 that covers the Stewart Tract and Mossdale Village.

[3] LAFCO approved the annexation of the WLSP area, including Mossdale Landing, to the City in October 1996. A lawsuit challenging LAFCO's reliance on the certified FEIR 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 EIR would also be available for its use.

1.5.2 ACRONYMS

ac-ft . . . . . acre-feet
ac-ft/yr . . . . . acre-feet per year
ADWF . . . . . Average Dry Weather Flow
AF . . . . . acre-feet
AFY . . . . . acre-feet per year
bgs . . . . . below ground surface
BMPs . . . . . Best Management Practices
BOD . . . . . biochemical oxygen demand
Caltrans . . . . . California Department of Transportation
CARB . . . . . California Air Resources Board
CDFG . . . . . California Department of Fish and Game
CEQA . . . . . California Environmental Quality Act
cfs . . . . . cubic feet per second
City . . . . . City of Lathrop
CNDDB . . . . . California Natural Diversity Data Base
CNPS . . . . . California Native Plant Society
CO . . . . . carbon monoxide
cps . . . . . cycle per second
CVRWQCB . . Central Valley Region Water Quality Control Board
CWA . . . . . Clean Water Act
dB . . . . . decibels
DEIR . . . . . draft environmental impact report
DFIA . . . . . Deferred Frontage Improvement Agreement
DHS . . . . . California Department of Health Services
du . . . . . dwelling unit
EC . . . . . electrical conductivity
EIR . . . . . environmental impact report
EPA . . . . . Environmental Protection Agency
FAR . . . . . floor to area ratio
FEMA . . . . . Federal Emergency Management Agency
FIRM . . . . . Flood Insurance Rate Maps
gpm . . . . . gallons per minute
Hz . . . . . hertz
HAP . . . . . Hazardous Air Pollutant
I-5 . . . . . Interstate 5
ISO . . . . . Insurance Services Offices
kW . . . . . kilowatt
kWh . . . . . kilowatt hours
kWh/day . . . . . kilowatt hours per day
lbs/day . . . . . pounds per day
L_{dn} . . . . . Day/Night Average Sound Level
LMFD . . . . . Lathrop-Manteca Fire District
LOS . . . . . Level of Service

M&S . . . . . MacKay & Somps
Mcf . . . . . million cubic feet
MCLs . . . . . maximum contaminant levels
mgd . . . . . million gallons per day
mg/l . . . . . milligrams per liter
mph . . . . . miles per hour
MPN . . . . . most probable number
MRP . . . . . Monitoring and Reporting Program
msl . . . . . mean sea level
MUSD . . . . . Manteca Unified School District
NMFS . . . . . National Marine Fisheries Service
NO_2 . . . . . nitrogen dioxide
NOP . . . . . Notice of Preparation
NPDES . . . . . National Pollutant Discharge Elimination System
NTS . . . . . national turbidity unit
NURP . . . . . National Urban Runoff Program
PG&E . . . . . Pacific Gas & Electric
PM . . . . . particulate matter
PM_{10} . . . . . particulate matter with a diameter of less than 10 micrometers
$PM_{2.5}$ . . . . . particulate matter with a diameter of less than 2.5 micrometers
POC . . . . . points of connection
PPL . . . . . Precise Plan Line
ppm . . . . . parts per million
psi . . . . . pounds per square inch
PSRs . . . . . Project Study Reports
P.U.E. . . . . public utility easement
PUH . . . . . Pacific Union Homes
RD17 . . . . . Reclamation District 17
ROG . . . . . reactive organic gases
ROWD . . . . . report of waste discharge
RWQCB . . . . . Regional Water Quality Control Board
SB . . . . . Senate Bill
SCSWSP . . . . South County Surface Water Supply Project
SEIR . . . . . subsequent EIR
SJR . . . . . San Joaquin River
SJVAB . . . . . San Joaquin Valley Air Basin
SJVAPCD . . . San Joaquin Valley Air Pollution Control District
SNARL . . . . . suggested no-adverse response level
SO_2 . . . . . sulphur dioxide
SOHP . . . . . State Office of Historic Preservation
SOI . . . . . Sphere of Influence
SR . . . . . State Route
SSJID . . . . . South San Joaquin Irrigation District
SWMP . . . . . Solid Waste Management Plan
SWRCB . . . . . State Water Resources Control Board

SWPPP . . . . . Storm Water Pollution Prevention Plan
TAC . . . . . Toxic Air Contaminant
TMDLs . . . . . Total maximum daily loads
TDS . . . . . total dissolved solids
TRB . . . . . Transportation Research Board
TSS . . . . . total suspended solids
UDC . . . . . Urban Design Concept
UPRR . . . . . Union Pacific Railroad
USACE . . . . . U.S. Army Corps of Engineers
U.S. EPA . . . . U.S. Environmental Protection Agency
USFWS . . . . . U.S. Fish and Wildlife Service
WDP . . . . . waste discharge permit
WDRs . . . . . Waste Discharge Requirements
WHR . . . . . Wildlife Habitat Relationships
WLSP . . . . . West Lathrop Specific Plan
WQA . . . . . Water Quality Act
WQCF . . . . . Water Quality Control Facility
WRP . . . . . Wastewater Recycling Plant

1.6 INCORPORATION BY REFERENCE

In accordance with §15150 of the State CEQA Guidelines, this EIR incorporates several documents by reference. These include:

- Grunwald & Associates. 1995 (July and October). Draft EIR and Final EIR for the West Lathrop Specific Plan. Prepared for the City of Lathrop.
- EDAW, Inc. 2001 (March and June). Draft EIR and Final EIR for the Lathrop Water, Wastewater and Recycled Water Master Plan. Prepared for the City of Lathrop.
- PBR. 1995 (October). West Lathrop Specific Plan. Prepared for the City of Lathrop.
- Nolte Associates, Inc. 2001 (February). Lathrop Water, Wastewater, and Recycled Water Master Plan. Prepared for the City of Lathrop.

These documents are referenced, and their elements are discussed and summarized, throughout this EIR where appropriate. Copies of each of these documents are available for review at the City of Lathrop Community Development Department, 16775 Howland Road - Suite One, Lathrop, California 95330 (209/858-2860, extension 269).

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2 SUMMARY

2.1 INTRODUCTION

This summary is provided in accordance with State CEQA Guidelines §15123. As stated in §15123(a), "an EIR shall contain a brief summary of the proposed actions and its consequences. The language of the summary should be as clear and simple as reasonably practical." As required by the Guidelines, this section includes: (1) a summary description of the proposed project; (2) a synopsis of environmental impacts and recommended mitigation measures (in tabular form); (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 ACTION

PROJECT BACKGROUND

The City of Lathrop was incorporated in July 1989 and adopted a General Plan in December 1991. In 1996, the City adopted the West Lathrop Specific Plan (WLSP). The WLSP area, which was annexed to the City in 1997, covers an estimated 6,996 acres of farmland, riparian area and open space in an area generally bounded by Interstate 5 (I-5), Old River, Paradise Cut, and Louise Avenue. The WLSP subdivided the WLSP area into two Development Concept Plan areas; the Stewart Tract, a 5,794-acre area planned as a region-serving, recreation-oriented mixed use development generally west of the San Joaquin River (SJR); and Mossdale Village, a 1,161-acre area planned for residential and associated village, service, and highway commercial uses between I-5 and the SJR. The project site is located within the Mossdale Village Development Concept Area. It is designated by the WLSP as Residential Low, Residential Medium, Public, Service Commercial, Village Commercial, and Roadways. It is zoned R-MV (Single Family Residential) RM-MV (Multi-Family Residential), CS-MC (Service Commercial), CV-MV (Village Commercial), and OS (Open Space). The proposed Mossdale Landing project would represent the first development project under the WLSP. City of Lathrop Community Development Department staff have determined that the Mossdale Landing project appears to be consistent with the WLSP.

The project site is subject to the Urban Design Concept (UDC) requirements of the WLSP, which requires that each development project in the WLSP area include a UDC document setting forth the design and development guidelines under which development is to take place. These design and development guidelines must be consistent with those set forth in the WLSP. A UDC has been prepared for the proposed Mossdale Landing project. It is available for review at the City of Lathrop Community Development Department, 16775 Howland Road, Suite One, Lathrop, CA 95330. City of Lathrop Community Development Department staff have worked with the project applicant to prepare the UDC, and have determined that the UDC is consistent with the design and development guidelines set forth in the WLSP.

The project site is currently in agricultural uses, and would be converted to urban uses under the proposed project.

PROJECT GOALS AND OBJECTIVES

The goal of the proposed Mossdale Landing project is to create a mixed-use, master-planned community. The objectives of the proposed project are listed below:

- Add to the economic vitality of Lathrop by providing more local homes, mobs, and revenue-generating land uses.
- Provide public improvements required for each phase of the proposed development.
- Provide diverse types of housing in Mossdale Village that responds to current local and regional needs and the needs to be generated by future development in the WLSP area.
- Provide community services that meet the varied needs of the proposed residential component of the proposed project.
- Link key activities, such as schools, parks and retail, with landscaped parkways or pedestrian- and bicycle-oriented corridors to encourage non-vehicular circulation.
- Focus neighborhoods around local schools and parks.
- Establish distinctive gateways that welcome travelers to the proposed project.
- Enrich Lathrop's way-of-life along the SJR by including open space, access and recreation along the River.
- Create a park, trail and open space system that links to Citywide and regional systems.

PROJECT CHARACTERISTICS

The project would be developed as a mixed use residential community consisting of 16 neighborhoods. The project would include 1,690 residential units, 653,399 square feet of commercial uses, 39 acres of parks, two elementary schools, an interim fire station on a 0.4 acre site, 13.8 acres of levee/open space, and 52.2 acres of major streets. The residential uses would include 1,238 low-density residential units, 330 medium-density residential units, 122 apartments. The commercial uses would include 175,111 square feet of Village Commercial ("Main Street", retail sales, service retail, restaurant, entertainment, office, etc.) and 478,288 square feet of Service Commercial (service commercial, service retail regional-oriented retail, etc.). A fully improved roadway system would be developed to provide access to the project, including arterials, collectors, a commercial "Main Street, residential streets, sidewalks, and bikeways. Walls and fences would be developed at strategic points within the project to separate project neighborhoods from arterial streets, and to provide sound attenuation, security and privacy.

Drainage for the project would be accommodated by the development of an on-site storm dray system which would collect, retain, and pump runoff during peak storm events to the SJR. Best Management Practices (BMPs) would be incorporated into the drainage system to reduce urban contaminants in the runoff before being discharged to the SJR.

Water and wastewater treatment service would be provided to the project through the development of water and sewer pipelines from the project site to the City's municipal water and sewer systems. Wastewater disposal service would be provided through on-site land disposal of tertiary-treated wastewater for the majority of the project (i.e., "interim development"), and off-site land or river disposal for the incremental increase in wastewater generated by the balance of the project (i.e., "buildout").

The project would be developed in several phases over an eight year period (2003 through 2010).

APPROVALS, ENTITLEMENTS, AND PERMITS REQUIRED

Possible approvals entitlements, and permits required from the City for the proposed project include:

- Certified EIR
- Urban Design Concept (UDC)
- Vesting Tentative Tract Map
- Development Agreement
- Final Map
- Neighborhood Design Review
- Building Permits
- Gold Rush Boulevard Precise Plan Line (PPL)
- Williamson Act Contract Cancellations

Possible approvals, entitlements, and permits required from responsible and trustee agencies for the proposed project include:

- Williamson Act Cancellation (from San Joaquin County)
- Reclamation Board Permit (to construct on levee)
- Potential Federal Endangered Species Act consultation and incidental take permit (not anticipated as required at this time) from the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS)
- Potential State Endangered Species Act take permit (not anticipated as required at this time) from California Department of Fish & Game (CDFG)
- Section 404 of Clean Water Act - discharge or fill of Waters of the U.S. from the U.S. Army Corps of Engineers (USACE)
- Nationwide Permit 33 for any dewatering from USACE
- Nationwide Permit 25 for any structural discharge from USACE
- Encroachment Permit for construction that could affect a state highway from the California Department of Transportation (Caltrans)
- Section 401 of the Clean Water Act - certification of 404 permits from the Regional Water Quality Control Board (RWQCB)

- Potential reconsideration of Annexation of WLSP area to City of Lathrop from the San Joaquin Local Agency Formation Commission (LAFCO

2.3 ENVIRONMENTAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

Table 2-1, located 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 the implementation of the mitigation measures.

The project would result in project-level significant unavoidable adverse impacts in five areas (traffic, air quality, noise, farmland conversion, light/glare). The project would also contribute to cumulative significant unavoidable adverse impacts in six areas (traffic, air quality, noise, public services, fisheries, odors)). Finally, the project would result in significant growth-inducing impacts.

2.4 SUMMARY OF ALTERNATIVES

This DEIR evaluates three alternatives to the proposed project as listed below:

- No Project (No Development) Alternative
- Interim Development Only Alternative
- Environmental Constraints Alternative

The No Project (No Development) Alternative would be the environmentally superior alternative. CEQA requires that if the No Project Alternative is identified as the environmentally superior alternative, an environmentally superior alternative should be identified from among the remaining alternatives. Consistent with this requirement, the Environmental Constraints Alternative is identified as the environmentally superior alternative, although it would not avoid any of the significant unavoidable adverse impacts of the proposed project. This alternative would result in less impacts than the proposed project in four areas (traffic, air quality, terrestrial biology, and cultural resources).

2.5 AREAS OF CONTROVERSY

A Notice of Preparation (NOP) was issued for the project by the City of Lathrop on May 7, 2001(see Appendix A of this EIR). 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. The public review period for the NOP ended 30 days after public distribution of the NOP. All of the issued raised in the NOP comment letters (also included in Appendix A of this EIR) have been addressed in this EIR.

Based on a review of the NOP comments and inquiries received from the City by regulatory agencies and the public, specific areas of controversy have not been raised concerning the Mossdale Landing project. However, the project represents the first development project under the greater West Lathrop Specific Plan (WLSP). The ULSP was the subject of controversy and litigation when it was adopted. The controversy manifested

itself as general opposition to development of the urban uses west of the I-5, debate concerning whether residential or commercial development should come first (with certain members of the public requesting a comittment that a portion of the commercial development precede the residential development), and potential environmental impacts on the existing community (i.e., traffic, air quality, noise, public services, water consumption, etc.).

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TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
4.1 FLOOD CONTROL/DRAINAGE			
4.1-a: Flood Control/Drainage - Develop Housing Within a 100-Year Floodplain, and/or Impede/Redirect 100-year Flood Flows. The project is not located within a FEMA 100-year floodplain, and thus would not place housing within a 100-year flood hazard area or impede/redirect 100-year storm flows. **No impact** would occur.	NI	No mitigation measures are necessary.	LTS
4.1-b: Flood Control/Drainage - Increased Surface Runoff. The proposed project would increase the amount of stormwater runoff generated on the project site, thus requiring the installation of a high capacity storm drain system. The project would be built in accordance with City standards and would have adequate capacity to safely convey stormwater runoff through and off the project site without resulting in on- or offsite flooding. Furthermore, the incremental increase in runoff generated on the project site and discharged to the San Joaquin River would not substantially increase flows in the river in a manner that would cause flooding at or downstream of the project site. Therefore, a **less-than-significant** impact would occur.	LTS	No mitigation measures are necessary.	LTS
4.1-c: Flood Control/Drainage - Expose People or Structures to a Significant Risk of Flooding, Including Flooding as a Result of the Failure of a Levee. The proposed project would not expose people or structures to a significant risk of flooding, including flooding as a result of the failure of a levee, because the east levee of the San Joaquin River (SJR) has been constructed consistent with all applicable requirements, has been improved in recent years by RD17 and the U.S. Army Corps of Engineers (USACE) consistent with the latest levee design and construction practices, and has resulted in FEMA removing the greater Mossdale Village area from the 100-year floodplain. Furthermore, there is no substantial evidence to suggest that levee failure in the area of the project site is likely or that the Lathrop segment of the levee is more prone to	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
failure than in other areas, and the proposed project would do nothing to increase the potential for levee failure. Finally, the proposed project would: (1) place toe drains along the landside levee frontage which would divert seepage into the project's proposed storm drain system and thus avoid any seepage which might still be occurring since improvement of the levee by RD17 and the USACE; and (2) provide under-curb subdrains along project roadways, and tile drain systems under detention basins, to mitigate the impact of high groundwater. Therefore, a **less-than-significant** impact would occur.			
4.1-d: Flood Control/Drainage - Erosion/Siltation Impacts on the Effectiveness of Drainage Facilities. On-site soils disturbed during construction could be eroded into existing or proposed drainage facilities, thus potentially reducing the capacity of these facilities. However, the project includes proposals for a comprehensive set of Best Management Practices (BMPs) to reduce siltation and contaminants in project runoff. In addition, the project will be subject to NPDES permitting and Storm Water Pollution Prevention Plan (SWPPP) requirements whereby the RWQCB will identify additional measures, if any, required to avoid substantial erosion/siltation during construction. Therefore, a **less-than-significant** impact would occur.	LTS	No mitigation measures are necessary.	LTS
4.1-e: Flood Control/Drainage - Impacts to Existing Drainage Infrastructure. An existing 36" pipeline in Louise Avenue bisects the project site. . The existing pipeline and an associated pump station serve properties to the east of I-5. The Mossdale Landing project would not connect to or disturb the existing pipeline or pump station. Therefore, **no impact** would occur.	NI	No mitigation measures are necessary.	NI
4.2 SURFACE WATER QUALITY - STORMWATER RUNOFF			
4.2-a: Surface Water Quality - Stormwater Runoff (Operation). The proposed project would generate urban pollutants that could be carried to	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
the SJR in stormwater runoff. Proposed BMPs, which are designed to remove constituents from runoff, would substantially improve runoff water quality compared with existing agricultural runoff. Although the project could result in an increase in the load of two pollutants in this runoff for which the SJR is listed as "impaired" (selenium and diazinon), this additional load would not cause a measurable violation of enforceable water quality standards or violate potential NPDES permit requirements. On balance, runoff water quality would be improved. Therefore, stormwater runoff from the project would result in a **less-than-significant** water quality impact on the SJR.			
4.2-b: Surface Water Quality - Stormwater Runoff (Construction). Project construction activities could temporarily increase the amount of suspended solids and other pollutants in stormwater draining to the SJR. However, as required under the NPDES General Permit for Construction activities, the applicant is required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) detailing BMPs to avoid significant surface water quality impacts. The surface water quality impacts to the SJR associated with construction of the proposed project would be **less than significant** with implementation of the required SWPPP.	LTS	No mitigation measures are necessary.	LTS
4.2-c: Surface Water Quality - Proposed Best Management Practices (BMPs). The Mossdale Landing UDC identifies a comprehensive set of proposed BMPs to reduce contaminants in surface water runoff from the project site. Because the UDC does not identify the party or parties responsible for implementation of some of the proposed BMPs, and because the UDC indicates that the proposed BMPs would be implemented during only the first phases of development (after which BMPs would be implemented as required by a future Master Storm Water Quality Management Plan), there is no guarantee that all the BMPs would be implemented and substantial pollutants could be released in runnoff. This would represent a **significant** impact.	S	The project applicant shall implement the following measures with respect to the BMPs proposed in the Mossdale Landing UDC Document and described under the "Project Proposals" subheading of Section 4.2 of this EIR: C Responsibilities for Implementation of Proposed BMPs. For those proposed Best Management Practices (BMPs) identified under the "Project Proposals" subheading of Section 4.2 of the EIR where specific responsible parties or funding sources are not identified in the BMP itself: (1)	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		the developers of each project under the UDC shall be responsible for the physical improvements associated with each BMP; and (2) the homeowner associations and/or other entities established associated with each development under the UDC shall be responsible for the programmatic measures associated with the BMPs. These responsibilities shall be spelled out by the City in the conditions of approval for each development project under the UDC. C Implementation of Proposed BMPs During All Project Phases. The proposed Best Management Practices (BMPs) listed under the "Project Proposals" subheading of Section 4.2 of the EIR shall be implemented during all phases of the proposed project rather than during only the early phases of the proposed project.	
4.3 SURFACE WATER QUALITY - RECYCLED WATER			
4.3-a: Surface Water Quality - Effects of Recycled Water Use (Construction). Recycled water would not be disposed of at the project site during construction. Therefore, **no impacts** would occur	NI	No mitigation measures are necessary.	NI
4.3-b: Surface Water Quality - Effects on Public Health of Recycled Water Use (Operation). Recycled water would be disinfected and tertiary treated to Title 22 standards for unrestricted use prior to land application under the Mossdale Landing project. The State of California (Department of Health Services) has determined that the use of such recycled water for crop landscape irrigation does not represent a public health hazard. Furthermore, the use of such recycled water is consistent with, and would not cause violations of, water quality standards designed to protect public	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
health. Therefore, the use of recycled water for irrigation under the proposed project would represent a **less-than-significant** public health impact.			
4.3-c: Surface Water Quality - Potential for Violation of Water Quality Standards (Operation). The proposed storage and use of recycled water at the project site would occur consistent with the discharge permit to be issued for the proposed discharge by the RWQCB, the treatment, application and design requirements of the State of California (Department of Health Services). These permits would require compliance with water quality standards. Therefore, the proposed storage/use of recycled water would not violate water quality standards, and a **less-than-significant** impact would occur.	LTS	No mitigation measures are necessary.	LTS
4.3-d: Surface Water Quality - Effects on Receiving Water Quality of Recycled Water Use (Operation). Runoff from areas of the project site where recycled water is to be applied could potentially drain to the San Joaquin River and affect river water quality. However, the high level of treatment to be applied to the recycled water, the pollutant reduction capacity of the soil and plant matter onto which the recycled water is to be applied, the proposed application of the recycled water at the agronomic rate, the fact that all stormwater would first pass through the project's proposed BMPs, and the existence of the east levee between the river and the project site that would avoid gravity flow of recycled water (or stormwater containing recycled water) to the river, would combine to result in **less-than-significant** water quality impacts to the river.	LTS	No mitigation measures are necessary.	LTS
4.4 GROUNDWATER QUALITY			
4.4-a: Groundwater Quality - Construction Activity Impacts on Groundwater Quality. Project construction activities, specifically excavations, could potentially intersect with shallow groundwater and require dewatering. One of two potential disposal options for the disposal	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
of such water would be land disposal with subsequent percolation back to the groundwater. Because project dewatering activities would not degrade the quality of the water being removed the eventual percolation of said water back to the groundwater would not degrade groundwater quality or result in an exceedance of groundwater quality goals/standards. Therefore, a **less-than-significant** impact would occur.			
4.4-b: Groundwater Quality - Stormwater Runoff Impacts on Groundwater Quality. The proposed project would generate first flush urban stormwater runoff that could contain pollutants that, if allowed to percolate to the groundwater, could degrade the quality of said groundwater. However, such a potential would be partially offset by an overall reduction in percolation at the project site as a result of project development, and by the eventual elimination of the use of agricultural pesticides, herbicides, and fertilizers at the site. In addition, best management practices (BMPs) to be employed to reduce contaminants in project site runoff, along with hydrologic conditions underlying the project site (i.e., slow percolation rates, 150-foot depth to groundwater used as a potable water supply), would avoid percolation of said contaminants to the groundwater, would avoid degradation of the groundwater, and would avoid exceedance of applicable groundwater quality goals/standards. Therefore, a **less-than-significant** impact would occur.	LTS	No mitigation measures are necessary.	LTS
4.4-c: Groundwater Quality - Recycled Water Impacts on Groundwater Quality. Recycled water to be generated by the proposed project would meet all applicable water quality standards and waste discharge requirements for its use/disposal. These standards and requirements are health based and designed to avoid public health hazards. In addition, because the recycled water to be land disposed would be tertiary treated and applied at the agronomic rates, and because of the depth to potable groundwater (150 feet) the application of recycled water would not result in the percolation of pollutants to potable groundwater.	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
Therefore, the proposed storage/disposal of recycled water at the project site would result in a **less-than-significant** groundwater quality impact.			
4.5 TRAFFIC			
4.5-a: Traffic - Degradation of LOS at Signalized Intersections. The proposed project would degrade operation at the Louise Avenue/I-5 Northbound Ramps intersection from acceptable operation to an unacceptable LOS E during the AM peak hour and to an unacceptable LOS F during the PM peak hour. The project would also degrade acceptable operation at the Louise Avenue/I-5 Southbound Ramps intersection to an unacceptable LOS F during both the AM and PM peak traffic hours. These would be **significant** impacts.	S	The project applicant shall pay the fair share cost for the following improvements, as determined by the WLSP Fair-Share Traffic Improvement Program, at a time to be determined by the traffic monitoring program discussed under Mitigation Measure 4.5-l: **Louise Avenue/I-5 Southbound Ramps** • Provide two additional through lanes and an additional right turn lane on the Louise Avenue eastbound intersection approach (extending from Manthey Road). • Provide an additional through lane on the Louise Avenue westbound intersection approach (extending from the I-5 Northbound Ramps intersection). **Louise Avenue/I-5 Northbound Ramps** • Provide an additional through lane on the Louise Avenue westbound intersection approach.	LTS
4.5-b: Traffic - Degradation of LOS at Existing Unsignalized Intersections and Unacceptable Operation at New Unsignalized Intersections. The proposed project would degrade operation of the Louise Avenue/Manthey Road all-way-stop intersection to an unacceptable LOS F during both the AM and PM peak traffic hours. In addition, the proposed Manthey Road/Main Street all-way-stop intersection would be operate unacceptably at LOS F during both the AM and PM peak traffic	S	The project applicant shall pay the fair share cost for the following improvements at a time to be determined by the traffic monitoring program discussed under Mitigation Measure 4.5-l: **Louise Avenue/Manthey Road** • Provide signalization when warranted.	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
hours. Finally, volumes would exceed peak hour signal warrant criteria levels during both time periods at both these locations. These would be **significant** impacts.		• Provide exclusive left turn lanes on the north, south and eastbound intersection approaches. • Provide two exclusive left turn lanes on the Louise Avenue westbound intersection approach (extending to the Southbound Ramps intersection). • Provide a second southbound departure lane on the intersection's Manthey Road south leg. This second southbound lane should be extended to the Main Street intersection. • Provide an exclusive right turn lane on the Manthey Road northbound intersection approach and stripe the through lane to also allow right turns.	
4.5-c: Traffic - Vehicle Backups Extending From One Intersection Through an Adjacent Intersection. The proposed project would produce queues on the approaches to the Louise Avenue/I-5 Northbound Ramps, Louise Avenue/I-5 Southbound Ramps and Louise Avenue/Manthey Road/Gold Rush Boulevard intersections that would extend through adjacent intersections or would back out of the available turn pocket storage lengths during both the AM and PM peak hours. These would be **significant** impacts.	S	The project applicant shall pay the fair share cost to Provide added approach and departure lanes as listed in Mitigation Measures 4.5-a and 4.5-b. at a time to be determined by the traffic monitoring program discussed under Mitigation Measure 4.5-l. • Move the Manthey Road connection to Louise Avenue at least 300 feet to the west.	LTS
4.5-d: Traffic - Lack of Both Right and Left Turn Deceleration Lanes on Approaches to Manthey Road Intersections and Driveways. The lack of right and left turn deceleration lanes on the approaches to all intersections and driveways along Manthey Road would result in both operational and safety concerns, due to the increased potential for rear-end accidents and unsafe passing maneuvers. This would be a **significant** impact.	S	The project applicant shall provide left and right turn deceleration lanes on the Manthey Road approaches to all roadway and driveway intersections.	LTS
4.5-e: Traffic - Manthey Road Pavement Condition Could Deteriorate	S	The project applicant and the City of Lathrop	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Significantly with Proposed Volume Levels. Manthey Road would experience substantial increases in traffic between River Edge Drive and Louise Avenue (from more than 900 to over 2,000 vehicles per hour). These volume levels could significantly degrade the pavement condition of this frontage road. This would be a **significant** impact.		Department of Public Works shall survey pavement conditions along Manthey Road before and after each phase of residential, school and commercial construction associated with the proposed project. Any degradation to pavement conditions along Manthey Road shall be repaired at the applicant's expense to the satisfaction of the City.	
4.5-f: Traffic - Degradation of Freeway Operation. The addition of project traffic would not change LOS along any analyzed segments of I-5, I-205 or SR 120 to unacceptable levels. However, the project would increase AM and PM peak hour traffic by more than 1% along westbound I-205 (just west of I-5) during the AM peak hour and along eastbound I-205 (just west of I-5) during the PM peak hour, thus exacerbating unacceptable existing LOS E operations during both the AM and PM peak hours on this segment. Therefore, a **significant** impact would occur.	S	The project applicant shall pay its required regional traffic impact fee for its fair share contribution for already planned I-205 freeway improvements. Mitigation Measure 4.5-f would provide the project's share of the funding required for the needed I-205 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 by the proposed project is outside the scope of the project (i.e., is a regional improvement), the Mossdale Landing project would result in **significant unavoidable** (temporary) traffic impacts to the I-205 (I-5 to MacArthur segment) until said improvements are completed.	SU (temporary)
4.5-g: Traffic - Construction Traffic Impacts. During the eight-year course of project development there would be an additional increment of project-related traffic associated with ongoing construction. Given the applicant's desire to construct approximately 200 residential units per year, from 100 to more than 300 construction workers could be on site at any given time. This would result in a flow of 80 or 90 to more than 300 vehicles into the site during the AM peak hour and the same number of vehicles leaving the site during the PM peak hour. Virtually all these	S	Project construction worker commute traffic shall be scheduled on the Lathrop roadway system such that it avoids the peak hours of 6:45-8:15 AM and 4:15-5:45 PM. This mitigation measure would reduce Impact 4.5-g to less-than-significant levels.	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
vehicles would travel through the Louise Avenue/I-5 interchange. In addition, material deliveries and infrequent heavy-equipment movements would occur throughout daylight hours. These levels of construction-related traffic could intermittently degrade operation of the Louise Avenue/I-5 north and/or southbound ramps intersections to unacceptable levels during peak construction seasons during either the AM or PM peak traffic hours. This would represent a **significant** impact.			
4.5-h: Traffic - Proposed Internal Circulation Plan. The proposed internal circulation plan would function acceptably with a few exceptions. These exceptions would represent traffic hazards and a **significant** impact.	S	The project applicant shall undertake the following revisions of the project site plan and UDC prior to UDC approval to ensure safe and efficient internal circulation: a) Eliminate the Red Barn Street connection to Mossdale Boulevard and connect the east end of Red Barn Street to Homestead Street, or prohibit left turn movements to/from Red Barn Street at Mossdale Boulevard. b) Eliminate the Pioneer Street connection to Mossdale Boulevard and connect Pioneer Street to Stage Coach Way, or prohibit left turn movements to/from Pioneer Street at Mossdale Boulevard. c) Provide adequate safety measures for pedestrian crossings at the traffic circle proposed for the Main Street/Mossdale Boulevard intersection. d) Increase the ultimate right-of-way and potential curb-to-curb width of the Main Street approaches to the Golden Valley Parkway ROW, Mossdale Boulevard and Louise Avenue to be the same as collector streets. Also, increase the ultimate right-	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		of-way of Main Street between the Golden Valley Parkway ROW and Manthey Road to accommodate five travel lanes and right turn deceleration lanes on the approaches to driveways and major streets. e) Provide rights-of-way on all major low density residential street connections to collector streets to allow a minimum 40-foot curb-to-curb width (which will allow two approach and one wide departure lane). f) Provide adequate right-of-way along Manthey Road to allow two wide through-travel lanes plus left and right turn deceleration lanes on the approaches to all commercial property driveways. g) Do not provide diagonal parking along Main Street within 150 to 200 feet of the Golden Valley Parkway ROW and the Mossdale Boulevard intersection. h) Provide 36-foot curb-to-curb widths through all curves along minor low density and medium density residential streets, or prohibit on-street parking along all curved sections of 32-foot curb-to-curb width streets. i) Consider provision of rights-of-way for at least one to two minor or major low density street extensions along the north and east project boundaries for the residential area north of the Golden Valley Parkway ROW. j) Provide right-of-way for the potential extension of	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		Homestead Street into the Silvera property to the west. k) Provide a conceptual plan showing efficient diversion of traffic between Main Street and village commercial parking areas. This may require more curb-to-curb width and right-of-way than currently planned for Main Street.	
4.5-i: Traffic - Pedestrian Circulation. The project's pedestrian circulation plan proposes sidewalks along both sides of all internal streets unless superseded by a Class I pedestrian/bicycle way. This proposed pedestrian circulation would be adequate to serve the proposed project. Therefore, a **less-than-significant** impact would occur.	LTS	No mitigation measures are necessary.	LTS
4.5-j: Traffic - Bicycle Circulation. The project's proposed bicycle circulation plan proposes a mix of multi-use trails (Class I pedestrian/bikeways) and bicycle lanes (Class II bikeways). The bicycle route plan channels bike riders along the highest traffic volume streets and through the highest volume intersections (with the exception of the river edge pathway). While such routing is necessary in many locations (due to the limited number of locations to cross arterial roadways), an alternative, potentially lower traffic volume route to Mossdale Boulevard (Louise Avenue) would exist to the south of the Mossdale Boulevard/Louise Avenue intersection. Failure to provide an alternate bike route along a direct, lower volume street would increase safety concerns. Also, no Class II bike lanes are shown extending along residential streets to the north project boundary or even into the neighborhood north of North Forty Parkway. These would represent a **significant** impact.	S	The project applicant shall provide bike lanes along North 40 Avenue and Mossdale Boulevard south of Louise Avenue, Class II bike lanes along at least one residential street leading to the north project boundary (or River Road North), and bike paths along Gold Rush Boulevard to the west of Mossdale Boulevard along most project frontages.	LTS
4.5-k: Traffic - Provisions for Public Transit. No provisions are provided in the residential or commercial area designs that would encourage use of public transit. This would potentially result in higher	S	The applicant shall incorporate the suggestions from the local transit agency into the final residential and commercial area circulation system designs to provide	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
traffic volumes on congested roadways, as transit would be less convenient. This would represent a **significant** impact.		extra street width and/or right-of-way where considered potentially needed for bus stops or to facilitate bus flow through the project (other than along arterial roadways).	
4.5-l: Traffic- Timing of, and Payment for, Required Traffic Improvements. There is a potential that the traffic improvements required by the mitigation measures in this section of the EIR will not be constructed when needed (i.e., when intersection operation at the identified intersections becomes unacceptable). There is also the potential that the City of Lathrop will not receive fair share payments from Mossdale Landing to pay for Mossdale Landing's fair share of the required traffic improvements. Either of these would represent a **significant** impact.	S	The project applicant shall undertake the following measures to ensure the proper timing of, and payment for, the traffic improvements required for the proposed project: C Traffic Monitoring Program. The project applicant shall commence traffic monitoring at the I-5/ Louise Avenue interchange and at the Louise Avenue/Manthey Road intersection starting with occupancy of the 50th on-site residential unit and continuing until all the traffic improvements required by mitigation in Section 4.5.3 of this EIR have been completed. The project applicant shall undertake similar traffic monitoring of the Manthey Road/Main Street intersection once Main Street is developed. The traffic monitoring program shall be developed by the applicant consistent with requirements to be identified by City of Lathrop Community Development Department and Public Works Department staff, and traffic shall be monitored on a yearly basis until completion of development. The program shall be used as the basis for determining when each of the traffic improvements required by the mitigation measures below are required to be implemented. Each traffic improvement required by mitigation listed below shall be undertaken when and/or if the traffic	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		monitoring program indicates that traffic conditions at the identified location will soon reach unacceptable LOS. The advance warning of impending unacceptable operations at each identified location shall be of a timeframe sufficient to allow for completion of the required improvement before the location reaches unacceptable operating conditions (the length of advance warning to be identified by the Public Works Department on a location-by-location basis). For any intersection that is already at an unacceptable LOS, the applicant shall construct the improvement required at that location by mitigation in Section 4.5.3 upon development of the 50th on-site residential unit. Development of phases of the proposed project shall not be permitted until the roadway improvements required to serve that development are first constructed (i.e., development of the required roadway improvements must always precede the need for those improvements). The above monitoring shall occur under the direction of City of Lathrop Public Works Department staff, and shall be paid for by the developer(s) of the Mossdale Landing project in concert with the developers of other future development in the WLSP area (i.e., River Islands, Lathrop Station, etc.). This mitigation measure would ensure that the mitigation measures identified in this section are implemented when required. The applicant would be	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		required to pay the fair share cost of all improvements based on traffic from the proposed project and other projects in Lathrop currently not yet approve that would contribute to significant roadway impacts. Also see Chapter 5, Cumulative Impacts. • Fair Share Funding Program. In conjunction with the required Traffic Monitoring Program discussed above, the City shall require the payment of Capital Facility Fee ("CFF") impact fees for funding transportation improvements required within the Mossdale Landing UDC area. The City's 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. The CFF program has been in place since 1991 and is currently being updated to reflect new growth within the Mossdale Village area, generally, and the Mossdale Landing and Lathrop Station UDC areas specifically. The new update report identifies the impact of new commercial and residential development within the Mossdale Village area and sets a fee for mitigating those impacts. In regards to transportation, the CFF includes funding for the following improvements: 1. Golden Valley Parkway 2. Gold Rush Boulevard 3. Interstate 5 Interchange improvements at Louise Avenue	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		4. Class I bike paths along the linear park and Gold Rush Boulevard rights-of-way 5. Certain segments of Mossdale Village Boulevard and River Edge Drive In addition to the CFF Transportation fee, the Mossdale Landing UDC project shall be subject to the West Lathrop Specific Plan Regional Transportation Fee, first adopted in 1997, also in accordance with Government Code §66000 et. seq. The "regional fee" as it is called includes a number of regional transportation improvements located in the Lathrop area, as well as others Countywide, including widening and interchange improvements to Interstates 5 and 205 and State Routes 99 and 120. Payment of these fees mitigates both local and regional impacts to the transportation system and is considered fair share payments for the Project. The timing of payments from the transportation fee programs is at building permit issuance. Monies collected from the fees are used either to fund the construction of the affected improvements, if enough exists for such a purpose, or to provide reimbursement or credit for improvements "fronted" by the project developer. In conjunction with the Traffic Monitoring Program above, 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 arise sooner than anticipated, the Mossdale Landing project	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		applicant shall be required to fully fund the necessary improvement and receive either reimbursement or credit from the applicable fee program when paid by others benefitting from the improvement.	
4.6 AIR QUALITY			
4.6-a: Air Quality - Short-term Construction Impacts. The construction and development associated with the proposed project would result in the temporary generation of NO_X, ROG, and PM_{10} emissions in addition to the potential airborne entrainment of asbestos due to demolition. Therefore, project construction activities would result in a **significant** short-term air quality impact without the incorporation and implementation of the required SJVAPCD control measures.	S	In accordance with SJVAPCD Guidelines (SJVAPCD 1998), the following mitigation, which includes SJVAPCD Basic, Enhanced, and Additional Control Measures, shall be incorporated and implemented during construction. • 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 roads and offsite unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant. • All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by pre-soaking. • With the demolition of buildings, all exterior surfaces of the building shall be wetted during	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		demolition. • When materials are transported offsite, all material shall be covered, effectively wetted to limit visible dust emissions, or at least six inches of freeboard space from the top of the container shall be maintained. • All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at 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%.	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		• 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. • Areas 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.	
4.6-b: Air Quality - Long-term Local Mobile Source Impacts. The proposed project would result in the generation of carbon monoxide (CO) at nearby intersections due to increased vehicular traffic on the local transportation network. However, the proposed project would not contribute to CO concentrations at these intersections that exceed the State Ambient Air Quality Standard of 9.0 parts per million (ppm) for 8 hours or 20 ppm for 1 hour. Therefore, project mobile sources would result in a **less-than-significant** long-term air quality impact.	LTS	No mitigation measures are necessary.	LTS
4.6-c: Air Quality - Long-term Regional Impact. The proposed project would result in long-term regional emissions, primarily associated with mobile sources, that would exceed the SJVAPCD's recommended significant threshold of 10 tons/year for ROG and NOx. Therefore, project stationary and mobile sources would result in a **significant** long-term regional air quality impact.	S	In accordance with SJVAPCD Guidelines (SJVAPCD 1998), the following mitigation shall be incorporated and implemented during operation. • Transit Infrastructure: Provide transit enhancing infrastructure that includes transit shelters, benches,	SU

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		street lighting, route signs and displays, and/or bus turnouts/bulbs. • VMT Infrastructure: Provide park-and-ride lots and/or satellite telecommuting centers. • Pedestrian Infrastructure: 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 lighting, and/or pedestrian signalization and signs. • Bicycle Infrastructure: Provide bicycle enhancing infrastructure that includes bikeways/paths connecting to a bikeway system, secure bicycle parking, and/or employee lockers and showers. • Rideshare Operational: Implement carpool/vanpool program such as carpool ride matching for employees, assistance with vanpool formation, provisions of vanpool vehicles, etc. • Services Operational: Provide on-site shops and services for employees such as cafeteria, bank/ATM, dry cleaners, convenience market, etc. Provide on-site childcare, or contribute to off-site child care services within walking distance. • Parking Operational: Provide preferential parking	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		for carpool and vanpool vehicles. • Transit Operational: Provide transit incentives. • Other Operational: Implement compressed work schedule and home-based telecommuting program. • Area Source: Provide electric maintenance equipment, use solar, low-emissions, or central water heaters (residential and commercial), increase wall and attic insulation beyond Title 24 requirements (residential and commercial), and orient buildings to take advantage of solar heating and natural cooling and use passive solar designs (residential, commercial, and industrial).	
4.7 NOISE			
4.7-a: Noise - Project Construction Noise. Project construction noise could potentially exceed City of Lathrop noise performance standards as set forth in Exhibit 4.7-5. While these standards do not specifically apply to construction, and while project construction activities would be required to comply with City Noise Ordinance requirements restricting construction activities to daytime hours, some annoyance could be experienced by residents within the vicinity of the construction sites during the construction period. This would represent a **significant** impact.	S	The project shall comply with the City's Zoning Ordinance that prohibits construction operations between the hours of 10 p.m. and 7 a.m. on weekdays and 11 p.m. and 9 a.m. for all other days, without a permit. In addition, as required by the Ordinance, noisy stationary construction equipment shall be located at least 500 feet from nearby homes. When project construction activities occur within 1,000 feet of existing or proposed residences, such activities shall further be restricted to the following hours: • 7 a.m. to 7 p.m. weekdays • 8 a.m. to 6 p.m. Saturdays	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		• None on Sundays or holidays. All construction equipment shall be in good working order and mufflers shall be inspected for proper functioning. Construction equipment and truck routes shall be arranged to minimize travel adjacent to nearby residences. Similarly, construction staging areas shall be located away from existing residences.	
4.7-b: Noise - Project Pump and Lift Station (Stationary) Noise. The proposed project would include the operation of one new wastewater lift station and three new storwmater pump stations. The operation of these facilities would not result in exterior noise levels in excess of applicable standards (60 dBA) at existing off-site residences. However, the operation of one or more of these would result in exterior noise in excess of applicable standards at proposed on-site residences. This would represent a **significant** impact.	S	Due to the proximity of pump stations to project land uses, the City's noise level standard for residential and public space land use may be exceeded. The City requires that the exterior noise level must not exceed 60 dBA during the daytime and 50 dBA at night for residences; the noise level may not exceed 60 dBA at any time for Public Space. In order to meet City standards, the pump station noise would need to be reduced by up to up to 23 dBA and the lift station noise would need to be reduced by 17 dBA. Therefore, the proposed wastewater lift station and stormwater pump stations shall each be fully enclosed by a structure that would attenuate noise from the pumps by at least 7 dBA and 23 dBA, respectively. The plans for each of these structures shall be reviewed by an acoustical consultant to ensure they would meet the attenuation requirement.	LTS
4.7-c: Noise - Project Traffic Noise. The project would generate traffic noise at on- and off-site streets that would result in traffic noise in excess of the City's exterior noise standard for residential uses of L_{dn} 60 dBA , or cause an increase in noise levels of 3 dBA or greater, at existing and proposed residences. This would represent a **significant** impact.	S	Many of the proposed residences near I-5 and the proposed arterials would require a noise barrier to achieve the City standard of an L_{dn} of 60 dBA. In some cases, noise barriers of up to 12 feet tall would be required to meet the L_{dn} of 60 dBA standard for	SU

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		exterior noise. Because a 12-foot wall can be visually obtrusive, the City allows the consideration of an L_{dn} 65 dBA goal, which would allow shorter barrier heights (Walsh 2001; also, see Noise Element Policy #2 identified in the "Regulatory Setting" subsection). With this approach, noise barriers would not need to exceed 9 feet in height (6-foot wall plus 3-foot berm) to achieve the City's alternate standard of an L_{dn} of 65 dBA for exterior noise. The project shall include the additional noise barriers identified in Exhibits 4.7-6 and 4.7-7 prior to occupancy of the proposed adjacent residential units. The noise barriers may be constructed of wood, masonry or other material depending the desired noise reduction. . The barriers shall have sufficient mass and shall not have discernible gaps. In cases where homes have driveways, the barrier shall be designed to protect main outdoor use areas such as backyards. If the applicant wishes to construct the noise barriers out of something other than masonry block, the a noise study shall be required to accompany the plans demonstrating that the alternative construction materials will be adequate to reduce the noise level to acceptable levels. Buildings shall be oriented, where possible, to provide some acoustical shielding for outdoor use areas. The goal would be to block sound from major roadways. In some cases, future development may block roadway noise from reaching the outdoor use areas (i.e., homes	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		along Louise). If the applicant can demonstrate, through analysis by an acoustical engineer, that the future design will meet the City's goal, then mitigation (barriers) may not be needed. The highway traffic noise exposure may decrease for many project land uses if any portion of the remaining agricultural fields is eliminated. This would apply especially for any homes or buildings developed between project residences and I-5. If the applicant can prove compliance with the City noise standards, through analysis by an acoustical engineer, mitigation may not be needed in some areas. Sound-rated windows and exterior walls may be needed for second floor units to lower the indoor noise level. The goal shall be to meet an indoor L_{dn} of 45 dBA. Indoor noise analysis by an acoustical engineer shall be undertaken, as part of the building approval process, to demonstrate compliance with the 45 dBA interior noise standard. The implementation of this mitigation measure would reduce Impact 4.7-c to less than significant levels for proposed residences. For the three existing residences (two on-site (#14 and 15), one off-site (#4)) that would be significantly affected by project traffic noise, no feasible mitigation measures are available to avoid these impacts. A significant unavoidable adverse impact would occur.	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		This impact would be temporary for the two on-site residences as these would eventually be replaced by project development.	
4.7-d: Noise - Project Activity Noise. The proposed project would generate activity noise (traffic, car horns, outdoor activities, amplified sound, field maintenance, etc.) associated with proposed on-site schools and parks, mechanical (air conditioner, etc.) and single event noise (car horns, delivery vehicles, etc.) associated with proposed commercial uses, and siren and operational noise associated with the proposed on-site fire station . The project's schools, parks, and fire station are not proposed within the proximity of existing noise sensitive uses, and thus would have less than significant noise impacts on such uses. However, the proposed schools, parks, commercial uses, and fire station would be developed adjacent to proposed on-site residential uses, and could generate noise in excess of City exterior noise standards for residential uses near said uses. Also, the proposed commercial uses would be developed within close proximity of existing on- and off-site residential uses, and could generate noise in excess of City exterior noise standards for residential uses near these commercial uses. Each of these would represent a **significant** impact.	S	Schools and Parks Noise barriers of at least 6 feet in height shall be included in the design for all project residences located immediately adjacent to a school or any commercial development. Any public address systems proposed as part of the proposed schools or parks shall first be evaluated by an acoustical engineer for their compliance with City noise regulations. Such systems shall not be permitted if they would result in exceedance of applicable noise standards at adjacent noise sensitive uses. Commercial Development and Fire Station An acoustical consultant shall review the specific details and design of the commercial development, and the fire station to ensure the associated noises comply with the City's noise performance standards. Typical measures for mitigating these noises include sound rated enclosures for generators and silencers or sound barriers for ventilation equipment and loading dock activity. In addition, future residents within 500 feet of the proposed fire station shall be notified of the potential fire station noise in the disclosure statement for the project.	LTS
4.7-e: Noise - Existing Adjacent Agricultural Noise. The proposed	S	The project applicant shall develop six-foot wooden	SU

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
project would not create new agricultural areas, and thus would not generate new agricultural-related noise (i.e., tractors, field hands, etc.). However, the proposed project would include the development of new on-site residential, school and park uses adjacent to existing agricultural activities, (activities that would be permitted to continue under the City's Right to Farm Ordinance) and thus could expose proposed noise-sensitive uses to agricultural-related noise levels in excess of City exterior noise standards. This would represent a **significant** impact.		fencing between existing agricultural uses and proposed residential, school and park development. This fencing shall be accompanied by vegetative screening treatments to include trees and shrubs. In addition, future residents to occupy proposed project residences located along the agricultural/urban interface shall be notified of the potential for agricultural noise in the disclosure statement for the project. The implementation of this mitigation measure would reduce Impact 4.7-e, but not to less than significant levels. A significant unavoidable adverse impact would occur.	
4.8 UTILITY SYSTEMS			
4.8-a: Utilities - Demand for Water During Construction. The increased demand for water associated with project construction activities would result in **less-than-significant** impacts to water supplies.	LTS	No mitigation measures are necessary.	LTS
4.8-b: Utilities - Demand for Potable Water at Buildout. The proposed project would create a demand for potable water that could be met by future planned City water production facilities, but that could not be met by existing City water production facilities The latter would be a **significant** impact.	S	No occupancy of the proposed project shall take place until Well #21 is constructed, water infrastructure (pipelines, etc.) to the project site is completed, and said well and water infrastructure are capable of making potable water deliveries to the project site.	LTS
4.8-c: Utilities - Environmental Impacts Associated with the Development of Well #21. According to the Master Plan EIR, the construction and operation of Well #21 could contribute to significant geotechnical, groundwater, flooding, noise, farmland, aesthetics/views, terrestrial biology, and cultural resources impacts. These impacts would be reduced to **less-than-significant** levels with implementation of the	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
mitigation measures identified in the Master Plan EIR.			
4.8-d: Utilities - Demand for Wastewater Treatment Capacity During Interim Conditions. Inadequate wastewater treatment capacity currently exists to serve interim conditions under the proposed project. This represents a **significant** impact. Expansion of WRP #1 would be required to provide Mossdale Landing with adequate treatment capacity during interim conditions.	S	Interim development under the Mossdale Landing project shall not commence until both adequate wastewater treatment capacity and tertiary treatment to Title 22 standards for unrestricted use are available at WRP #1 to serve this interim development.	LTS
4.8-e: Utilities - Demand for Wastewater Treatment Capacity at Buildout. Inadequate wastewater treatment capacity currently exists to serve buildout conditions under the proposed project. This represents a **significant** impact. Expansion of WRP #1 would be required to provide Mossdale Landing with adequate treatment capacity at buildout.	S	Buildout development under the Mossdale Landing project shall not commence until both adequate wastewater treatment capacity and tertiary treatment to Title 22 standards for unrestricted use are available at WRP #1 to serve this buildout development.	LTS
4.8-f: Utilities - Environmental Impacts Associated with the Expansion of WRP #1. According to the Master Plan EIR, the expansion of WRP #1 and commencement of associated discharges of treated wastewater to the SJR could contribute to significant geotechnical, groundwater, flooding, air, odor, noise, land use, aesthetics/views, terrestrial biology, cultural resources, and emergency impacts. 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, which would be significant and unavoidable.	LTS	No mitigation measures are necessary.	LTS
4.8-g: Utilities - Demand for Recycled Water Disposal Capacity During Interim Conditions. The proposed project would increase the demand for recycled water discharge areas. Because adequate discharge areas are proposed at the project site to accommodate the quantity of treated wastewater to be generated by the project during interim conditions, this would be considered a **less-than-significant** impact.	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
4.8-h: Utilities - Demand for Recycled Water Disposal Capacity at Buildout. Project buildout would result in an incremental increase in project wastewater requiring disposal. However, insufficient area would exist at the project site to dispose of this additional wastewater, and no off-site land disposal sites or river discharges have been identified. Therefore, a **significant** impact would occur.	S	Buildout of the proposed project shall not commence until and unless additional disposal capacity is provided to dispose of the incremental increase in treated wastewater to be generated by the proposed project between interim conditions and buildout. The additional disposal capacity may be provided either to land or to the SJR. For land disposal, buildout shall not commence until: • 20 acres of off-site storage pond area and 34 acres of off-site spray fields are found for the disposal of the additional 0.141 MGD of treated wastewater to require disposal under project buildout; • infrastructure is developed to convey this additional treated wastewater to the off-site storage and disposal areas; • the off-site storage ponds are lined; • the application occurs at agronomic rates; and • the off-site disposal system is operational. For river disposal, buildout shall not commence until river discharges are permitted in the context of WRP expansions and/or new WRPs under the Lathrop Water, Wastewater and Recycled Water Master Plan.	LTS
4.8-i: Utilities - Demand for Electricity and Natural Gas at Buildout. The proposed project would generate an increase in the demand for electricity and natural gas. Because PG&E has the capability 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 within PG&E's service area, and because the proposed electricity and natural gas improvements	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
would be sufficient to provide the project with electricity and natural gas, a **less-than-significant** impact would occur.			
4.8-j: Utilities - Increased Generation of Solid Waste at Buildout. The proposed project would substantially increase solid waste generation. However, due to existing long term available capacity at the Foothill Sanitary Landfill, the proposed project would have **less-than- significant** impacts on local solid waste facilities.	LTS	While no mitigation is required for Impact 4.8-j, which is identified as less than significant, the WLSP identifies solid waste reduction measures for all development within the WLSP area, including the proposed project. This mitigation is listed below: 1a. The City will monitor development to ensure compliance with the City's Integrated Solid Waste Management Plan (as prepared under the provisions of AB 939). 1b. Since development will be phased, substantial acreage will remain in agricultural use. Resulting solid waste from agricultural operations will require traditional approaches to management, using livestock and crop waters for soil fertilization. 1c. Mandatory pickup will be required for residential areas, along with containerized sorting of wastes capable of recycling and reuse. 1d. The significant amounts of wood wastes generated during construction activities are to be segregated and processed as wood chips and mulch for use in landscaping, animal husbandry and farming. 1e. Grass clippings will generate large amounts of	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		organic waste and are to be mixed with other organic wastes and recycled as compost. Lawn mowing should be accomplished with mulch-forming blades to reduce the amount of clippings requiring composting.	
4.9 PUBLIC SERVICES			
4.9-a: Public Services - Obstruction of Roadways During Construction. The project could obstruct roadways in the vicinity during construction, which could obstruct or slow emergency vehicles attempting to access the area in the event of an emergency and/or school buses serving the area. This would represent a **significant** impact.	S	Standard traffic controls (i.e., signage, flagmen, etc.) shall be implemented during project construction. Lane closures shall be advertised in advance, and flagmen shall be utilized to direct traffic flows when needed. Access to existing land uses shall be maintained at all times- detours shall be provided to existing land uses impacted by any construction-related street closures.	LTS
4.9-b: Public Services -Increased Demand for Police Protection Facilities and Services During Construction. Construction and staging areas associated with the proposed project would be subject to potential construction theft, and therefore would increase the demand for police protection services during the construction period. This would represent a **significant** impact.	S	The project applicant shall provide private security for its construction sites during the eight year construction period. In addition, construction sites shall be illuminated at night to aid in security.	LTS
4.9-c: Public Services - Increased Demand for Police Protection Facilities and Services During Operation. The proposed project would substantially increase the demand for police protection facilities and services during operation, and would require additional police staff and equipment to maintain adequate service. This would represent a **significant** impact.	S	The project applicant shall pay the start-up costs incurred in the hiring and training for each of the eight new police officers required to serve the project (Moffitt 2001a). In addition, the following equipment costs shall be provided by the applicant: • Safety equipment for each of the eight officers, including gun, leather equipment, bullet proof vest, mobile radio, etc. • A fully equipped patrol vehicle for every two	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		officers, including radio, siren, Opticom mobile strobe, Mobile Computer Terminal, and vehicle video recorder. The project applicant shall also ensure that the following crime prevention measures are incorporated into the proposed project: 3M Addressable Opticom Traffic Control Pre-emption devices and detectors/reflectors in all traffic lights for which the project is responsible; and graffiti proof or graffiti resistant walls. Payment for the above shall be phased to coincide with the need for the new officers and equipment generated by project development. Also, the need for the above may be adjusted if City policy results in a different officer-to-population ratio.	
4.9-d: Public Services - Increased Emergency Police Response Times During Operation. The proposed project could increase traffic congestion on City streets which could potentially lengthen police emergency police response times to the project site. However, future police emergency response times to the project site would continue be remain within the 3-4 minute General Plan goal given the eventual siting of a new police station west of I-5 (i.e., Government Center), the increase in police officers and patrol vehicles under the proposed project, and planned circulation improvements in the vicinity of the project site. A **less than significant** impact would occur.	LTS	No mitigation measures are necessary.	LTS
4.9-e: Public Services - Increased Demand for Fire Protection Facilities and Services During Operation. The proposed project would result in an increase in the demand for fire protection facilities and services during operation. This would represent a **significant** impact.	S	The Mossdale Landing applicant shall comply with the May 15, 2002 agreement negotiated between the LMFD and the PUH entitled "Lathrop-Manteca Fire District Position on Fire Station Location - Mossdale	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		Landing Project. This shall include, but shall not be limited to, the dedication to the District of an interim fire station site on Lots 67 through 69 of the Mossdale Landing project. The Mossdale Landing applicant shall have emergency fire response times to the project site from its Fire Station #31 monitored on a monthly basis from the occupancy of the first on-site residential unit until the occupancy of the 170th on-site residential unit. This monitoring shall occur consistent with LMFD methodologies. The results of the monitoring shall be reported to the LMFD on a monthly basis through occupancy of the 170th on-site residential unit. Consistent with the aforementioned agreement, the fire department will have a fire station in place (at either the interim site or the permanent site) and make it operational by the time the 170th home is built on the Mossdale project site, or when emergency fire response times to the Mossdale project site exceed 3-4 minutes, whichever comes first. The Mossdale Landing applicant shall pay all applicable fire service fees and assessments required to pay for its fair share of fire district facilities and services required to serve the Mossdale Landing project.	
4.9-f: Public Services - Increased Emergency Fire Response Times During Operation. The proposed project would add traffic to the local roadway system which could increase emergency fire response times to the project site and the surrounding area. However, the Lathrop-Manteca Fire District and the City of Lathrop have negotiated an agreement whereby a	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
new fire station will be developed on or adjacent to the project site. With implementation of this agreement, project impacts on emergency fire response times would be **less than significant**.			
4.9-g: Public Services - Increased Demand for Fire Flow. The proposed project would include the development of residential, commercial, school and open space uses that would require adequate fire flow. Lack of adequate fire flow would represent a **significant** impact.	S	The applicant shall provide fire flows as required by the Lathrop-Manteca Fire District (currently believed to be 1,250 gpm for low to medium density residential, and 2,000 gpm for high density residential and neighborhood and community commercial, with a minimum residual pressure of 20 pounds per square inch).	LTS
4.9-h: Public Services - Increased Demand for School Facilities and Services During Construction. It is reasonable to assume that most of the project-related construction workers would not relocate their permanent place of residence as a consequence of working on the proposed project, and therefore there would not be any substantial increase in school enrollment associated with construction workers. A **less than significant** impact would occur.	LTS	No mitigation measures are necessary.	LTS
4.9-i: Public Services - Increased Demand for Elementary School Facilities and Services During Operation. The proposed project would increase the demand for elementary school (K-8) services and facilities within the Manteca Unified School District (MUSD). The project would pay the State mandated school impact fees and would dedicate two on-site elementary school sites which would reduce the project's long-term impacts on elementary schools to **less-than-significant** levels. There is a potential that the proposed project would exceed the existing available elementary school capacity of the MUSD prior to the development of the two on-site schools; however, payment of the State mandated school impact fee is legislatively deemed full mitigation by the State. Therefore, the project's short-term impacts on elementary schools would also be **less than significant**.	LTS	Although Impact 4.9-h would be less than significant and thus does not require mitigation, the WLSP EIR identifies several school requirements that are applicable to development within the WLSP area, including the Mossdale Landing project. These are listed below: • The developer shall work with the appropriate school district regarding the sale of land and provision of infrastructure improvements required for the school facility in satisfaction of part or all of the pro rata share of school facility costs occasioned by the residential development project (Elementary	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		and High School Services, Mitigation Measure 1.b). • Where a residential project is large enough to generate the need for an entire school facility, school construction should be phased to match the phasing of residential construction, with the objective of assuring the availability of adequate facilities as close to the time of housing occupancy as possible (Elementary and High School Services, Mitigation Measure 1.c).	
4.9-j: Public Services - Increased Demand for High School Facilities and Services During Operation. The proposed project would increase the demand for high school services (9-12) within the MUSD. However, because the project would pay the required state mandated school impact fees, and because adequate capacity exists at existing high schools and high schools currently under construction to accommodate the high school students to be generated by the project, a **less-than-significant** impact would occur.	LTS	No mitigation measures are necessary.	LTS
4.9-k: Public Services - Increased Demand for Animal Control Facilities and Services During Operation. The proposed project would substantially increase the demand for animal control services during operation, and would require additional animal control staff, equipment and facilities to maintain adequate service. This would represent a **significant** impact.	S	The project applicant shall provide for the cost of an additional animal control officer and patrol unit as a result of the project. The cost of the animal control officer is $55,000 and the cost of the patrol unit is $40,000 (Enneking 2002). Typically, discretionary revenue to the City is generated from the project in the form of property and other taxes. However, in the early stages of the project, the required funding will not be realized, and the developer shall pay the costs for the additional officer and patrol unit until revenues generated from the project cover the cost. In addition, the project applicant shall pay the Capital Facility Fee - City Services to offset the need for a new animal	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		shelter and related facilities and equipment.	
4.10 TERRESTRIAL BIOLOGY			
4.10-a: Terrestrial Biology - Special-Status Plant Species No special-status plant species were observed during appropriately timed surveys for such species on the project site. Therefore, **no impact** would occur.	NI	No mitigation measures are necessary.	NI
4.10-b: Terrestrial Biology - Valley Elderberry Longhorn Beetle. Construction of the proposed project could affect blue elderberry shrubs, which are habitat for the valley elderberry longhorn beetle. This impact is potentially **significant**.	S	The applicant shall use the SJMSCP to mitigate potentially significant impacts to the valley elderberry longhorn beetle. The SJMSCP requires preconstruction surveys to determine the number of elderberry stems greater than one inch in diameter at the base elevation of each valley elderberry that would be impacted by the project. In August 2001, M&A biologists conducted a survey for elderberry shrubs. Seven shrubs were found growing in an agricultural ditch. One shrub was surrounded by brambles (roses and blackberries) and did not have stems counted. The six remaining shrubs had 29 stems greater than one inch in diameter. After payment of the required fees, the JPA shall provide three new plants for each stem greater than one inch in diameter for a compensation ratio of 3:1. The SJMSCP requires that any shrubs with exit holes be compensated for at a ratio of 6:1. However, no exit holes were found during surveys for this beetle conducted in the summer of 2001. Although the valley elderberry longhorn beetle is a listed species, the USFWS is a signatory on the SJMSCP. Accordingly, no further consultation with the USFWS is required.	LTS
4.10-c: Terrestrial Biology - Swainson's Hawk. Construction of the	S	The applicant shall use the SJMSCP to mitigate	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
proposed project could affect nesting habitat for the Swainson's hawk and would decrease foraging habitat for the species. This impact is **significant**.		potentially significant impacts to this species foraging habitat. To prevent the take of nesting Swainson's hawks, preconstruction surveys shall be conducted by a qualified biologist in all areas indicted on Exhibit 4.10-4 and all nesting Swainson's hawks on the project site shall be identified. In order to prevent loss of eggs and/or nestlings, as otherwise required to avoid direct take, a minimum 500-foot setback shall be established around any nesting Swainson's hawks and maintained until the fledglings have left the nest. The setback area shall be clearly marked with brightly colored fencing. The setback may be modified if a qualified raptor biologist determines that the setback can be modified without undue disturbance to the nesting hawks. No nest tree shall be removed until the young fledge the nest and are independent of the nest tree. Typically, nesting trees should only be removed between September 1st and February 15th after Swainson's hawks have completed nesting and young have reached independence of the nesting tree.	
4.10-d: Terrestrial Biology - Burrowing Owl. Construction of the proposed project could affect habitat for burrowing owls. This impact is potentially **significant**.	S	No burrowing owls are known to use the project site. Any impacts to this owl would be mitigated using the methods provided in the SJMSCP. Section 5.2.4.15 of the SJMSCP provides several methods for discouraging burrowing owls from using prospective project sites. These include retaining tall vegetation on the site, disking or plowing the site, or using various chemicals or traps to kill ground squirrels (consult the SJMSCP for further discussion). To ensure that there is no direct take of nests and/or burrowing owls, preconstruction surveys for burrowing owls shall be	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		conducted in specified areas of the site in the 30-day period prior to ground disturbance. If burrowing owls are found on the site, the following mitigation measures shall be implemented. • During the non-breeding season (September 1 through January 31), burrowing owls found in burrows on the site can be evicted using passive relocation methods described in the CDFG's Staff Report on Burrowing Owls (October 1995). • During the breeding season (February 1 through August 31), occupied burrows shall not be disturbed. A 300-foot setback from these areas shall be established and marked with brightly colored fencing. The setback area shall not be disturbed until a qualified raptor biologist determines that the birds have not yet begun egg laying or that the fledglings are capable of independent survival. Once the young are capable of independent survival, as approved by CDFG, the burrows can be destroyed. One-way eviction doors shall be installed over active burrows for a minimum of three days prior to the time any burrow is destroyed.	
4.10-e: Terrestrial Biology - Birds Nesting Along Riparian Corridors. Construction of the proposed project could affect nesting habitat for birds that nest along riparian corridors. Impacts to nests or young of these species are potentially **significant**.	S	Preconstruction nesting surveys for Cooper's hawk, sharp-shinned hawk, white-tailed kite, yellow warbler, and yellow-breasted chat shall be conducted by a qualified raptor biologist/ ornithologist prior to ground disturbance. To protect eggs and or nestlings from direct take, if any yellow warbler or yellow- breasted chat nests are found, a 100-foot setbacks shall be	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		established around the nest(s) until the fledglings have left the nest. If any Cooper's hawk, sharp-shinned hawk, or white-tailed kite nests are found, 500-foot setbacks shall be established around each nest. A qualified raptor biologist/ ornithologist may modify these setback requirements if it is determined that no take of eggs or nestlings would occur under the modified condition. The setback area(s) shall be clearly marked with brightly colored fencing. Nesting habitat can be removed after nestlings reach independence of the nest site.	
4.10-f: Terrestrial Biology - Birds Nesting in Isolated Trees or Shrubs Outside of Riparian Corridors. Construction of the proposed project could affect nesting habitat for sensitive bird species (loggerhead shrike) nesting in isolated trees or shrubs outside of riparian areas. Impacts to the loggerhead shrike are regarded as potentially **significant**.	S	To prevent potential impacts to the loggerhead shrike during nesting, preconstruction surveys shall be conducted prior to ground disturbance. If nesting birds are found, a 100-foot setback shall be established around the nesting area until the fledglings have left the nest. The setback areas shall be marked with brightly colored fencing. A qualified ornithologist may modify these setback requirements if it is determined that no take of eggs or nestlings would occur under the modified condition.	LTS
4.10-g: Terrestrial Biology - Other Tree-nesting Raptors. Construction of the proposed project could affect nesting red-tailed hawks, red-shouldered hawks, and great-horned owls. This impact is potentially **significant**.	S	To prevent potential impacts to nesting red-tailed hawks, red-shouldered hawks, and great-horned owls, preconstruction surveys shall be conducted in all areas with trees on or within 500 feet of the project. If active nests are found, a 500-foot setback shall be established around the nesting area until the fledglings have left the nest. The setback area shall be clearly marked with brightly colored fencing. A qualified ornithologist may modify these setback requirements if it is	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		determined that no take of eggs or nestlings would occur under the modified condition. No nest tree shall be removed until the young fledge the nest and are independent of the nest tree.	
4.10-h: Terrestrial Biology - Ground Nesting or Streamside/Lakeside Nesting Birds. Construction of the proposed project could affect nesting habitat for ground nesting or streamside/lakeside nesting birds (northern harriers). This impact is potentially **significant**.	S	If left undisturbed for a year or more, most of the project site could develop fallow areas that would provide suitable nesting habitat for the northern harrier. To prevent the potential take of northern harriers, a qualified raptor biologist shall conduct preconstruction surveys on the project in suitable areas prior to ground disturbance. If a nest is found, a 500-foot setback shall be established around the nesting area until the fledglings have left the nest. The setback shall be clearly marked with brightly colored fencing. A qualified raptor biologist/ ornithologist may modify these setback requirements if it is determined that no take of eggs or nestlings would occur under the modified condition.	LTS
4.10-i: Terrestrial Biology - Colonial Nesting Birds. Construction of the proposed project could affect nesting habitat for colonial nesting birds (tricolored blackbird, black-crowned night-heron). This impact is potentially **significant**.	S	To prevent potential impacts to colonial nesting birds, including the tricolored blackbird and the black-crowned night heron, preconstruction surveys shall be conducted prior to ground disturbance. If any colonial species are found nesting, a 500-foot setback shall be established around the nesting colonies and no ground disturbance shall take place until the fledglings have left the nest. The setback shall be clearly marked with brightly colored fencing. A qualified ornithologist may modify these setback requirements if it is determined that no take of eggs or nestlings would	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		occur under the modified condition	
4.10-j: Terrestrial Biology - Riparian Habitat. Construction of the project would impact riparian habitat in agricultural ditches on the project site. Because these ditches are supported exclusively by irrigation water, impacts to this vegetation is considered **less than significant**. The proposed outfall station that would be constructed on the levee above the San Joaquin River would affect a small area of riparian habitat on the riverside of the San Joaquin River east levee. This impact is potentially **significant.** .	S	Although the loss of riparian habitat is covered by the SJMSCP, it also provides measures to avoid or replace riparian vegetation. Riparian vegetation that is removed during outfall construction and/or that occurs in agricultural ditches should be replaced. Any California native tree or shrub that is removed shall be replaced at a 3:1 ratio. Replacement trees/shrubs shall be at least one-gallon size. Replacement shall occur along the riverside of the east levee of the San Joaquin River or otherwise suitable areas. Suitable areas shall include other riparian areas or areas that can be modified into a riparian habitat with a passive water supply (i.e., non-irrigated water supply). All installed trees shall be irrigated for a period of three years during an initial establishment period.	LTS
4.10-k: Terrestrial Biology - Waters of the State and Waters of the U.S. Construction of the proposed storm water outfall on the San Joaquin River would affect Waters of the U.S. This is a potentially **significant** impact.	S	Prior to installing the proposed outfall, the applicant shall obtain all necessary environmental permits, including, but not limited to permits from the U.S. Army Corps of Engineers, CDFG, RWQCB, and the Bureau of Reclamation (District 17). The project shall meet all the requirements of the permitting agencies. In addition, the following measures shall be implemented: • All turbid water entering the dewatered work area shall be pumped from the work area up and over the levee to a holding pond constructed at the base of the levee. After any silt-laden waters settle, they may ether be discharged onto croplands adjacent to	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		the work site, or back into the San Joaquin River. • Erosion control measures shall be implemented on the levee to ensure that no deminimis fill (sediments) enters the San Joaquin River. Such measures shall include installation of silt fencing, hay bales, and/or hay wattles to ensure there is a sediment barricade between the work area and the river. • Upon completion of the outfall, all dewatering structures shall be removed from the river and all barren soils stabilized using a tackified hydromulch. • No equipment fueling shall be allowed on the levee. All equipment must refuel below and outside the levee in areas that are designated for refueling and that are contained so that accidental spills are trapped in the containment area.	
4.10-l: Terrestrial Biology - Off-Site Roadway Improvements. Several off-site roadway improvements are required by traffic mitigation in this EIR, including : (1) additional lanes at the I-5/Louise Avenue interchange; (2) moving the Manthey Road/Louise Avenue intersection 300 feet to the west; (3) additional southbound lane to Manthey Road between Louise Avenue and Main Street; and (4) a new traffic signal at the Manthey Road/Main Street intersection. Construction of these improvements could result in loss of Swainson's hawk foraging habitat and it could affect nesting habitat for northern harriers. This is a potentially **significant** impact.	S	The applicant shall use the SJMSCP to mitigate potentially significant impacts to Swainson's hawk foraging habitat. To prevent the potential take of northern harriers, prior to ground disturbance, preconstruction surveys shall be conducted within 500 feet of the proposed Manthey Road realignment by a qualified raptor biologist. If a nest is found, a 500-foot setback shall be established around the nesting area until the fledglings have left the nest. The setback shall be clearly marked with brightly colored fencing. A qualified raptor biologist/ ornithologist may modify these setback requirements if it is determined that no	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		take of eggs or nestlings would occur under the modified condition.	
4-10-m: Terrestrial Biology - Gold Rush Boulevard PPL. While the majority of the Gold Rush Boulevard PPL contains agriculture with little sensitive resource value, the PPL does contain potential Swainson's hawk foraging habitat and is proposed adjacent to an active Swainson's hawk nest. Development of Gold Rush Boulevard within this PPL could have a potentially **significant** impact.	S	The applicant shall use the SJMSCP to mitigate potentially significant impacts to Swainson's hawk foraging nesting habitat. To prevent the potential take of nesting raptors including Swainson's hawk, northern harriers, and/or burrowing owls, preconstruction surveys shall be conducted by a qualified raptor biologist within 500 feet of the Gold Rush Boulevard PPL prior to ground disturbance. If a raptor nest is found, a 500-foot setback shall be established around the nesting area until the fledglings have left the nest. The setback shall be clearly marked with brightly colored fencing. A qualified raptor biologist/ ornithologist may modify these setback requirements if it is determined that no take of eggs or nestlings would occur under the modified condition.	LTS
4.10-n: Terrestrial Biology - Oak Trees. Construction of the proposed project would remove non-native and native trees from the project site. Impacts to trees would be considered **less than significant** with implementation of the preservation and replacement program proposed by the project applicant.	LTS	No mitigation measures are necessary.	LTS
4.11 FISHERIES RESOURCES			
4.11-a: Fisheries - Potential Impacts To Aquatic Habitat. Construction of the proposed stormwater outfall to the San Joaquin River would result in the removal of several relatively small trees that may provide shade and cooling at the water's edge, the temporary disturbance of a small area along the inside portion of the east levee, and both temporary construction activity and the development of hardened slope armoring below the	S	Project engineers shall design the proposed outfall using the NMFS Guidelines for Salmonid Passage at Stream Crossings (2000). Avoidance and minimization Best Management Practices (BMPs) taken from these Guidelines shall be incorporated into the design and construction of the outfall. These	LTS

TABLE 2-1
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Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
ordinary high water mark of the river. These activities would affect a small area within the river side of the levee, would be largely temporary, and would incorporate design features to minimize disruption below the ordinary high water mark of the river. However, the performance of construction activities within the river side of levee could result in potentially **significant** impacts to aquatic habitat if not conducted in accordance with appropriate construction Best Management Practices.		BMPs are as follows: • Remove the minimum amount of vegetation on the levee to accommodate the outfall station. • All impacted trees and shrubs that currently shade the SJR shall be mitigated. Potentially, it is estimated that one small box elder (two inches in diameter at breast height), two black willows (8 inch and 24 inch diameters at breast height), a button willow (4 inches in diameter at breast height), and one Fremont cottonwood (double trunk – one 14 inches the other 30 inches at breast height) could be impacted by construction of the outfall. Conceivably, through careful construction, most impacts to canopy species could be avoided. However, any loss of canopy vegetation shall be compensated for by replacement plantings along the levee on the project site. Each tree or shrub impacted shall be replaced with three trees or shrubs of the same species, or a California native equivalent. Replacement trees/shrubs shall be in 5 gallon pots or larger. They shall have a temporary irrigation system that shall be maintained a minimum of three years or until the planted trees/shrubs are established. Trees shall be planted in the fall after the outfall station is constructed, but not before water and electricity is available for the irrigation system. They shall be planted no later than one year after the outfall station is installed. • Flap gates shall be installed on each outfall pipe.	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		• Implement erosion control BMPs during construction. These measures include: (1) revegetation before the rainy season of all barren soils resulting from the outfall construction or any other construction-related activities if the barren areas could contribute silt runoff into the SJR; (2) keeping silt and silt laden water from entering the SJR during the construction period (including isolating the outfall work area (i.e., dewatering the work area) from the SJR via construction of a sheet pile wall or similar barrier), pumping silt-laden waters in the isolated work area to a desiltation basin behind the levee on the project site; and (3) collection and disposing of silt and water collected in the desiltation basins to land (i.e., use as soil supplements, irrigation water, etc.). • Restrict construction activity within the river side of the levee to between the dates of June 1 to October 30 when migrating anadromous fish would not be expected to be in the SJR near the project site. • Construct the outfall in contour with the existing levee so as to not reduce the original volume of the SJR. • Restrict all construction activities to the levee wall (i.e., no modification of the channel bottom). • Remove all surplus material in the channel upon completion of the outfall. • Restrict materials installed below the mean annual water line, to well above this line, to armorflex ®	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		precast erosion control blankets. No riprap shall be used as erosion control material. No curing concrete shall have contact with the river. • Restrict all equipment refueling and maintenance to designated containment areas below the outside wall (non-river side) of the levee. • Cure any concrete used to anchor armorflex® below the water line of the river a minimum of 30 days without an appropriate sealer, or 7 days with an appropriate sealer, prior to coming in contact with SJR waters. Finally, Project engineers or project biologists shall also consult with the NMFS and USFWS regarding the design of the proposed outfall station. If required by NMFS and/or USFWS, incidental take permits shall be acquired prior to installation of the outfall station.	
4.11-b: Fisheries - Potential Impairment of Water Quality (Beneficial Uses) of the San Joaquin River. The proposed project would include the discharge of recycled water to land and the discharge of stormwater runoff into the San Joaquin River (SJR) as methods of disposal. The recycled water disposed of at the project site would we tertiary treated and disinfected to Title 22 standards for unrestricted use and would not reach the SJR. The stormwater runoff would go through a comprehensive set of proposed Best Management Practices (BMPs) to remove urban contaminants from the runoff, and at the same time existing agricultural discharges from the site would be eliminated under the proposed project. For these reasons, the proposed discharges would result in less-than-significant impairment of the water quality of the SJR (i.e., less-than-significant impairment of beneficial uses). The proposed project would	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
have a **less-than-significant** impact on fisheries.			
4.11-c: Fisheries - Potential Impacts to Special-Status Fish Species. As indicated under Impact 4.11-b, the proposed discharge of stormwater runoff from the project site to the SJR would result in less than significant water quality-related fisheries impacts. However, project construction activities associated with the development of the proposed stormwater outfall could affect existing shading of the river and could temporarily increase the amount of sediment entering the river during construction of the outfall station. While unlikely, it is conceivable that there could be a temporary loss of usable special status fish species habitat. Also, dewatering the outfall work area could conceivably entrain fingerling fish and/or result in the take of special-status fingerling fish. Any such disturbance would therefore represent a potentially **significant** impact.	S	Implement Mitigation Measure 4.11-a.	LTS
4.12 CULTURAL RESOURCES			
4.12-a: Cultural Resources - Impacts on Listed Archaeological Sites. The proposed project would not affect any archaeological sites listed in the National Register of Historic Places or the California Register of Historic Resources. Therefore, **no impact** would occur.	NI	No mitigation measures are necessary	LTS
4.12-b: Cultural Resources - Impacts to Recorded Archaeological Sites. The proposed project would affect two archaeological sites and seven archaeological isolates recorded on the project site during the field survey. One of these, Moss 2 could represent a unique archaeological resource. Therefore, a **significant** impact could occur.	S	The City of Lathrop shall retain a professional archaeologicalist to conduct Phase II testing (i.e., limited test excavation to characterize the extent/nature of the archaeological deposit) at Moss Site 2. The investigations shall be conducted prior to the onset of construction at this site. The archaeologist shall recommend mitigation deemed necessary for the protection of any archaeological resources at the site concluded by the archaeologist to represent "unique archaeological resources" as defined by CEQA (photo documentation and preservation in-place, data recovery	LTS

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES			
Impact	**Significance Before Mitigation**	**Mitigation Measures**	**Significance After Mitigation**
		and curation, etc.). The City shall implement the mitigation prior to construction at this site.	
4.12-c: Cultural Resources - Impacts to Undiscovered/Unrecorded Archaeological Sites. Project-related construction activities could affect as of yet undiscovered or unrecorded archaeological resource sites. Such effects would represent a potentially **significant** impact	S	Prior to the initiation of construction or ground disturbing activities, at the project site, off-site utility improvement sites, and the Gold Rush Boulevard PPL, all construction personnel shall be alerted to the possibility of buried cultural resources. Should artifacts, unusual amounts of stone, bone or shell, or human remains be uncovered during construction activities, work at the specific construction site at which the resources have been uncovered shall be suspended, and the City of Lathrop Public Works Department immediately contacted. At that time, the City shall retain a professional archaeological consultant. The archaeologist shall conduct a Phase II field investigation of the specific site and recommend mitigation deemed necessary for the protection of any cultural resources concluded by the archaeologist to represent "historical resources" or "unique paleontological resources" as defined by CEQA. The City shall implement the mitigation prior to the resumption of construction activities at the construction site.	LTS
4.12-d: Cultural Resources - Impacts to Undiscovered/Unrecorded Human Remains. Project-related construction activities could affect as of yet undiscovered or unrecorded human remains. Such affects would represent a **significant** impact.	S	If human remains are discovered at the project site, off-site utility improvement sites, and the Gold Rush Boulevard PPL during construction, work at the specific construction site at which the remains have been uncovered shall be suspended, and the City of Lathrop Public Works Department and the San Joaquin County coroner shall be immediately notified. If the	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		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.	
4.12-e: Cultural Resources - Impacts to Historic Properties. None of the existing structures on the project site are or appear to be eligible for listing in the California Register of Historical Resources. Therefore, a **less-than-significant** impact would occur.	LTS	No mitigation measures are necessary.	LTS
4.12-f: Cultural Resources - Impacts to Cultural Resources Associated with Off-Site Roadway Improvements. Several off-site roadway improvements are required by traffic mitigation in this EIR. The development of these improvements would not affect recorded archaeological sites or listed historic properties, and would not affect any potential historic resources. However, the development of these improvements could potentially affect any undiscovered or unrecorded archaeological sites or human remains that may be present in the improvement areas. If any such archaeological sites were to amount to "unique archaeological resources" as defined by CEQA, or if human remains were found in the improvement areas, a **significant** impact would occur.	S	Implement Mitigation Measures 4.12-c and 4.12-d.	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
4.12-g: Cultural Resouces - Impacts to Historic Properties Within the Gold Rush Boulevard PPL. None of the existing structures on or adjacent to the Gold Rush Boulevard PPL are or appear to be eligible for listing in the California Register of Historical Resources. Therefore, a **less-than-significant** impact would occur.	LTS	No mitigation measures are necessary.	LTS
CUMULATIVE IMPACTS			
5.3-a: Cumulative Flood Control/Drainage. The proposed project and the adjacent related projects would discharge their stormwater runoff to the San Joaquin River and/or retain their stormwater runoff on-site consistent with existing City requirements, rather than diverting runoff to adjacent properties. Thus, **no impact** would occur with respect to adjacent properties. The proposed project in conjunction with those related projects that would discharge their peak stormwater flow to the river would not increase flows in the river such that downstream flooding would occur. The City requires a 30% reduction in peak flows via on-site retention, and sufficient freeboard exists in the river to accommodate the increased flows. Hence, a **less than significant** impact would occur. While the project includes BMPs that, along with adherence to required NPDES and SWPPP requirements, would ensure that project construction and operation does not result in significant sedimentation of drainage facilities and the river, there is no guarantee that all related projects would implement similar BMPs. Hence, a **significant impact** could occur. The project would not contribute to any such cumulative impact.	S	Adhere to NPDES and SWPPP requirements for the discharge of stormwater runoff to the San Joaquin River, and implement the sediment reduction BMPs (i.e., stormwater detention basins, etc.) proposed under the Mossdale Landing project (see Sections 4.1 And 4.2 for description).	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
5.3-b: Cumulative Surface Water Quality - Stormwater Runoff. The proposed project along with related projects would discharge their stormwater runoff to the San Joaquin River and could potentially degrade the quality of the river. Because existing agricultural discharges would cease, water quality BMPs would be implemented, and NPDES discharge permits would be required to be adhered to under the proposed project, the proposed project would result in less than significant surface water quality impacts to the river. While there is no guarantee that related projects would incorporate the same degree of BMPs as the Mossdale Landing project, the related projects would also cease agricultural discharges to the river and would be required to adhere to NPDES discharge permit requirements, and thus would also be expected to result in **less than significant** surface water quality impacts to the river.	LTS	No mitigation measures are necessary	LTS
5.3-c: Cumulative Surface Water Quality - Recycled Water. The proposed project along with some of the related projects would discharge treated wastewater to land as a disposal method. The treated wastewater to be land applied would be tertiary treated and disinfected to Title 22 standards for unrestricted use, would travel through the proposed water quality BMPs before being discharged, would be applied at the agronomic rate to avoid surface ponding and runoff, and would occur consistent with NPDES discharge permit requirements. Given this, and the presence of the levee which would avoid gravity runoff to the river, the land disposal of treated wastewater would result in a less than significant surface water quality impact to the river. For the related projects, the lack of specific proposals for direct river discharges of treated wastewater, the high level of treatment of the treated wastewater to be land disposed (all City treatment plants will treat to tertiary levels), and the need for any discharges to be permitted by the RWQCB suggest that the cumulative impacts would also result in **less than significant** surface water quality impacts to the river associated with the land disposal of treated wastewater.	S	No mitigation measures are available beyond the TMDLs currently being reviewed by regulatory agencies to control the level of DO and other pollutants in the San Joaquin Delta.	SU (if the TMDL is not effective)

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
The related projects could include the disposal of a portion of the their treated wastewater via discharges to the San Joaquin River. As evaluated in the certified EIR for the adopted Lathrop Water, Wastewater and Recycled Water Master Plan, the discharge of tertiary treated wastewater to the river by cumulative development in Lathrop could add, however minutely, to significant levels of dissolved oxygen (and to other pollutants of concern) in the San Joaquin Delta (specifically the Stockton Ship Channel). This would represent a potentially **significant** impact. If a portion of the treated wastewater is river disposed instead of land disposed, the proposed project would contribute to these impacts. Certain regulatory agencies are currently reviewing a proposed TMDL for DO and are preparing other TMDLs for other pollutants in the Delta. If these TMDLs are adopted and prove effective in reducing DO in the Delta to acceptable levels, these impacts would eventually be less than significant. Otherwise, significant unavoidable adverse impacts could occur.			
5.3-d: Cumulative Groundwater Quality. The proposed project, along with some, most or all of the related projects, would include construction activities, generate urban runoff, and land dispose of treated wastewater, each of which would could impact groundwater quality. The proposed project would: implement BMPs to reduce urban contaminants in stormwater runoff that could percolate to groundwater, land dispose of only tertiary treated wastewater which is applied at the agronomic rate, end agricultural use of the site and associated percolation of herbicides and pesticides, and comply with applicable discharge regulations and permits. These, combined with the lengthy depth to potable groundwater, would combine to result in less than significant impacts to groundwater. Because there is substantial regulation of those features of projects that could potentially degrade groundwater, including discharge requirements, separation distance requirements between storage ponds and groundwater, storage pond lining requirements, and hazardous materials handling requirements, cumulative impacts would not be expected from related	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
projects. Compliance with these and other applicable requirements would result in **less than significant** groundwater quality impacts. The proposed project, along with several of the related projects, would rely on City wells as a water source until such time as surface water is available from the SCSWSP. The potential environmental impacts associated with this use of groundwater was evaluated in the certified EIR for the adopted Water, Wastewater, and Recycled Water Master Plan (Master Plan). As indicated, increased groundwater pumping would contribute to the migration of the 500 mg/L salinity intrusion front eastward over time, requiring certain wells in the area to either cease operation or incorporate water treatment to comply with safe drinking water standards. However, the Master Plan requires the City of Lathrop to provide municipal water to any uses within the City limits currently reliant on well water should closure of said wells be required. Hence, a **less than significant** impact would occur.			
5.3-e: Cumulative Traffic. The proposed project along with the related projects would substantially increase traffic on the existing and future local roadway and highway system. This would result in **significant** cumulative impacts in terms of the following: (a) degradation of LOS at signalized intersections (Louise Avenue/I-5 northbound and southbound ramps); (b) degradation of LOS at unsignalized intersections (Golden Valley Parkway/Main Street and Main Street/Manthey Road); (c) vehicle backups extending from one intersection through an adjacent intersection (Louise Avenue westbound and eastbound lanes at I-5 northbound and southbound ramps); (d) degradation of freeway operations (I-205 between I-5 and MacArthur Drive); and (e) degradation of arterial operation (Golden Valley Parkway and Main Street).	S	**a. Traffic - Degradation of LOS at Signalized Intersections.** The City of Lathrop shall ensure that the improvements listed below are completed by the time the Mossdale Landing project is built out (expected in 2010) or as needed before project buildout based upon the project's ongoing traffic monitoring program. This shall be accomplished by undertaking any one of the following: • require the Mossdale Landing applicant to pay its fair share towards the costs of the improvements if a funding and construction program currently exists for these improvements that guarantees construction of the improvements by 2010; or	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		• develop and adopt a funding and construction program for the improvements that identifies fair share responsibility and guarantees construction of the improvements by 2010, and obtain the fair share payments for the improvements from the Mossdale Landing applicant; or • require the Mossdale Landing applicant complete the improvements (i.e., front the costs for the improvements) by the time the Mossdale Landing project is built out, and reimburse the Mossdale Landing applicant for other than its fair share at such time as Califia, Lathrop Station, and other development projects pay their fair share for the cost of the improvements. **Louise Avenue/I-5 Southbound Ramps** C Provide a fair share contribution towards construction of a west to southbound loop on-ramp in the northwest quadrant of the Louise Avenue interchange. This loop on-ramp would be needed for Base Case conditions. **Louise Avenue/I-5 Northbound Ramps** C Provide a fair share contribution towards construction of an east to northbound loop on-ramp in the southeast quadrant of the Louise Avenue interchange. This loop on-ramp would be needed for Base Case conditions.	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
	S	**b. Traffic - Degradation of LOS at Unsignalized Intersections.** The City of Lathrop shall ensure that the improvements listed below are completed by the time the Mossdale Landing project is built out (expected in 2010) or as needed before project buildout based upon the project's ongoing traffic monitoring program. **Golden Valley Parkway/Main Street** • Provide a second left turn lane on the southbound Golden Valley Parkway intersection approach. • Provide a second departure lane on the Main Street eastern intersection leg. • Provide a second right turn lane on the Main Street westbound intersection approach. • Provide a second departure lane on the Golden Valley Parkway northern intersection leg. **Manthey Road/Main Street** • Provide a second left turn lane on the northbound Manthey Road intersection approach. • Provide a second departure lane on the Main Street western intersection leg.	LTS
	S	**c. Traffic - Vehicle Backups Extending from One Intersection Through an Adjacent Intersection in 2010.** To eliminate vehicle queues extending on Louise Avenue between the Louise Avenue/I-5 northbound ramps and Louise Avenue/I-5 southbound	LTS

TABLE 2-1
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Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		ramps, the following shall be undertaken: **Louise Avenue/I-5 Southbound Ramps** • The City of Lathrop shall implement Mitigation Measure 4.5-f. In addition, the City shall ensure that the applicant shall pay 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 4.5-f. **Louise Avenue/I-5 northbound ramps** • The City of Lathrop shall implement Mitigation Measure 4.5-f. In addition, the applicant shall pay 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 4.5-f.	
	S	**d. Traffic- Degradation of Freeway Operations.** No mitigation is available to mitigate the temporary significant cumulative traffic impact on the I-205 between I-5 and MacArthur Drive. The significant impact on this freeway segment would continue until improvements programmed for this freeway segment	SU (temporary)

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		by Caltrans are completed (anticipated in 2007).	
	S	**e. Traffic - Degradation of Arterial Operation.** The City of Lathrop shall ensure that the improvements listed below are completed by the time the Mossdale Landing project is built out (expected in 2010) or as needed before project buildout based upon the project's ongoing traffic monitoring program. **Golden Valley Parkway (from Gold Rush Boulevard to Main Street)** • Provide a second travel lane in each direction. **Main Street (from Golden Valley Parkway to Manthey Road)** • Provide a second through travel lane in each direction. Alternatively, provide two travel lanes of Golden Valley Parkway between Main Street and River Edge Drive.	LTS
5.3-f: Cumulative Air Quality. The proposed project would result in significant construction emissions, less than significant mobile source CO, and significant long-term regional emissions. After mitigation, the proposed project would still result in significant long-term regional emissions (due to the non-attainment status of the San Joaquin Valley Air Basin for ROG and NO_x). Given the large scale of the related projects when taken in total, it is anticipated that they would result in significant construction emissions, mobile source CO emissions, and long-term regional emissions, and that compliance with the mitigation measures identified in Section 4.6 of this EIR would reduce these impacts, but these impacts would remain **significant**. Because the proposed project would contribute construction, mobile source, and long-term regional emissions	S	Implement Mitigation Measures 4.6-a and 4.6-c. These mitigation measures would reduce cumulative construction and long-term regional emissions, but not to less than significant levels. No mitigation is available to avoid or reduce the significant cumulative mobile source CO emissions.	SU

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
to these cumulative emissions, it would contribute to these significant cumulative impacts after mitigation.			
5.3-g: Cumulative Noise. The proposed project would result in significant construction, stationary source, traffic, activity, and exposure to agricultural noise impacts before mitigation, and significant traffic and exposure to agricultural noise impacts after mitigation. Because the related projects taken together would involve more construction activity, pumps, traffic, and human activity than the proposed project, and would create more agriculture/urban interfaces, it is anticipated that the related projects would also result in **significant** noise impacts in each of these areas before mitigation. For those related projects adjacent to or in the immediate vicinity of the proposed project, the proposed project would contribute to such significant noise impacts.	S	Implement Mitigation Measures 4.7-a through 4.7-e. These mitigation measures would reduce cumulative construction, stationary source, and activity noise impacts to less than significant levels. These mitigation measures would reduce traffic and agricultural exposure noise impacts, but not to less than significant levels.	SU
5.3-h: Cumulative Utilities. The proposed project would generate less than significant electricity, natural gas and solid waste impacts before mitigation, and significant water, wastewater treatment and wastewater disposal capacity impacts before mitigation. All utility impacts would be reduce to less than significant levels after mitigation. The related projects would generate a demand for water, wastewater treatment, and wastewater disposal which could not be met by existing utility infrastructure and/or facility infrastructure currently being planned at a project level (i.e., Wells #21-23, WRP #1 Phase 1 Expansion Project). While lack of water supply and delivery infrastructure, and wastewater treatment and disposal infrastructure, does not in itself represent a significant impact, the need to construct new such facilities could result in **significant** impacts on the environment. An SB 610 Water Supply Assessment (Assessment) has been prepared for the proposed project and for cumulative development through year 2025. The Assessment has determined that adequate water is or will be available to serve cumulative plus project development. Hence, **no impact** would	S	Implement Mitigation Measures 4.8-b, 4.8-d, 4.8-e, 4.8-h, and 4.8-j, as applicable. The Lathrop Water, Wastewater and Recycled Water Master Plan includes planned facilities that would accommodate cumulative growth. The Master Plan EIR evaluates impacts and suggests mitigation measure. Most impacts would be reduced to less than significant.	LTS, except potential odors and potential (but unlikely) cumulative water quality impacts, both from wastewater treatment plants.

TABLE 2-1
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Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
occur with respect to water supply.			
5.3-i: Cumulative Public Services. The proposed project would generate a significant increase in demand for police, fire and schools services and facilities, and significant affects on police and fire emergency response times. These impacts would be reduced to less than significant levels with the proposed dedication of land for an on-site fire station and two schools, and with implementation of the mitigation measures identified in Section 4.9. At this time, it is unclear whether sufficient police, fire and school facilities are planned to serve the related projects. While some of the related projects include proposals for the construction of the service facilities, others do not. However, it is clear that sufficient police facilities, fire stations, and schools would need to be constructed to serve the related projects. Although lack of required service facilities does not in itself represent a significant impact, the need to construct new such facilities could result in **significant** impacts on the environment. The proposed project would result in significant environmental effects associated with the construction of the service facilities required to serve it, and thus would contribute to this significant cumulative public services impact.	S	Implement Mitigation Measures 4.9-a, 4.9-b, 4.9-c, 4.9-e, 4.9-g, 4.9-i, and 4.9-k, as applicable. Because the specific significant impacts that may occur associated with the development of police, fire and school facilities required to serve the related projects are unknown at this time, specific mitigation measures required to mitigate any such impacts cannot be identified as this time.	Unknown at this time.
5.3-j: Cumulative Terrestrial Biology. The proposed project would lead to the elimination of foraging and nesting habitats of multiple sensitive animal species, potential loss of designated sensitive species and the removal of wetlands and riparian habitat, each of which would represent a significant impact. Section 4.10 identifies mitigation measures that set forth how the project can comply with the SJMSCP. The SJMSCP is a countywide solution to the incremental loss of sensitive species and their habitat which both the County of San Joaquin and the City of Lathrop are signatories to. It requires payment of fees to support the purchase of habitat elsewhere, minimization and avoidance measures, replacement requirements for sensitive plant species/riparian habitat, reconstruction survey requirements, etc. Implementation of the mitigation measures	S	Implement Mitigation Measures 4.10-b, 4.10-c, 4.10-d, 4.10-e, 4.10-f, 4.10-g, 4.10-h, 4.10-i, 4.10-j, and 4.10-k, as applicable. In addition to the above, adopt an oak tree preservation/avoidance plan that would preserve or replace the largest oaks at each cumulative project site.	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
would reduce the project's terrestrial biology impacts to less than significant levels. The related projects would likely lead to the elimination of similar types of sensitive species habitat, wetlands, and riparian habitat, and the similar potential loss of individuals designated as sensitive species, thus resulting in similar **significant** impacts before mitigation (i.e., compliance with SJMSCP). The proposed project would remove both exotic and native trees such as valley oaks. Although the SJMSCP does not specifically call for the preservation of oak trees that are not part of riparian habitat or oak woodland, and the City of Lathrop has no heritage tree ordinance that would protect such trees, valley oaks are regarded by the scientific community as valuable habitats for wildlife. The proposed project includes a proposed preservation/avoidance plan for the largest oak trees on-site that calls for a combination of preservation and replacement. With implementation of this plan, a less than significant impact would occur. There is no guarantee that each of the related projects would adopt a similar oak tree preservation/avoidance plan. Hence, a potentially **significant** cumulative impact could occur.			
5.3-k: Cumulative Fisheries. The proposed project would result in temporary significant fisheries impacts (impacts to aquatic habitat and sensitive fish species) during construction of the proposed stormwater outfall to the San Joaquin River, and less than significant long-term impacts associated with both the discharge of stormwater runoff to the river and the use of recycled water at the project site. There is a potential that one or more of the related projects would include construction activities on the river side of the levees. While there are regulatory review and permitting requirements for construction activities that may affect Waters of the U.S. (such as the San Joaquin River), construction on the river side of the levees could result in adverse effects to	S	Implement the sediment reduction BMPs (i.e., stormwater detention basins, etc.) proposed under the Mossdale Landing project (see Sections 4.1 And 4.2 for description). In addition, implement Mitigation Measures 4.11-a and 4.11-c. The above mitigation would reduce some of or all of the significant construction-related impacts to fisheries on a project-by-project basis. There is a potential for significant cumulative impacts that would require additional mitigation, but this would require project-specific analysis.	LTS

TABLE 2-1
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Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
sensitive fish species, sedimentation of the river, and/or the removal of riparian habitat. This would represent a **significant** cumulative impact. The proposed project would contribute to this cumulative impact.			
Related projects would need to comply with NPDES requirements for any stormwater discharge that would be expected to result in less than significant water quality impacts to the river and **less than significant** long-term cumulative fisheries impacts.	LTS	No mitigation measures are necessary.	LTS
Related projects could include the disposal of treated wastewater via discharges to the San Joaquin River. As evaluated in the certified EIR for the adopted Lathrop Water, Wastewater and Recycled Water Master Plan, the discharge of tertiary treated wastewater to the river by development in Lathrop could add, however minutely, to significant levels of dissolved oxygen in the San Joaquin Delta (specifically the Stockton Ship Channel), as well as other pollutants listed as pollutants of concern (Section 303(d) of the Clean Water Act). These would represent significant surface water quality impacts and hence, potentially, significant impacts to fisheries. If a portion of the treated wastewater is river disposed instead of land disposed, the proposed project would contribute to these impacts. Regulatory agencies are currently preparing/reviewing proposed TMDLs for DO and other 303(d)-listed pollutants in the Delta. If these TMDLs are adopted and prove effective in reducing pollutant loading to acceptable levels, these impacts to surface water quality and hence impacts to fisheries would eventually be mitigated. Otherwise, significant unavoidable adverse fisheries impacts could occur.	S	No mitigation measures are available for the potential fisheries impacts associated with the potential discharge of treated wastewater to the river beyond the TMDLs currently being prepared/reviewed by regulatory agencies to control the level of DO and other 303(d)-listed pollutants in the San Joaquin Delta. It is expected that the TMDL process will provide for adequate management of pollutant loading such that future beneficial uses (including fisheries) will not be significantly affected. However, until programs are in effect, this result cannot be assured.	Potentially SU (depending on TMDL effectiveness)
5.3-I: Cumulative Cultural Resources. The proposed project would not affect any historic resources, but could potentially affect listed archaeological resources and any as of yet unlisted/undiscovered archaeological resources which may be present on the project site. This would represent a significant impact before mitigation and a less than significant impact after mitigation.	S	For related projects proposed on vacant land or on large parcels of agricultural land, an archaeological field survey should be conducted by a trained archaeologist, any cultural resources found during the survey recorded, and any mitigation measures (i.e., curation, preservation, avoidance, etc.) identified by	LTS

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Given the presence of recorded archaeological sites, including human remains, in the City of Lathrop, and the potential presence of historic structures, it is almost certain that multiple related projects would affect listed and as of yet unlisted/undiscovered archaeological resources, human remains, and/or historic resources. This would represent a **significant** cumulative impact. The proposed project would contribute to this impact if the one listed archaeological site identified on the project site that may represent a unique archaeological resource is indeed a unique archaeological resource as determined by excavation of the site as required by mitigation in this EIR.		the archaeologist implemented. For related projects where structures are present, it should be determined whether any of these structures are 45 years of age or older, and if they are, a trained architectural historian should be called in to perform a State Register Eligibility evaluation of the structures. If any of the structures are determined to be eligible for inclusion in the State Register, any mitigation measures identified by the historian (i.e., photo documentation, preservation, avoidance, etc.) should be implemented.	
5.3-m: Cumulative Indirect Impacts. The proposed Mossdale Landing project would not be able to be constructed/occupied without two of the related projects, the WRP #1 Phase 1 Expansion Project and the Well #21-23 Development Project. While not resulting directly in cumulative impacts associated with these projects, the proposed project would indirectly contribute to the cumulative impacts of these projects. The potential impacts of the two related projects were evaluated in the certified EIR for the Lathrop Water, Wastewater and Recycled Water Master Plan (Master Plan). The Master Plan EIR indicated that the planned expansion of WRP #1 could result in **significant** unavoidable air quality (odor), surface water quality, and fisheries, while the planned development of new wells would result in **significant** but mitigable groundwater impacts. Because the proposed project would require each of the above related projects, it would contribute indirectly to these significant unavoidable cumulative impacts.	S	No known mitigation measures are available for the significant air quality (odor) impacts of the WRP #1 Phase 1 Expansion Project. Mitigation, in the form of TMDLs, are currently being prepared/reviewed by regulatory agencies to control the level of DO and other pollutants in Delta waterways. If these TMDLs are successful, the surface water quality and fisheries impacts of the WRP Expansion would be less than significant. Otherwise, a significant unavoidable adverse impact could occur.	SU

NI = No Impact LTS = Less-than-Significant S = Significant SU = Significant Unavoidable

3 PROJECT DESCRIPTION

This section describes the location, setting, background, goals and objectives, characteristics, phasing, and discretionary actions associated with the proposed project. This section is based on the Urban Design Concept (UDC) Document prepared for the Mossdale Landing project by Pacific Union Homes (the applicant). The UDC Document is bound separately and is available at the City of Lathrop Community Development Department, 16775 Howland Road - Suite One, Lathrop, CA 95330, or by calling Deanna Walsh, Principal Planner, (209) 858-2860, ext. 269.

3.1 PROJECT LOCATION

The Mossdale Landing project site (project site) is located on 477.3 acres in the incorporated City of Lathrop (City), San Joaquin County, California (Exhibit 3-1). The site is situated within the approved 6,955-acre West Lathrop Specific Plan (WLSP) area of the City, in an area commonly referred to as Mossdale Village (Exhibit 3-2). The WLSP is a plan adopted by the City that outlines the planned urban development of the western portion of the City (i.e., the Stewart Tract and Mossdale Village).

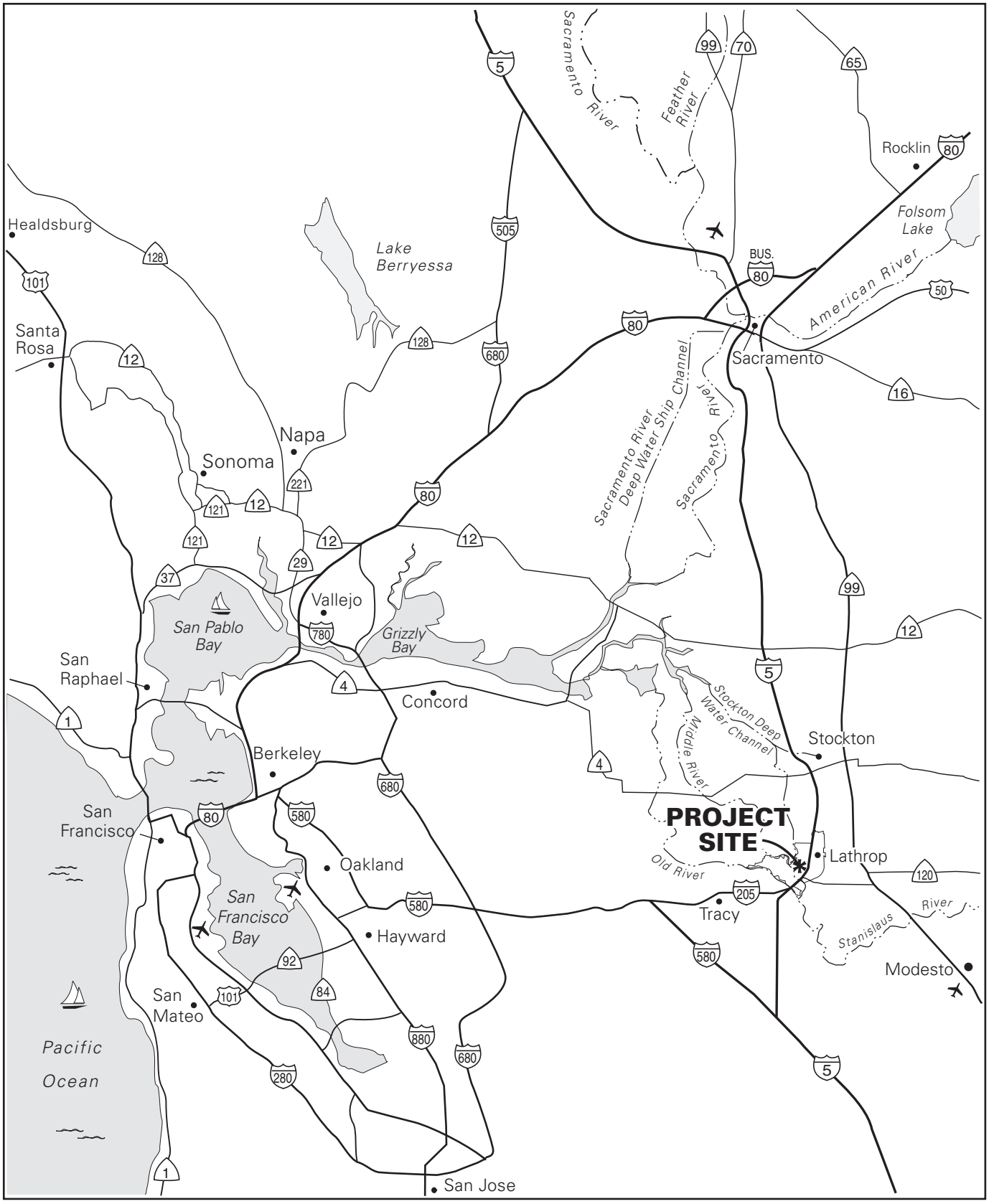
The site is located within the vicinity of three other proposed development projects, including the Central Lathrop Specific Plan to the north, Lathrop Station to the southeast, and Califia/River Islands[1] to the west (Exhibit 5-1). The project site is bordered on the west by the San Joaquin River (SJR). Just beyond the river to the west is the Stewart Tract, which makes up the majority of the WLSP area. To the east is farmland and Interstate 5 (I-5), which provides regional access to the project site via the Louise Avenue interchange. To the south and north is farmland interspersed with farmsteads and various outbuildings. The project site is accessible by regional freeways, rail lines, and navigable waterways.

The nearest developed area consists of various commercial uses located on Louise Avenue and Harlan Road approximately 1,800 feet east of the project site (across I-5). The nearest public facilities include Widmere School, south Mossdale Crossing Park, Lathrop Elementary School, Lathrop Annex, Valverde Park and Community Center, and the Lathrop Fire Station, located approximately 10,800, 5,000, 6,100, 5,300, 5,800 and 6,400 feet, respectively, northeast of the project site (across I-5). The one exception is south Mossdale Crossing Park which is located south of the project site (west of I-5).

3.2 EXISTING SETTING

The project site consists of 11 contiguous parcels (APNs 191-190-02, -03, -05, -06, -11, 14, -16, -17, -22, -23, and 191-200-01) that form an irregularly-shaped site totaling 477.3 acres (Exhibit 3-3). The existing land use at the site is agriculture (alfalfa and row crops) and farm residential. The site contains 26 existing structures, including farm residences, barns, ancillary farm structures, and garages for farm equipment and private vehicles. The site is relatively flat, with a slight gradient sloping down toward the San Joaquin River to the west. The site is located outside the 100-year floodplain.

[1] As described in detail in Chapter 5, Cumulative Impacts, this EIR considers the approved Califia/Gold Rush City development as the related project for the Stewart Tract rather than the newly proposed River Islands project as the former represents the approved land use plan for the Stewart Tract (as part of the West Lathrop Specific Plan).



Source: EDAW, Inc. 2001.

Regional Setting

EXHIBIT 3-1

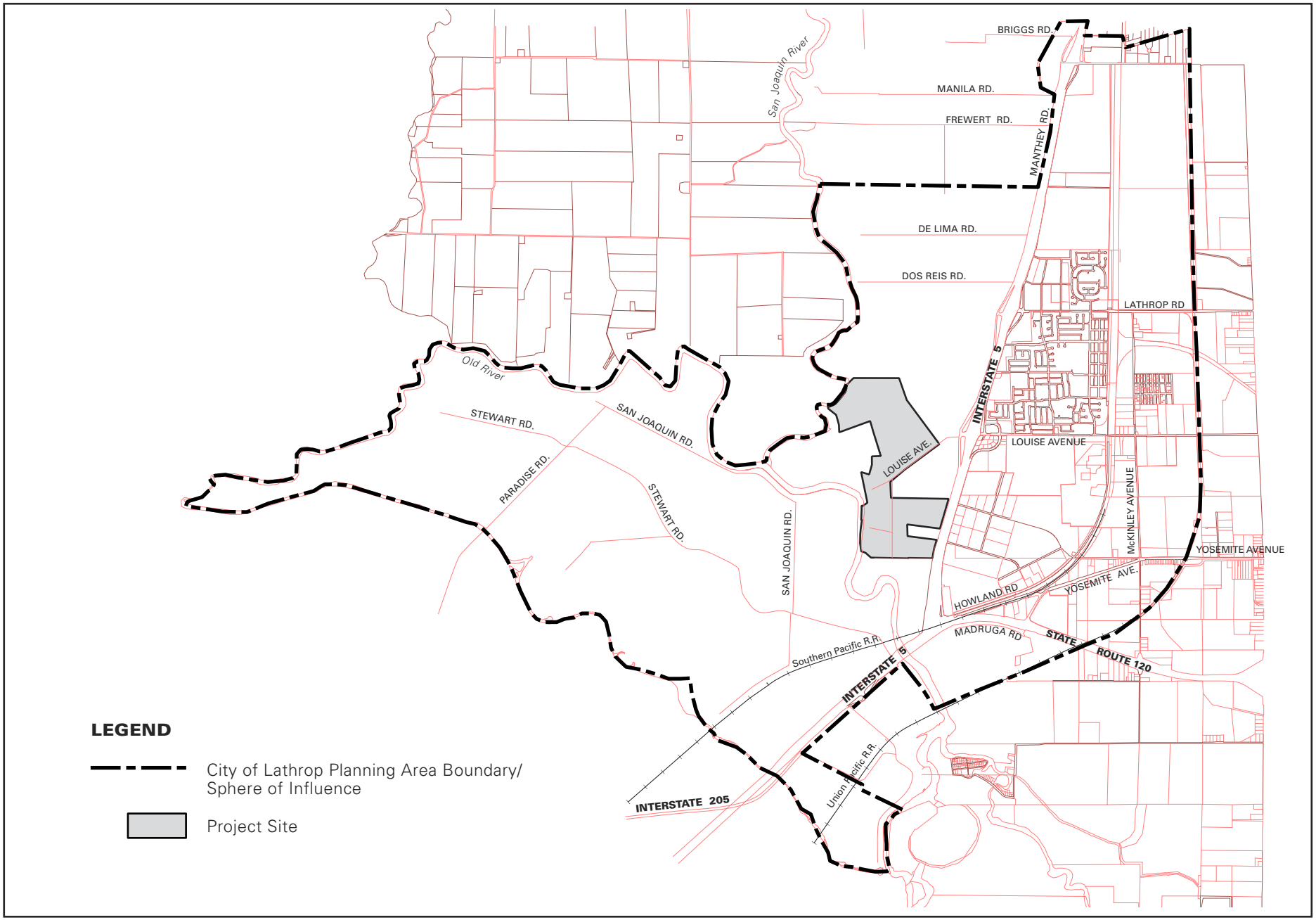
Mossdale Landing UDC EIR
CITY OF LATHROP

0 5 10 20 MILES

NORTH

EDAW

JN 1T019.01 10/01



Base Map Source: Nolte 1999.

Local Setting

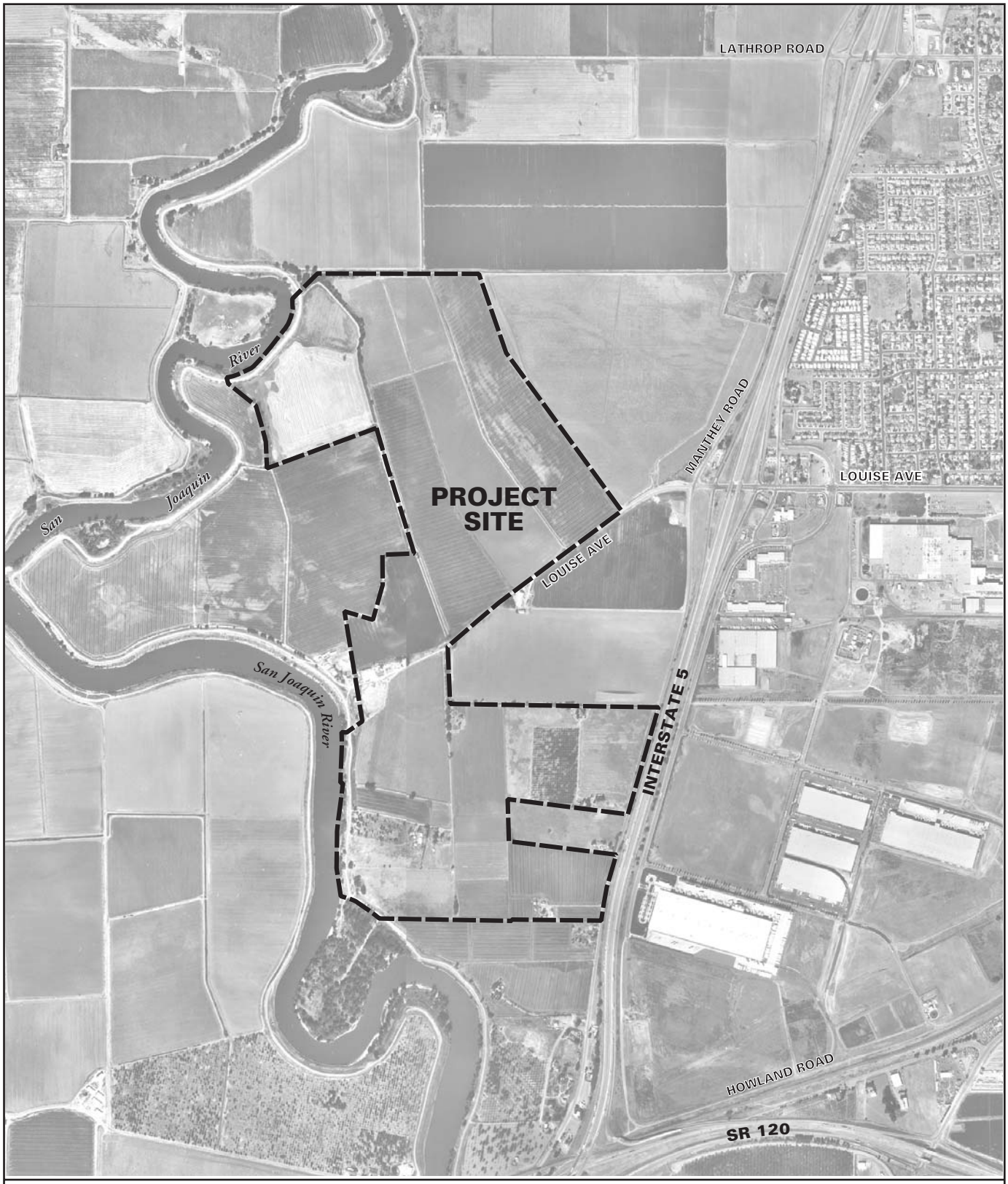
EXHIBIT 3-2

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 10/01

0 4000 8000 FEET

NORTH

EDAW



LEGEND

Project Site Boundary

Source: McKay and Somps, 4/2001; EDAW, 4/2001.

Project Vicinity

EXHIBIT 3-3

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

0 1000 2000 FEET

NORTH

EDAW

Local vehicular access to the project site is provided by Louise Avenue and Manthey Road (Exhibit 3-2). Louise Avenue bisects the site, while Manthey Road runs along portions of its eastern boundary. As indicated previously, regional access is provided by I-5 via the Louise Avenue interchange. On-site access is provided by Louise Avenue and several private, paved and unpaved farm roads.

Interstate 5 is constructed on a berm in the vicinity of the project site, elevated above local topography; it presents a physical and visual barrier to the east of the project (Exhibit 3-3). The eastern levee of the SJR is a 20-foot-high earthen levee that presents a physical and visual barrier to the west and southwest.

3.3 PROJECT BACKGROUND

The City adopted the WLSP in 1996. The WLSP area, which was annexed to the City in 1997, covers approximately 6,995 acres of farmland, riparian area and open space in an area generally bounded by I-5, Old River, Paradise Cut, and Louise Avenue (Exhibit 3-2). The WLSP subdivided the WLSP area into two Development Concept Plan areas; the Stewart Tract, a 5,794-acre area planned as a region-serving, recreation-oriented mixed use development; and Mossdale Village, a 1,161-acre area planned for residential development with associated village, service, and highway commercial uses. The project site is located within the Mossdale Village Development Concept Plan area.

The project site is designated by the WLSP as Residential Low, Residential Medium, Public, Service Commercial, Village Commercial, and Roadways (see Table 8-1). The project site is zoned by the City Zoning Map as R-MV (Single Family Residential), RM-MV (Multi-Family Residential), CS-MV (Service Commercial), CV-MV (Village Commercial), and OS (Open Space).

The project site is subject to the UDC requirement of the WLSP, which requires that each development project in the WLSP area include a UDC document setting forth the design and development guidelines under which development is to take place. These design and development guidelines must be consistent with those set forth in the WLSP. The proposed project is based upon the Mossdale Village Concept Plan and the policies contained within the greater WLSP. The proposed Mossdale Landing project has been designed to be consistent with these plans, with applicable zoning, and with the UDC requirements of the WLSP.

3.4 PROJECT GOALS AND OBJECTIVES

The goal of the proposed project is to create a mixed-use, master-planned community. The objectives of the proposed project are listed below:

- Add to the economic vitality of Lathrop by providing more local homes, jobs, and revenue-generating land uses.
- Provide public improvements required for each phase of the proposed development.
- Provide diverse types of housing in Mossdale Village that respond to current local and regional needs and the needs to be generated by future development in the WLSP area.
- Provide community services that meet the varied needs of the proposed residential component of the proposed project.

- Link key activities, such as schools, parks and retail, with landscaped parkways or pedestrian- and bicycle-oriented corridors to encourage non-vehicular circulation.
- Focus neighborhoods around local schools and parks.
- Establish distinctive gateways that welcome travelers to the proposed project.
- Enrich Lathrop's way-of-life along the SJR by including open space, access and recreation along the River.
- Create a park, trail and open space system that links to Citywide and regional systems.

3.5 PROJECT CHARACTERISTICS

3.5.1 URBAN DESIGN CONCEPT (UDC)

The project applicant is requesting approval of a UDC and Vesting Tentative Map for a mixed-use master planned community to be called Mossdale Landing (proposed project) (Exhibit 3-4).

The project would be developed as 16 neighborhoods to include residential and commercial uses, parks, two K-8 schools, an interim fire station, and open space. The categories of land uses permitted under the UDC are listed below. See the Mossdale Landing UDC document for a list of permitted land uses. The UDC Document is bound separately and is available at the City of Lathrop Community Development Department, 16775 Howland Road - Suite One, Lathrop, CA 95330, or by calling Deanna Walsh, Principal Planner, (209) 858-2860, ext. 269.

(1) Low Density Residential
(2) Medium Density Residential
(3) Village Commercial
(4) Service Commercial
(5) Community and Neighborhood Parks
(6) Schools
(7) Fire Stations
(8) Levee/Open Space
(9) Major Streets

Table 3-1 quantifies the land uses proposed under the project. As indicated, at buildout the proposed project would include a total of 653,399 square feet of commercial, 1,690 residential units, 39 acres of parks, two elementary schools (164,000 square feet total), an interim fire station on 0.4 acre, 13.8 acres of levee/open space, and 52.2 acres of major streets. The project would be subject to the conditions of the WLSP.

3.5.2 DEVELOPMENT PLAN

The proposed project would consist of several integral elements containing the uses described below.

PLAN SUMMARY

Unit Summary

Neighborhood	*Lot Sizes*	*Homes*
1	6,000 s.f.	112
2	5,000 s.f.	107
3	6,000 s.f.	102
4	6,000 s.f.	134
5	7,000 s.f.	85
6	7,000 s.f.	75
7	3,200 s.f.	179
8	5,000 s.f.	70
9	5,000 s.f.	66
10	6,000 s.f.	128
11	5,000 s.f.	52
12	6,000 s.f.	66
13	3,200 s.f.	151
14	5,000 s.f.	66
15	7,000 s.f.	48
16	6,000 s.f.	53
17	5,000 s.f.	74
Village Commercial		122
Total units		*1,690*

Land Use Summary

Use	*Acres*	*Unit/SF*
Low Density Residential	268.0	1238 du
Medium Density Residential	39.1	330 du
Village Commercial	12.7	122 du
		175,111 S.F.
Service Commercial	18.3	478,288 S.F.
Parks	39.1	
Schools/Fire Station	34.1	
Open Space	13.8	
Major Streets	52.2	
Total	*477.3*	*1,690 du*
		653,399 S.F.

Source: MacKay & Somps, May 2002.

Conceptual Site Plan

EXHIBIT 3-4

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

0 250 500 1000 FEET

NORTH

EDAW

Table 3-1
Proposed Land Uses

Land Use Type	Interim Condition [1] (late 2007)		Buildout Condition [2] (2010)	
	Gross Acres	Units/Sq Ft	Gross Acres	Unit/Sq Ft
Low Density Residential	235.3	1,071 du	268.1	1,238 du
Medium Density Residential	26.1	215 du	39.1	330 du
Village Commercial	6.7	175,111 sq ft	6.7	175,111 sq ft
High Density Residential	6.0	122 du	6.0	122 du
Service Commercial	12.4	324,086 sq ft	18.3	478,288 sq ft
Parks	39.0	--	39.0	--
Schools	33.7 [3]	164,000 sq ft [3]	33.7 [3]	164,000 sq f [3]
Fire Station	0.4	-- [4]	0.4	-- [4]
Levee/Open Space	13.8	--	13.8	--
Major Streets	52.2	--	52.2	--
Recycled Water Storage Ponds and Spray Fields (interim)	51.7	--	--	--
Total:				
Acres	**477.3**		**477.3**	
Residential		**1,408 du**		**1,690 du**
Commercial		**499,197 sq ft**		**653,399 sq ft**
School		**164,000 sq ft**		**164,000 sq ft**

[1] The Interim Condition (late 2007) is evaluated in the Surface Water Quality, Groundwater Quality, and Utilities section of this EIR. It represents that amount of development that may occur with disposing of all project-generated (treated) wastewater on the site. The incremental increase in development between the Interim Condition (late 2007) and Buildout (2010) would require that some of the treated wastewater be disposed of off the site.

[2] The Buildout Condition (2010) is evaluated in all sections of this EIR.

[3] Based on information from a personal communication between EDAW and the Manteca Unified School District, July 2001.

[4] The size of the fire station to be reasonably determined by the Lathrop-Manteca Fire District.

Source: MacKay & Somps, April 29, 2002.

RESIDENTIAL AREA

The residential area would consist of 268.1 acres (1,238 du) of low-density residential uses, and 39.1 acres (330 du) of medium-density residential uses to be developed as 16 separate neighborhoods. The low-density residential would range from 3.6 to 5.7 dwelling units per acre (5,000-7,000-square-foot lots), while the medium-density residential would range from 8.2 to 8.7 dwelling units per acre (minimum 3,000-square-foot lots for duets, 1,200 square feet for rowhouses, townhouses, apartments, and condos, and 2,200 square feet for small lot single family). The lower density neighborhoods are proposed in the periphery areas of the project, with density generally increasing closer to the future village center (along Golden Valley Parkway

right-of-way). The low-density residential uses would consist of traditional single family detached units. The medium-density residential uses would include either attached housing consisting of duets, townhomes, rowhouses, condominiums or apartments, or detached housing consisting of conventional small lots, zero lot lines, zipper lots, or courtyard housing. Maximum building heights would be 35 feet for the low-density housing (38 feet for the first two rows of homes along the river), and 32 to 35 feet for the medium-density.

The Mossdale Village Concept Plan portion of the WLSP designates a possible high school site in the northeastern corner of the project site. However, the State has denied the use of this site for a high school, and prefers a location further north of Mossdale Landing. The WLSP took this possibility into consideration and provides a "selected Mossdale Village development alternative" to permit the high school site to be developed instead as low-density residential. The proposed project is utilizing this selected Mossdale Village development alternative of low-density residential as the proposed land use in this area.

VILLAGE COMMERCIAL AREA

Village Commercial uses would be within a 12.7-acre area (two parcels) located in the eastern-central portion of the project site along the pedestrian-oriented "Main Street." Main Street would separate the proposed project from a separate project in the planning stages to the north (Lathrop Station). The village commercial area would be developed as a mixed use activity area where residents and visitors would shop, eat, work, and live. The Village Commercial area is anticipated to become a community center, and to establish a pedestrian-oriented environment with wide sidewalks, articulated buildings, street trees, special paving, and street furniture.

Categories of land uses permitted within the Village Commercial area would include: retail sales; service retail; eating, drinking, and entertainment establishments; office; residential; and conditional uses. See the Mossdale Landing UDC document for a full list of permitted and conditional uses.

Approximately 122 high-density residential units would also be developed within the Village Commercial area at approximately 20 units per acre. These residential units could include apartments, condominiums, senior housing, and live/work accommodations on the upper stories of the Village Commercial mixed uses. At this time, a single-use apartment complex is being proposed on the western Village Commercial parcel.

The proposed 175,111 square feet of Village Commercial uses would be developed on 6.7 acres, resulting in a floor area ratio (FAR) of 0.6. The proposed 122 apartments would be developed on 6 acres, resulting in an FAR of up to 2.0. The maximum permitted building height in the Village Commercial area would be 60 feet (four stories), with tower elements permitted to 70 feet. See the Mossdale Landing UDC document for a complete list of development standards.

SERVICE COMMERCIAL AREA

Service commercial uses would be developed on 18.3 acres of the project site between Manthey Road and Golden Valley Parkway. Permitted and conditional land uses have been designed to provide for a mix of services, retail, and office uses that relate to the Main Street district.

Categories of land uses permitted within the Service Commercial area would include: service commercial; service retail; eating, drinking, and entertainment establishments; office; regional-oriented retail; and conditional uses. See the Mossdale Landing UDC document for a full list of permitted and conditional uses under each of these categories.

The proposed 478,288 square feet of Service Commercial uses would be developed on 18.3 acres, resulting in a floor area ratio (FAR) of 0.6. The maximum permitted building height in the Service Commercial area would be 55 feet, with office uses permitted to 75 feet. See the Mossdale Landing UDC document for a complete list of development standards.

PUBLIC USES

Public designated land uses include parks, schools, fire stations, and open space. Approximately 25.6 acres of park lands are required to be dedicated by the proposed project; however, Mossdale Landing would provide 39 acres of parks. The parks would include a 20-acre community park located in the west-central portion of the project site, and 19 acres of neighborhood parks scattered across the site and central to all neighborhoods. Additionally, the project would include 13.8 acres of open space and existing levee along the east side of the SJR, pedestrian pathways, and along various pedestrian connections between neighborhoods. For the open space along the levee, no project facilities or activities would be permitted within 60 feet of the toe of the levee, with the exception of passive recreation, a proposed storm drain outfall, and a multi-use trail (see Section 3.5-5 for further discussion).

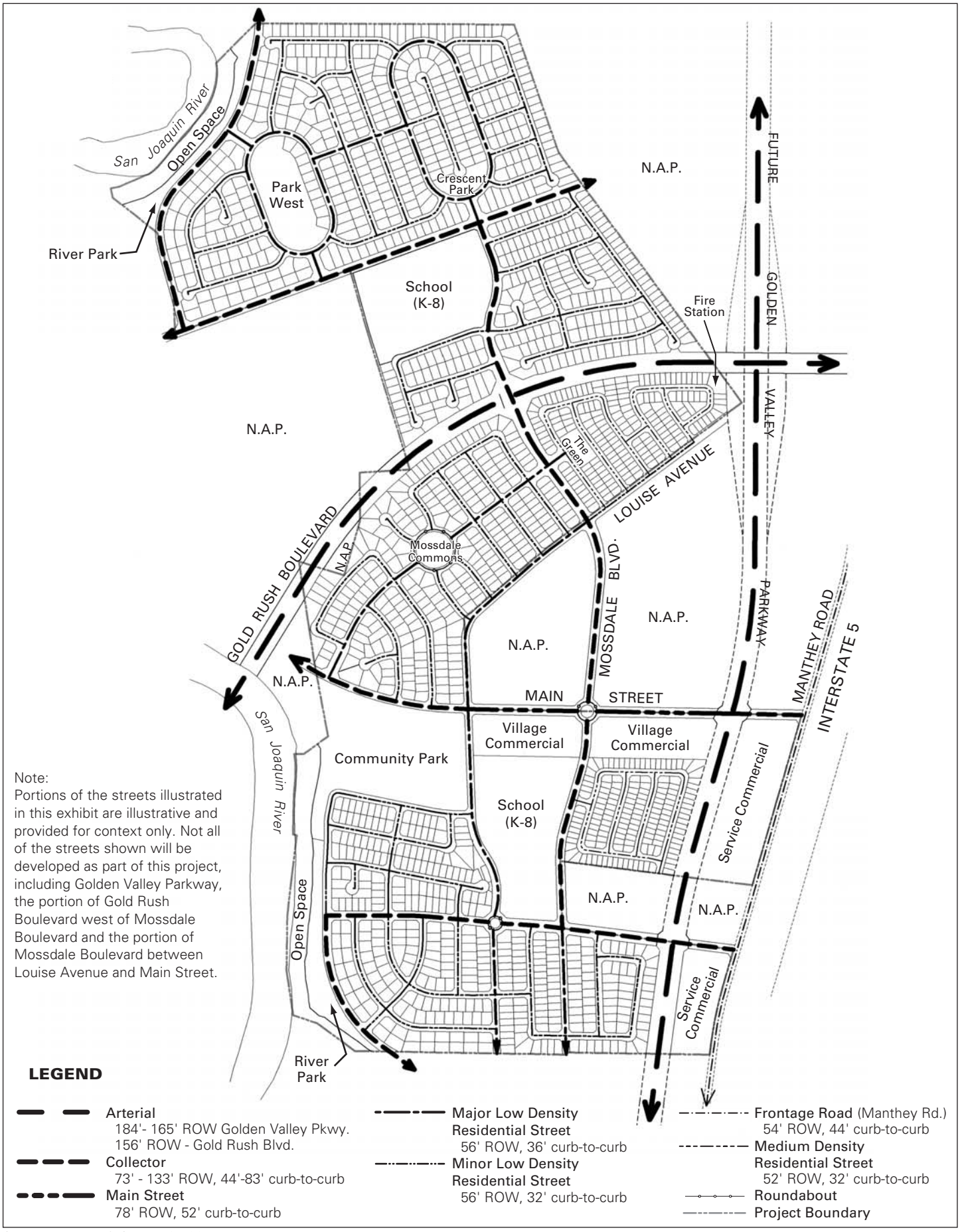
The proposed project would include the dedication of approximately 33.7 acres of the project site to the Manteca Unified School District for the development of two 82,000-square-foot K-8 schools. Terry School would be located in the north-central portion of the site and would provide an educational and open space amenity to the greater Mossdale Village area. Mossdale School would be located in the south-central portion of the project site, near the neighborhoods it would serve.

3.5.3 CIRCULATION PLAN

STREET SYSTEM

Access to the project site would be provided by a combination of proposed and existing roadways (Exhibit 3-5). The primary proposed access would be a new arterial named Gold Rush Boulevard. This arterial, which is included in the WLSP, would be developed from the I-5/Louise Avenue interchange to a proposed north-south collector within the project area (Mossdale Boulevard), where it would be stubbed. From that point to the western boundary of the project site, right-of-way would be dedicated by the Mossdale Landing applicant for future extension of Gold Rush Boulevard to the Stewart Tract or to other areas of Mossdale Village. See Section 3.8 for discussion of the Gold Rush Boulevard Precise Plan Line (PPL), which provides for future on- and off-site planning of this roadway.

The primary existing access would be from Manthey Road and Louise Avenue. Primary freeway access would be provided by the existing I-5/Louise Avenue interchange. Golden Valley Parkway, which is a major arterial expressway proposed as part of the WLSP, would not be developed as part of the Mossdale Landing



Note:
Portions of the streets illustrated in this exhibit are illustrative and provided for context only. Not all of the streets shown will be developed as part of this project, including Golden Valley Parkway, the portion of Gold Rush Boulevard west of Mossdale Boulevard and the portion of Mossdale Boulevard between Louise Avenue and Main Street.

LEGEND

- Arterial
  184'- 165' ROW Golden Valley Pkwy.
  156' ROW - Gold Rush Blvd.
- Collector
  73' - 133' ROW, 44'-83' curb-to-curb
- Main Street
  78' ROW, 52' curb-to-curb
- Major Low Density Residential Street
  56' ROW, 36' curb-to-curb
- Minor Low Density Residential Street
  56' ROW, 32' curb-to-curb
- Frontage Road (Manthey Rd.)
  54' ROW, 44' curb-to-curb
- Medium Density Residential Street
  52' ROW, 32' curb-to-curb
- Roundabout
- Project Boundary

Source: MacKay & Somps, 05/02.

Vehicular Circulation

EXHIBIT 3-5

Mossdale Landing UDC EIR
CITY OF LATHROP

0 600 1200 FEET

NORTH

EDAW

JN 1T019.01 07/02

project. However, right-of-way would be dedicated for this future roadway within the project site at this time subject to a Deferred Frontage Improvement Agreement (DFIA) No off-site roadway improvements are planned, other than those associated with the Louise Avenue/Gold Rush Boulevard/Manthey Road intersection and a short road segment of Gold Rush Boulevard connecting this intersection to the project site. No off-site construction roads are planned, except for minor curb and gutter improvements along Manthey Road within the existing street right-of-way.

Access within the project site would be provided by arterial, collector, and residential streets (Exhibit 3-5). The proposed Gold Rush Boulevard, future Golden Valley Parkway, and existing Manthey Road and Louise Avenue, would serve as access to the project site. The proposed collector streets would provide access from these roadways to each of the 16 proposed neighborhoods. The proposed neighborhood streets would provide access within the project neighborhoods. See the Mossdale Landing UDC document for exhibits depicting the cross-sections of these proposed streets.

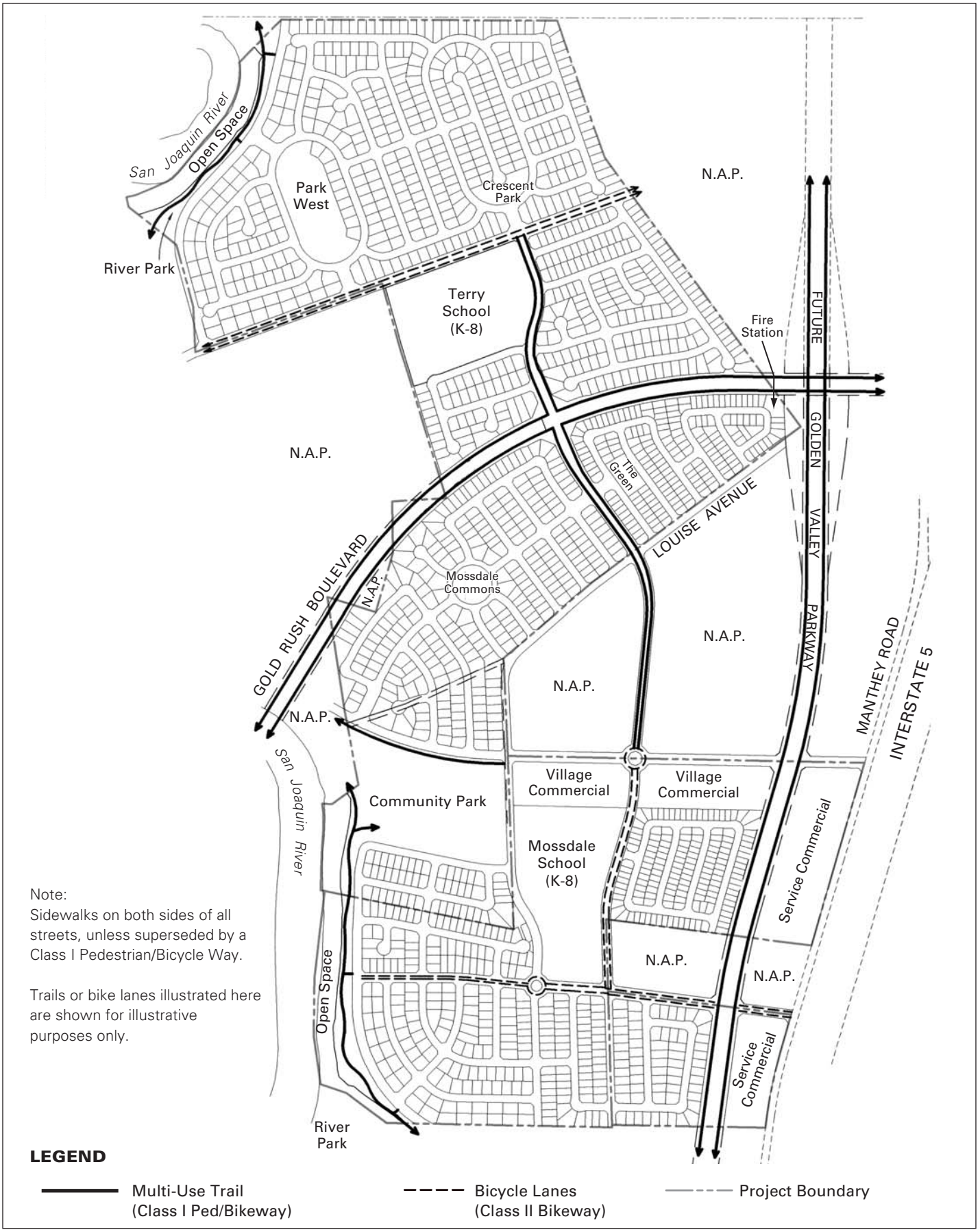
The proposed neighborhood streets have been designed to be pedestrian-oriented and not dominated by the automobile. Where possible, neighborhood street widths have been reduced to slow vehicular traffic and improve pedestrian and bicyclist movement. In most cases, the street widths removed from the paved residential street section have been added to the parkways along the streets. Due to safety considerations, bike lanes are not included in the proposed Gold Rush Boulevard and the Golden Valley Parkway right-of-way to improve safety. Instead, a separate multi-use trail will be provided with this project along Gold Rush Boulevard. Additionally, space has been proposed within the Gold Rush Boulevard ROW for a future second multi-use trails along Gold Rush Boulevard.

Portions of Gold Rush Boulevard would be one of the first streets constructed for the project. It is proposed that the outside lanes of Gold Rush Boulevard be constructed along with median plantings and street lights, or, as an alternative, two lanes on either side, at the discretion of the Public Works Director, The remaining lanes would be temporarily planted until Gold Rush Boulevard is required to be widened by traffic generated from other projects, such as development of the Stewart Tract.

PEDESTRIAN AND BICYCLE SYSTEMS

Sidewalks within Mossdale Landing would be separated from the streets by landscaped parkways. All streets would have sidewalks on both sides of the street (with the exception of Manthey Road and River Road). In certain locations, residential streets terminating in cul-de-sacs may have pedestrian connections between the neighborhood and the adjacent street.

As indicated in Exhibit 3-6, a mix of multi-use trails (Class I pedestrian/bikeways) and bicycle lanes (Class II bikeways) are proposed within the project. Multi-use trails are proposed along Gold Rush Boulevard from the I-5 to the north-south street (a.k.a., Mossdale Boulevard), along the north-south street from Louise Avenue north, along the portion of River Road north of Louise Avenue, and within the proposed River Parks. Bicycle lanes are proposed along portions of the north-south collector street south of Main Street, and along the two east-west collectors located in the northern and southern portions of the project site.



Source: MacKay & Somps, 05/02.

Pedestrian and Bicycle Circulation

EXHIBIT 3-6

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 07/02

0 600 1200 FEET

NORTH

EDAW

The pedestrian and bicycle systems as described above, along with other attributes of the project such as greenbelts, sidewalks on all roadways with street trees and grasses, pedestrian parks, neotraditional street layout allowing for many more vehicle and pedestrian access points, and more park acreage than required all have been designed to reduce reliance on the automobile and thus reduce potential traffic, air quality, and noise impacts that would otherwise occur without such project features.

3.5.4 DRAINAGE PLAN

The project site is located outside the 100-year floodplain (i.e., is protected from the 100-year flood by the east levee of the SJR). Therefore, the project would not require levee or other flood control improvements.

Drainage for the project would be provided by the development of an on-site storm drain system (see Exhibit 3-7). The system would consist of a series of stormwater detention basins, pump stations, and storm drains that would convey stormwater runoff from the project site to the San Joaquin River (SJR) via a stormwater outfall constructed on the east levee of the river. Best Management Practices (BMPs) would be incorporated into the system to reduce urban contaminants in the runoff before being discharged to the SJR.

Per City standards, the storm drain system would be designed to accommodate 10-year peak flows with a minimum freeboard of one foot, and would be designed to accommodate 24-hour, 100-year peak flows while maintaining the hydraulic grade line at a minimum of one foot below the lowest floor of adjacent structures.

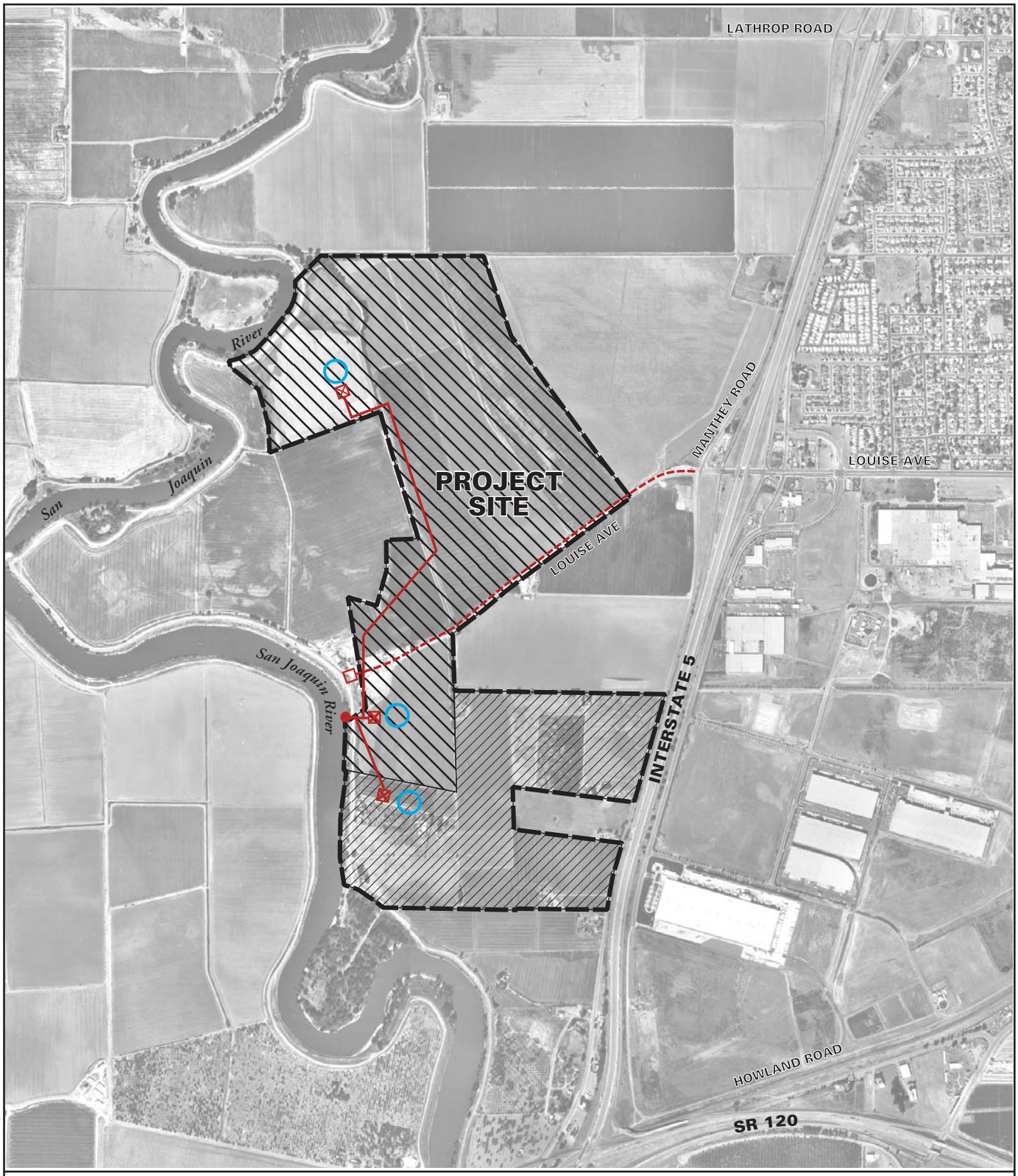
3.5.5 UTILITIES PLAN

The Mossdale Landing project includes proposals for utility systems required to serve the project, including wastewater, recycled water, water, electricity, and natural gas. Each of these is discussed below. Exhibit 3-8 identifies the major off-site utility improvements required to serve the Mossdale Landing project. See Section 4.8, Utilities, for a further description, and applicable sections of this EIR (i.e., Cultural Resources, Terrestrial Biology, Noise, etc.) for analysis of the potential environmental effects associated with the construction of these improvements..

WASTEWATER

Wastewater generated by the proposed project would be treated at City Wastewater Recycling Plant #1 (WRP #1), also known as the Crossroads Treatment Plant. WRP #1 is located to the southeast of the Mossdale Landing project.

The proposed sewer pipeline from Mossdale Landing to WRP #1 would generally follow the "contingency strategy" alignment as shown in the Lathrop Water, Wastewater, and Recycled Water Master Plan (Master Plan). Wastewater would be conveyed through an 18-inch gravity pipeline to a proposed lift station located at the southeast corner of the Louise Avenue/I-5 interchange, between the freeway on-ramp and Manthey Road.



Source: McKay and Somps, 2/2002.

Conceptual Drainage Plan

EXHIBIT 3-7

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 5/02

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NORTH

EDAW

LEGEND

- Project Site Boundary
- Proposed Wastewater Pipeline
- Proposed Wastewater Pipeline (Option)
- Proposed Water Pipeline
- Proposed Recycled Water Pipeline

Off-Site Utility Improvements

EXHIBIT 3-8

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 5/02

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NORTH

EDAW

A 10-inch force main would be constructed to the south in Manthey Road for approximately 4,800 feet. At that point, the force main would change direction to the east and continue under I-5 through a jack-and-bore operation for approximately 400 feet. At that time, a new force main would be constructed down Nestle Way to WRP #1 for approximately 4,000 feet. The wastewater would be treated to a tertiary level and conveyed back to the project site via recycled water pipelines following the same alignment discussed above.

During interim conditions (late 2007), 100% of the wastewater generated by the proposed project would be treated at WRP #1 and then returned to the project site for land disposal. This land disposal would be accomplished through the use of spray fields and application as irrigation water within public areas of the proposed project. During the winter months, insufficient demand for irrigation water at the project site would require that a portion of this wastewater be stored in on-site storage ponds to be located on the Neighborhood 16 and Service Commercial parcels for land disposal later in the year when demand exists again. If after 2007 an off-site disposal option were to become available, buildout of the proposed project would occur as set forth in Table 3-1. If this were to occur, some of the wastewater generated by the proposed project would be treated at WRP #1 and then land disposed at an off-site location and/or discharged to in the San Joaquin River (as originally planned for in the Lathrop Water, Wastewater and Recycled Water Master Plan (Master Plan). The potential environmental effects of any such off-site land disposal or discharge to the San Joaquin River are evaluated in applicable sections of this EIR (i.e., Surface Water Quality, Groundwater Quality, Fisheries, Utilities, etc.). The analysis of potential future river discharge is based on the programmatic analysis of such discharge contained in the Master Plan EIR which provides an accurate representation of potential impacts associated with the expansion of WRP #1.

WRP #1 does not currently have the treatment and disposal capacity required to serve the Mossdale Landing project. Furthermore, WRP #1 currently treats wastewater to secondary levels rather than to the tertiary levels required to serve the proposed project . However, plans to increase the treatment and disposal capacity of WRP #1, and to convert WRP #1 from a secondary to a tertiary treatment plant, were approved on a programmatic level in 2001 with City adoption of the Master Plan. The Program EIR for the Master Plan was certified at the same time and provides a programmatic analysis of potential impacts associated with the expansion of WRP #1. Project level plans for expansion and improvement of WRP #1 consistent with the Master Plan are currently being prepared by the City as the WRP #1 Phase 1 Expansion Project. If approved and constructed, the WRP #1 Phase 1 Expansion Project would provide the tertiary-level treatment and disposal capacity required to serve some of the development currently proposed in the WLSP area (i.e., first phases of Califia/River Islands, Lathrop Station, and Mossdale Landing) as well as additional capacity for the Crossroads Commerce Center. A project-level EIR for that project is also currently being prepared, by the City.

RECYCLED WATER

Recycled water systems to serve the Mossdale Landing project would be designed in accordance with the Master Plan. Two connections are proposed to the City's future recycled water system: one at the Louise Avenue/Manthey Road intersection, and one approximately 1.1 miles south of the Louise Avenue and I-5 intersection (would require jack and bore under I-5). Pipeline sizes from WRP #1 to the project site would range from 12 to 24 inches. Final pipeline sizes would be determined at the design stage of the project.

Wastewater generated by the proposed project during interim conditions would be conveyed to WRP #1 via the wastewater pipeline described above, treated at the WRP, and then returned to the project site for land disposal via recycled water pipelines following the same alignment as the wastewater pipelines described previously. Recycled water would be disposed of at the project site in two ways: (1) use as irrigation water for on-site public areas (i.e., parkway strips, medians, other plantings within ROWs, parks, and schools); and (2) dedicated spray fields. The recycled water would be applied at agronomic rates so as to minimize percolation below the root zone and avoid ponding at the surface. The applications would occur during the irrigation season (approximately March through October), with the recycled water stored in storage ponds on the Service Commercial parcels at the south end of the site (Exhibit 3-9) during the winter months (approximately November through February). The storage ponds would be 16 feet in depth, have 19.7 acres of surface area, have a total storage capacity of 166 acre-feet, and be lined with clay or a synthetic material.

Approximately 83 acres of net on-site disposal area (53.7 acres of public landscaping irrigation area and 29.3 acres of spray fields) would be available during interim conditions, providing approximately 0.462 million gallons per day (mgd) of disposal capacity. This use of recycled water for on-site irrigation would be sufficient to dispose of the treated wastewater (also 0.462 mgd) to be generated by the proposed project during the interim period. The acreages of the proposed on-site recycled water storage ponds and application area (spray fields and public landscaping) are summarized in Table 3-2.

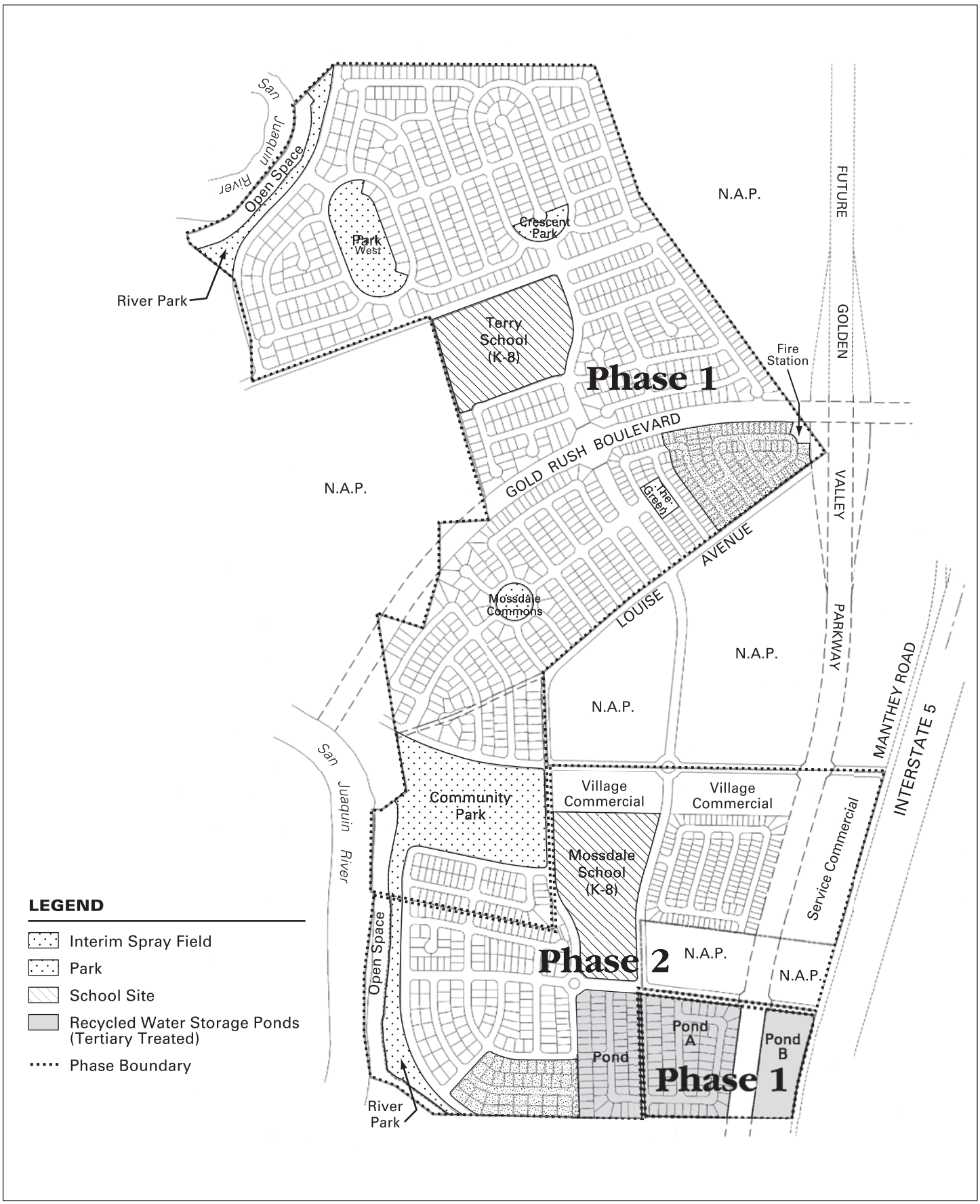
Table 3-2
Proposed On-Site Recycled Water Storage/Application Area

Use	Area (acres)	
	Interim Conditions (late 2007)	Buildout (2010)
Storage Ponds [1]	19.7	--
Spray Fields	29.3	--
Public Landscaping [2]	53.7	52.1
Total	**102.7**	**52.1**

[1] Includes storage pond surface area, but not exterior berms around storage ponds.
[2] Includes portions of the proposed community park, river and neighborhood parks, schools, medians/parkways, and exterior berms around the storage ponds.
[3] This assumes City obtaining river discharge permit.

Source: MacKay & Somps, February 1, 2002.

As indicated previously, there is a possibility that the proposed on-site spray fields and storage ponds could be eliminated in the future under the proposed project with the advent of off-site land disposal of treated wastewater and/or discharge of treated wastewater to the SJR. It is anticipated that such additional disposal capacity could occur if the project applicant were to procure rights to dispose of treated wastewater generated by the project to off-site lands and/or if river discharges of treated wastewater were to commence associated with WRP #1 or future WRPs in the City (as planned for in the adopted Lathrop Water, Wastewater and



Source: MacKay & Somps, 05/02.

Recycled Water and Sprayfield Areas

EXHIBIT 3-9

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 06/02

0 600 1200 FEET

NORTH

EDAW

Recycled Water Master Plan). If such additional disposal capacity were to become available, the 49 acres of the project site currently proposed as spray fields and storage ponds would be developed with 282 residential units and 154,202 square feet of Service Commercial (Table 3-1, Buildout Conditions). At the same time, the public landscaping irrigation area at the project site would decrease slightly to 52.1 acres. This issue is evaluated in Section 4.8 of this EIR under Impact 4.8-h, Demand for Recycled Water Disposal Capacity at Buildout. The related issues of the potential off-site surface water quality and groundwater quality impacts associated with the off-site land or river disposal of treated wastewater are evaluated in Sections 4.4 and 4.3 of this EIR, respectively, under Impacts 4.4-c and 4.3-c.

WATER

Water system facilities to serve the proposed project would be designed in accordance with the Master Plan. Water supply for the proposed project would be from groundwater (Well #21) initially, and then through conjunctive use of both groundwater from Well #21 and surface water from the approved South San Joaquin Irrigation District (SSJID) South County Surface Water Supply Project (SCSWSP). Once SCSWSP water becomes available, it is the intent of the City that SCSWSP water be utilized as the primary water source for the project, with Well #21 providing supplemental water during peak demand and needed water pressure for fire flows.

Two connections would be made to the City's water system: one at Louise Avenue just east of I-5; the other approximately 1.1 miles south of the Louise Avenue and I-5 intersection (at the wastewater and recycled water pipeline crossings) that will require a bore and jack under I-5. Pipeline sizes would be approximately 18 inches between the project site and Manthey Road, and 8 to 12 inches everywhere else. The pipelines would connect to existing water lines east of I-5 that, in turn, would be provided water from City Well #21. The development of City Well #21 is planned for in the Master Plan and was evaluated, in the Master Plan EIR. It is currently undergoing project-level CEQA review as part of the Well #21-23 Development Project. Well #21 was planned in the Master Plan as one of the wells that would serve future development in the City and, along with Wells #22 and 23, would provide water for near-term development in the City (i.e., Mossdale Landing, first phases of River Islands, Lathrop Station, etc.). impacts associated with the development of Well #21 are summarized from the Master Plan EIR in Section 4.8 under Impact 4.8-c, Environmental Impacts Associated with the Development of Well #21.

Final pipeline size and design, and the location and design of Water Storage Tank/Booster Pump Station #8, will be determined at the design stage of the proposed project.

ELECTRICITY AND NATURAL GAS

Electricity and natural gas would be provided to the project site via one or two connections to existing electricity and natural gas transmission lines in the project vicinity. A dry utility trench (joint trench) would be provided to the Mossdale Landing project via Louise Avenue. The joint trench would be constructed within the Louise Avenue right-of-way or along a public utility easement (P.U.E.). A potential location for a second connection may be provided along the proposed utility sewer/water/recycled water crossing approximately 4,800 feet to the south of Louise Avenue. PG&E will determine more precise locations and types of connections at the design stage of the proposed project.

OPTIONAL UTILITY PLANS

The Mossdale Landing UDC Document identifies several options for utilities in order to provide the project with flexibility to adapt to possible future changes in utility infrastructure in the City of Lathrop. These include: (1) treatment of project wastewater at a future WRP #2 as planned in the City's adopted Water, Wastewater, and Recycled Water Master Plan; (2) development of an off-site water storage tank; and/or (3) disposal of treated wastewater generated by interim project development at an off-site location (i.e., at WRP #1, an off-site land location, or to the river). In addition, the project applicant has indicated that, as an option to obtaining potable water for the project from the City of Lathrop's municipal water system, the applicant's reserves the right to exercise its riparian water rights to serve the proposed project with potable water. These options are not evaluated in this EIR. If the applicant decides to pursue one or more of these options, the option(s) will be subject to separate CEQA review, City approval, and regulatory permitting.

3.5.6 WALL AND FENCE PLAN

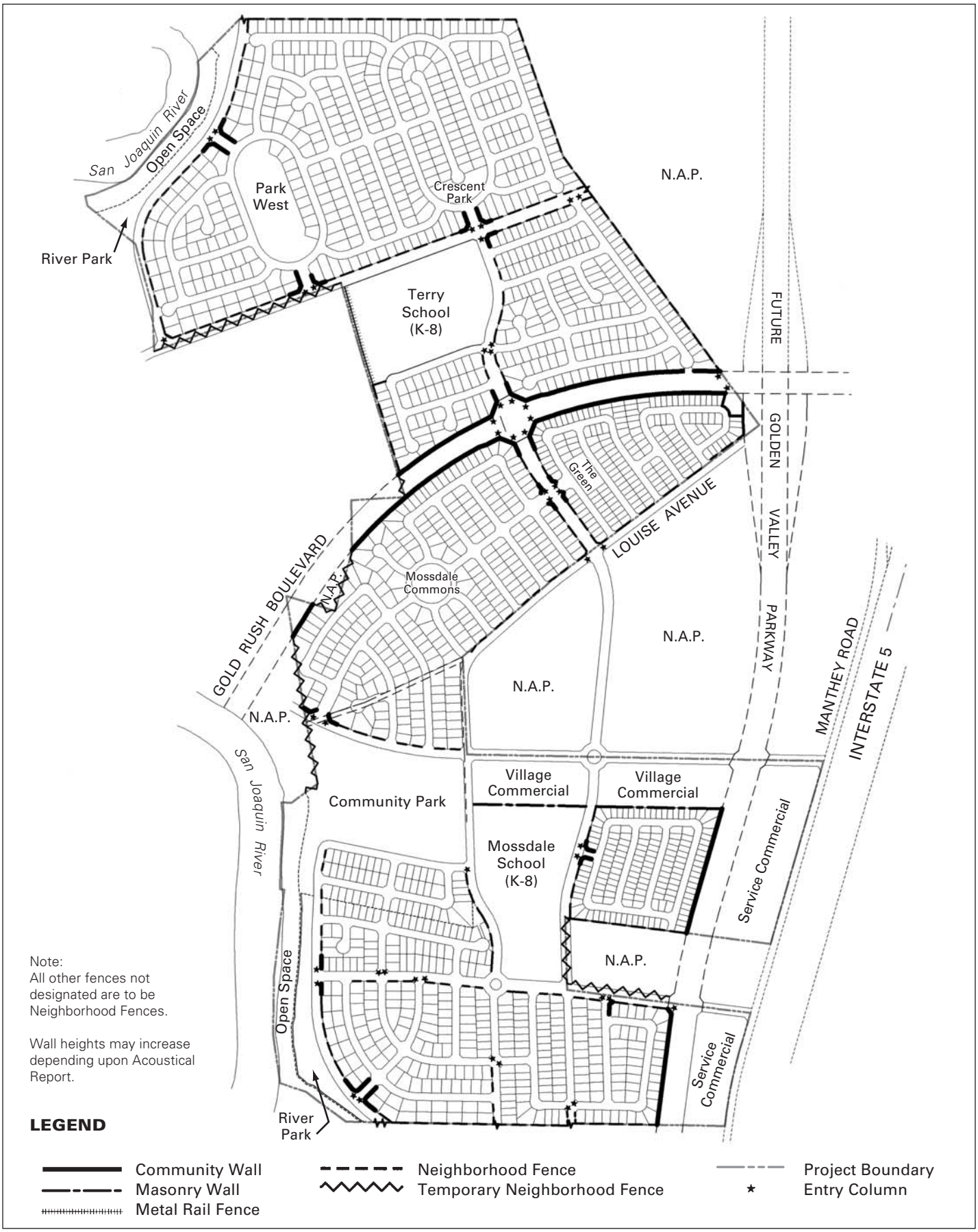
As indicated in Exhibit 3-10, five general wall and fence types are proposed as part of the project, including community walls, masonry walls, neighborhood fences, temporary neighborhood fences, and metal rail fences.

The community walls would be incorporated into high visibility and high traffic volume areas such as along arterials, at the project gateway, and at the neighborhood entries. These walls would be located along both sides of Gold Rush Boulevard, and along the west side of the Golden Valley Parkway ROW where it abuts the proposed residential uses. Community walls would be six feet in height, would be made out of masonry or concrete, would be articulated, and would provide shadow relief to break up their mass. Where community walls are required at heights greater than six feet for sound attenuation purposes, berming will be utilized to minimize the height of the actual wall panel (see Section 4.7, Noise, for further discussion).

Neighborhood fences would be incorporated along the exterior property line where proposed residential lots are located adjacent to operating farmland. These fences would be located along the northern property boundary and along a portion of the western project boundary north of the Gold Rush Boulevard ROW. Neighborhood fences would be six feet in height and would be made of wood. Where required for sound attenuation, they would match the other neighborhood fences except that they could exceed 6 feet in height (see Section 4.7, Noise, for further discussion).

In this instance, community walls are permitted in the same capacity as determined by the City. The neighborhood fences would also be used in certain neighborhoods between lots to provide privacy.

The neighborhood fence would also be placed along exterior property lines where proposed residential lots are located adjacent to areas where no agricultural operations are in process, or where agricultural activities will cease in the near future. This includes along the southern property line. In addition, neighborhood fences would also be used along collectors and neighborhood streets.



Source: MacKay & Somps, 05/02.

Wall, Fence and Column Plan

EXHIBIT 3-10

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 06/02

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Temporary neighborhood fences would be incorporated where the project boundary abuts adjacent parcels to be developed as a continuation of the proposed project. These fences would be located along the western project boundary around Neighborhoods 6 and 14, and would be removed once the adjacent parcels are developed.

To reduce their visual prominence, all walls and fences would be used in combination with shrubs, ground cover, and vine plantings (along walls).

3.5.7 GRADING PLAN

The project would require cut and fill, which would be balanced on-site with no soil import or export planned. The estimated amount of grading at buildout (both cut and fill) would total approximately 1,300,000 cubic yards of earth. Cut and fill depths to grade for streets/pads, wastewater storage ponds, and underground utilities would range from 1-5, 5-10, and 5-25 feet, respectively.

Mass grading for the project would occur in phases, with the maximum area to be graded at any one time measuring approximately 130 acres.

3.5.8 LANDSCAPE ARCHITECTURE PLAN

See the Mossdale Landing UDC document for graphic representations of the proposed landscape architecture plan, and for the proposed plant palette for streets.

3.5.9 STREET LIGHTING PLAN

Street lighting would be provided along all streets within the proposed project. This street lighting would be shielded to prevent light from illuminating adjacent properties and from intruding into the on-site residential lots. The type, scale, and illumination levels of the street lights would adhere to the hierarchy of the street or area in which it is located. Lighting spacing and brightness would meet City, PG&E, and State of California standards for illumination and safety. See the Mossdale Landing UDC document for graphical representations of the proposed light standards and fixtures.

Arterial streets and project gateway would utilize the City's standard 30-foot ornamental light pole and, depending upon the condition, single or double armed fixtures. Along Gold Rush Boulevard, street lights would be placed centrally in the median, while street lights along Golden Valley Parkway would be located on both sides of the median. Light standards would be placed at intersections and at the project gateway.

Collector and residential streets would utilize a lower, more pedestrian-scaled, light standard. Light standards would be 22 feet and 18 feet high on collector and residential streets, respectively; would have ornamental acorn-fixtures; and would alternate between the two sides of each street. At neighborhood entries, light standards would be paired. Along Main Street, the same light standards, fixtures, and placement would occur, except that the light standards would be 14 feet in height.

3.5.10 OAK TREE PRESERVATION/AVOIDANCE PLAN

The proposed project includes an oak tree preservation/avoidance plan for the largest valley oaks on the project site. Specifically, a majority of healthy valley oaks over 40 inches in diameter at breast height (dbh) would be preserved. The plan calls for the preservation of six of the largest 10 valley oaks on the project site. The remaining four largest valley oaks occur on property boundaries and are within proposed road alignments. The project proponent is currently investigating the feasibility of preserving these trees within the road alignments. In addition, the plan includes provisions to establish an oak community on the project site. This provision includes a prescription that all valley oaks larger than 18 inches dbh that are removed shall be replaced on the project site by installation of three valley oaks within the river parks and/or open space portions of the project site. Replacement trees will be at least one-gallon tree pots, and shall be watered for a period of three years or as otherwise necessary to establish the trees on the project site.

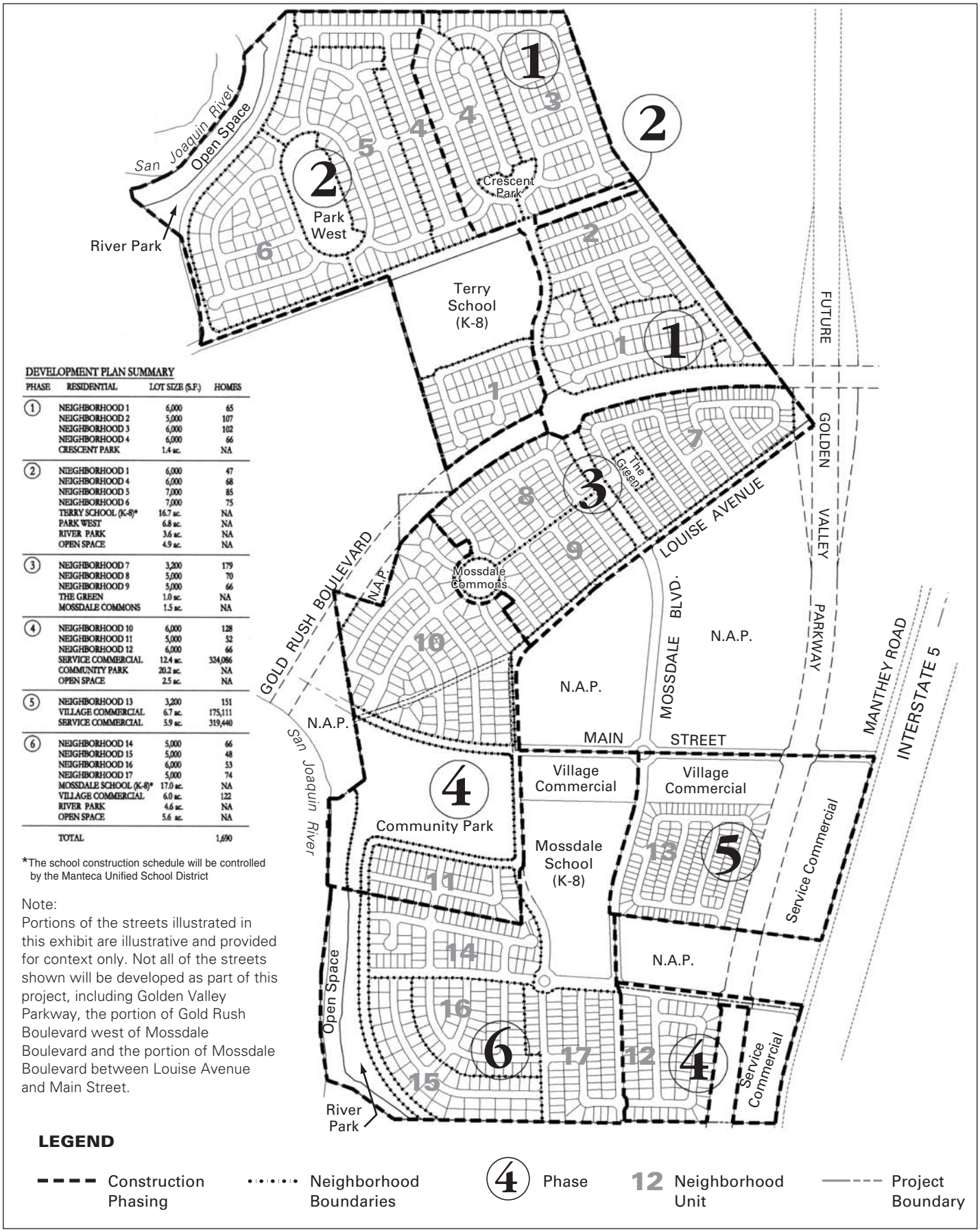
3.6 PROJECT PHASING

As indicated in Exhibit 3-11, the 16 project neighborhoods and commercial areas would be constructed over 6 phases between 2003 and 2010. Development would be initiated on those neighborhoods north of the future Gold Rush Boulevard first. It is anticipated that project development would then commence westward and subsequently loop back around to the south. The order in which neighborhoods would be built out has been established based on the logical patterns of infrastructure improvements. The initial phase of development would be the midsummer 2003 Each following phase would begin in late summer of the following year. The final phase would commence in late summer 2007 and be completed in 2010.

All necessary roadways, site grading, utility backbone improvements and easements, parks, and schools would be developed in a timely manner as required by the demands generated by each phase. Neighborhood 16 and the Service Commercial parcels would serve as winter storage sites for treated wastewater during Phases 1 through 5. These would be developed with residential and service commercial uses in Phase 6 if and when off-site land disposal areas are established and/or river discharges commence as planned in the Lathrop Water, Wastewater and Recycled Water Master Plan EIR (assumed to occur around 2007).

Similarly, a portion of Neighborhood 14 and one parcel each of the Village Commercial and Neighborhood Commercial would serve as interim spray fields for treated wastewater during Phases 1 through 5, and would be developed with residential and commercial uses in Phase 6 if and when off-site land disposal and/or river discharges become available. See Exhibit 3-9 for the locations of the proposed storage ponds and interim spray fields.

This EIR evaluates a single end state buildout condition (2010) where all parcels of the project site are fully built out. The EIR also evaluates interim conditions (2007) where such conditions would result in impacts not covered under the 2010 analysis (i.e., wastewater and recycled water in Section 4.8, Utilities).



DEVELOPMENT PLAN SUMMARY

PHASE	RESIDENTIAL	LOT SIZE (S.F.)	HOMES
1	NEIGHBORHOOD 1	6,000	65
	NEIGHBORHOOD 2	5,000	107
	NEIGHBORHOOD 3	6,000	102
	NEIGHBORHOOD 4	6,000	66
	CRESCENT PARK	1.4 ac.	NA
2	NEIGHBORHOOD 1	6,000	47
	NEIGHBORHOOD 4	6,000	68
	NEIGHBORHOOD 5	7,000	85
	NEIGHBORHOOD 6	7,000	75
	TERRY SCHOOL (K-8)*	16.7 ac.	NA
	PARK WEST	6.8 ac.	NA
	RIVER PARK	3.6 ac.	NA
	OPEN SPACE	4.9 ac.	NA
3	NEIGHBORHOOD 7	3,200	179
	NEIGHBORHOOD 8	5,000	70
	NEIGHBORHOOD 9	5,000	66
	THE GREEN	1.0 ac.	NA
	MOSSDALE COMMONS	1.5 ac.	NA
4	NEIGHBORHOOD 10	6,000	128
	NEIGHBORHOOD 11	5,000	52
	NEIGHBORHOOD 12	6,000	66
	SERVICE COMMERCIAL	12.4 ac.	324,086
	COMMUNITY PARK	20.2 ac.	NA
	OPEN SPACE	2.5 ac.	NA
5	NEIGHBORHOOD 13	3,200	151
	VILLAGE COMMERCIAL	6.7 ac.	175,111
	SERVICE COMMERCIAL	5.9 ac.	319,440
6	NEIGHBORHOOD 14	5,000	66
	NEIGHBORHOOD 15	5,000	48
	NEIGHBORHOOD 16	6,000	53
	NEIGHBORHOOD 17	5,000	74
	MOSSDALE SCHOOL (K-8)*	17.0 ac.	NA
	VILLAGE COMMERCIAL	6.0 ac.	122
	RIVER PARK	4.6 ac.	NA
	OPEN SPACE	5.6 ac.	NA
	TOTAL		1,690

*The school construction schedule will be controlled by the Manteca Unified School District

Note:
Portions of the streets illustrated in this exhibit are illustrative and provided for context only. Not all of the streets shown will be developed as part of this project, including Golden Valley Parkway, the portion of Gold Rush Boulevard west of Mossdale Boulevard and the portion of Mossdale Boulevard between Louise Avenue and Main Street.

LEGEND

Construction Phasing | Neighborhood Boundaries | 4 Phase | 12 Neighborhood Unit | Project Boundary

Source: MacKay & Somps, 05/02.

Phasing Plan

EXHIBIT 3-11

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 07/02

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3.7 DISCRETIONARY ACTIONS

Possible approvals and/or entitlements required from the City for the proposed project include:

- Certified EIR
- Urban Design Concept (UDC)
- Vesting Tentative Tract Map
- Development Agreement
- Final Map
- Neighborhood Design Review
- Building Permits
- Gold Rush Boulevard Precise Plan Line (PPL)
- Williamson Act Contract Cancellations

Possible approvals and/or permits required from responsible and trustee agencies include:

- Reclamation Board Permit (to construct on levee).
- Potential Federal Endangered Species Act consultation and incidental take permit (not anticipated as required at this time) from the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS).
- Potential State Endangered Species Act take permit (not anticipated as required at this time) from California Department of Fish & Game (CDFG).
- Section 404 of Clean Water Act - discharge or fill of Waters of the U.S. from the U.S. Army Corps of Engineers (USACE).
- Authorization from USACE to use Nationwide permits and/or individual permits for dewatering and discharge to Waters of the U.S.
- Encroachment Permit for construction that could affect a state highway from the California Department of Transportation (Caltrans).
- Section 401 of the Clean Water Act - certification of 404 permits from the Regional Water Quality Control Board (RWQCB).
- Potential reconsideration of Annexation of WLSP area to City of Lathrop from the San Joaquin Local Agency Formation Commission (LAFCO) [2]
- Annexation of West Lathrop Specific Plan Area to City of Lathrop (potential reconsideration)[3]

[2] LAFCO approved the annexation of the WLSP area, including Mossdale Landing, to the City in October 1996. A lawsuit challenging LAFCO's reliance on the certified FEIR 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 EIR would also be available for its use.

[3] LAFCO approved the annexation of the West Lathrop Specific Plan area, including Mossdale Landing, to the City in October 1996, and was in fact annexed to the City in 1997. A lawsuit challenging LAFCO's reliance on the certified

3.8 GOLD RUSH BOULEVARD PRECISE PLAN LINE (PPL)

Under the WLSP, a major arterial named Gold Rush Boulevard is planned which would extend from the I-5/Louise Avenue interchange westward through Mossdale Village and the project site, over the SJR, and into the Stewart Tract. In order to develop this arterial, approval of a precise plan line (PPL) is required. A PPL identifies the precise alignment of major roadway planned for in the WLSP. As indicated in the Introduction Chapter and Required Discretionary Actions section of this Chapter, a PPL for the Mossdale Village portion of this roadway (that portion of Gold Rush Boulevard from the I-5/Louise Avenue interchange to, but not including, the eastern levee of the SJR) is included as one of the entitlements being sought under the proposed project. The PPL for this segment of Gold Rush Boulevard is identified in Exhibit 3-12. This EIR evaluates the potential environmental impacts associated with the development of Gold Rush Boulevard within this PPL (which includes segments both within and outside the boundaries of the project site). Cross-sections and design information associated with the Gold Rush Boulevard PPL are included as Appendix K of this EIR.

FEIR for the West Lathrop Specific Plan as a responsible agency is still pending on appeal. Should LAFCO be required to take further action regarding the annexation as a result of the outcome of that litigation, LAFCO may rely on this Mossdale Landing EIR in any subsequent proceedings.

Source: MacKay & Somps, May 20, 2002.

Gold Rush Boulevard PPL

EXHIBIT 3-12

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

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4 ENVIRONMENTAL ANALYSIS

This chapter contains subsections on existing conditions, environmental impact, mitigation measures, and residual significant impacts for each of the 12 environmental issues evaluated in this EIR. The environmental issues evaluated in this chapter include those that the Notice of Preparation and Initial Study (Appendix A of this EIR) listed as potentially affected (significantly) by the project.

The subsections on existing conditions, environmental impacts, mitigation measures, and residual significant impacts for each environmental issue contained in this chapter are organized as described below:

Existing Conditions: This subsection presents the existing regional and local environmental setting. This subsection also presents the regulatory setting. The "Existing Conditions" subsection describes the baseline conditions against which the environmental impacts associated with the project are addressed.

Environmental Impacts: This subsection identifies thresholds of significance used in the DEIR, and discusses potential significant effects on the existing environment associated with the proposed project. The thresholds of significance are presented at the beginning of each subsection. Project impacts are numbered sequentially throughout each subsection. That is, impacts in Section 4.2 are numbered 4.2-a, 4.2-b, 4.2-c, etc. Impacts identified in Section 4.3 are numbered 4.3-a, 4.3-b, and so on. An italicized impact statement precedes the discussion of each impact and provides a summary of each impact and its level of significance. The discussion that follows the impact statement includes the substantial evidence upon which a conclusion of impact significant is made. A discussion of cumulative impacts is provided in Chapter 5.

Mitigation Measures: This subsection identifies mitigation measures to reduce any potentially significant effects associated with the project. The mitigation measures are numbered to match the impact numbering (mitigation measure 4.3-a is for impact 4.3-a, etc.).

Residual Significant Impacts: This subsection describes whether the mitigation measures would or would not reduce the significant impacts of the proposed project to less-than-significant levels.

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4.1 FLOOD CONTROL/DRAINAGE

This section addresses project impacts related to flood control and drainage. This section is based on information prepared by MacKay & Somps (M&S) for the proposed project (including the Mossdale Landing Drainage Plan) is included in its entirety as Appendix D of this EIR.

4.1.1 EXISTING CONDITIONS

PHYSICAL SETTING

The Mossdale Landing project is located within the Mossdale Watershed portion of the San Joaquin River Basin, which covers approximately 15,880 square miles 10.16 million acres) and drains into the San Joaquin River (SJR) (RBF Consulting 2001).

The Mossdale Village watershed is located within the the Mossdale Village portion of the City of Lathrop. It covers approximately 912 acres, with the Mossdale Landing project site encompassing 477.3 of these acres. The watershed is generally bounded by the northern boundary of the project site on the north, the 20-foot- high east levee of the SJR on the west and south, and Interstate 5 (I-5) on the east. The receiving water for the Mossdale Watershed is the SJR. The 330-mile-long SJR flows through portions of Contra Costa, Fresno, Madera, Merced, Sacramento, San Joaquin and Stanislaus counties. The river has flows ranging from 1,500 cubic feet per second (cfs) in dry years to in excess of 40,000 cfs in wet years (M&S 2002).

The eastern levee of the SJR, which makes up the western boundary of a portion of the project site, was originally constructed in the late 1980s and was enlarged and reconstructed in the late 1980s to meet U.S. Army Corps of Engineers (USACE) and California State Reclamation Board design standards (Kjeldsen 2001). The levee currently rises 20 feet or more above the prevailing ground elevations. Construction of the levee removed the project site from Federal Emergency Management Agency (FEMA) Flood Zone A (areas subject to inundation from a "base flood" having a recurrence interval of 100 years or greater). The area is now designated by FEMA as Zone B (an area protected by a levee from the 100-year flood). The revised FEMA designation of the site is depicted on the local FIRM maps (Panels 06299 0580 B, 06299 0585 C, 06299 0590 B, and 06299 0595 C) (M&S 2002).

The watershed, including the project site, is relatively flat agricultural land with several farm residences and ancillary farm structures. Existing ground slopes vary from 0 to 2%, with elevations ranging from 8 to 12 feet above mean sea level. The watershed is characterized by a variety of soil types, with hydrological soil Types B and C being predominant. Type B soils have a moderate infiltration rate when thoroughly wet, while Type C soils have a slow infiltration rate when wet. However, due to heavy agricultural use of the soils in this area, permeability is higher than would be suggested by soil type alone, and runoff is minimal. The runoff that does occur is directed to the west via a series of agricultural swales and ditches, and is then pumped into the SJR via private agricultural sump pumps (RBF Consulting 2001, M&S 2001).

Average annual rainfall in the project area is approximately 13.5 inches. Most of this rain comes between the months of October and April. The estimated runoff and peak flow rate from the project site for a 100-year, 48-hour, storm event is 20 acre-feet (ac-ft) and 10 cubic feet per second (cfs), respectively.

A 36-inch storm drain line, which serves existing development east of I-5, crosses through the middle of the project site from east to west along existing Louise Avenue (Exhibit 3-7). It terminates at an existing pump station adjacent to the levee that discharges runoff into the SJR. This line does not serve the Mossdale Landing project site (M&S 2002).

According to information provided by Reclamation District (RD) 17, water seepage occurred along the SJR levee during high level rainfall events in 1997 (Kjeldsen 2001). However, RD17 and the USACE repaired the most severe levee damage during and after the event. The USACE also continued to make repairs to the levee in the summer of 2001 by constructing land side toe berms. Also, RD17 records have indicated that during the 1997 event the project site had standing water from an up-swell of groundwater or the inability of rainwater to percolate because of extremely high groundwater (Kjeldsen 2001). Since then, RD17 and USACE has constructed seepage berms along the base of the levee to largely mitigate this problem (M&S 2002).

In addition to the history of levee seepage along the Lathrop segment of the San Joaquin River, which has since been largely mitigated, the SJR levees in the area have a history of failure. The levees failed once in 1950 following a dam failure upstream. The levee failed near Dos Reis Road, most likely by overtopping. At that time, the levees were so narrow that all patrolling had to be performed on horseback. Following that failure, USACE raised and widened the levees substantially and placed slope protection along most of the system (Kleinfelder 2002).

Prior to field explorations conducted by a hydrologic and engineering firm in 1986 (i.e., Kleinfelder), locations along the levees were seepage has occurred were identified. Of the seven locations identified, test borings were drilled at four locations. These borings indicated substantial amounts of relatively clean sands (an indicator of relatively stable conditions). Seepage berms were placed along the levees at these seven locations. In 1997, major flooding occurred in the San Joaquin Delta and upstream tributaries. A breach occurred on the adjacent Stewart Tract at Paradise Cut. Several sand boils and areas of seepage were also observed along the levees of the District, and where considered necessary, these areas were covered with a filter fabric and rock. During and shortly after this flood, the Corps spent $14 million to upgrade specific areas along the levee alignment where seepage occurred (Kleinfelder 2002).

Due to the granular nature of many of the soils comprising the Districts levees, a relatively high seepage value was furnished by FEMA in a 1987 hydrologic/engineering report on the levees. However, for static loading conditions, the factor of safety more than met the minimum FEMA requirements, even with the water levels at the 100-year flood stage. Hence, the levees protecting the District in the area of the Mossdale Landing project site are some of the more stable levees in the Delta under static loading conditions which is the primary concern of the USACE (Kleinfelder 2002). No improvement of the levees is required.

REGULATORY SETTING

Flooding

Urban development within the City of Lathrop is required to be protected from flooding. The design standard for flood protection established by the FEMA is for a 100-year flood event (the Mossdale Landing project is located outside the 100-year floodplain). FEMA publishes Flood Insurance Rate Maps (FIRM) that

identify which land areas are subject to flooding. These maps provide flood information and identify zones having varying degrees of flooding potential. Mossdale Landing is shown to be in Flood Hazard Zone B, which can accommodate urban development.

FEMA and the State Reclamation Board are responsible for maintaining flood control levees and other facilities to protect development in accordance with applicable design standards. The levee located along the Mossdale Landing property, which has been approved by FEMA, is administered by RD17. RD17 falls under the jurisdiction of the State Reclamation Board. RD17 guidelines require a setback from the toe of the levee of 60 feet, establish a maximum size of storm drain pipes over or through the levee of 30 inches, restrict levee excavation to the top three feet of the levee, indicate a preference for outfall pipes that go up and over the levee, rather than through it require detention basins to be located no nearer than 200 feet from the toe of the levee, and require that drainage plan design to provide for a reduction of peak flow to the river (M&S 2002).

Drainage

Drainage requirements and design standards for drainage facilities are identified in the City of Lathrop Design and Construction Standards Manual, September 2001. These designate standards are re-asserted, and additional design and operational requirements for drainage facilities are identified, in the proposed Drainage Plan for Mossdale Landing (included as Appendix D of this EIR). Among the relevant requirements are:

- detention basins and pump stations shall be designed to accommodate 100-year, 48-hour, storm flows;
- terminal retention to store runoff on a temporary basis is permitted;
- pump stations shall be designed with backup pumps and generators;
- mains and trunk lines shall be 15 inches or larger in diameter;
- detention basins shall have one foot of freeboard;
- minimum separation distance between the bottom of detention basins and the high groundwater level shall be two feet unless an impermeable liner is provided;
- basins shall be located a minimum of 200 feet from the toe of the SJR levee; and
- basins should accommodate multiple passive and/or active recreational activities, when possible.

Stormwater quality is regulated by a number of different agencies, acts, programs and regulations. The primary regulators are the U.S. Environmental Protections Agency (EPA) and the California State Water Resources Control Board (through the various Regional Water Quality Control boards), which operate the National Pollutant Discharge Elimination System (NPDES). This system is implemented through the issuance of permits for certain construction and operational activities that could result in the generation of contaminants in stormwater runoff. NPDES permits require the implementation of design and operational Best Management Practices (BMPs) to reduce the level of contaminants in runoff. Types of BMPs include source controls, treatment controls, and site planning measures.

Permitting

Multiple government agencies have permitting and consultation requirements for construction within and adjacent to the SJR levees. These agencies, and the likely permits/consultations required for drainage work within and adjacent to the levees, are identified below:

- **U.S. Army Corps of Engineers (USACE):** Section 10 of the Federal Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act give authority to the USACE to prohibit alteration of navigable waterways (those subject to tidal influence) without a permit. Such a permit would be required for construction of stormwater outfalls to the SJR.

- **Regional Water Quality Control Board (RWQCB):** This agency is responsible for certification of Section 401 Corps permits and the control of waste discharge under Section 401 of the Clean Water Act and the Porter-Cologne Authority through issuance of NPDES permits. The RWQCB in Sacramento is responsible for permitting within the San Joaquin River Basin. Its review is triggered by the USACE application or by any development that exceeds 5 acres of grading.

- **State Reclamation Board - Reclamation District 17 (RD17):** This is the agency responsible for maintaining levees adjacent to the SJR in the Mossdale area. A permit from RD17 is required for discharge pipelines constructed through or over the levee.

- **California Department of Fish and Game (CDFG):** A CDFG Streambed Alteration Agreement (Section 1603) is required whenever the flow in any river or stream is changed by means of excavation, fill or construction activity. The need to construct outfall structures on the river side of the levee would trigger this process.

4.1.2 ENVIRONMENTAL IMPACTS

PROJECT PROPOSALS

The project site is located outside the 100-year floodplain (i.e., is protected from the 100-year flood by the east levee of the San Joaquin River). Therefore, the proposed project would not require levee or other flood control improvements.

The proposed project includes a drainage plan to safely control and convey stormwater runoff through the project site. Entitled the Mossdale Landing Drainage Plan (included in its entirety as Appendix D of this EIR), the drainage plans subdivides the project site into three drainage sub-sheds. As indicated in Exhibit 3-7, each sub-shed would be served by its own self contained drainage system to include a flood control detention basin, pump station, and storm drain force main that would collect and pump stormwater from each sub-shed to a central outfall along the SRJ where the stormwater would be discharged to the river.

The proposed outfall to be located on the east levee just south of the Silveira property, would include six pipes (the storm drain force mains from each of the three on-site sub-sheds and three off-site sub-sheds within the greater Mossdale Village area.). The six pipes would be constructed up and over the levee rather than

via jack-and-bore through the levee. In order to avoid obstruction of the existing service road on top of the levee, the pipes would be submerged within the first three feet of the top of the levee in accordance with RD17 guidelines. Within the river side surface of the levee, a single concrete platform would be constructed for the six 10- to 36-inch outfall pipes, and a concrete spillway would be constructed with hardened slope protection to ensure that the discharge does not gouge the river banks. The discharge would occur above the ordinary high water mark of the river. Storm water would run across the concrete spillway on a bench above the ordinary high water mark. Below this point, hardened slope armoring would be provided (armorflex ®) that would extend below the ordinary high water mark. Further details about the conceptual design of the outfall are presented in Appendix D of this EIR.

Runoff generated by the proposed project would be retained on-site during construction of the first 600 homes (on northern project parcels on approximately 340 acres) and/or when on-site retention capacity becomes inadequate. Thereafter, the proposed outfall would be constructed, and stormwater discharges from the project site to the SJR would commence.

Per City standards, the proposed gravity storm drain system upstream of the pump station would be designed to accommodate 10-year peak flows with a minimum freeboard of one foot, In addition, the system would be designed to accommodate 100-year peak flows while maintaining the hydraulic grade line at a minimum of one foot below the lowest adjacent building pad. The pump stations would be designed with back-up pumps and generators. The flood control detention basins would be located 200 feet or more from the levee toe of slope and would maintain at least 2 feet of separation from groundwater unless lined with impermeable material.

Through the implementation of the stormwater detention basins, the discharge flow rate to the SJR from Mossdale Landing would be reduced to 30% or less of the peak 100-year flow rate. Water seepage through the levee and the presence of high groundwater would be controlled through the development of toe drains along the landside levee frontage which would divert seepage into the proposed storm drain system. Under-curb subdrains would be constructed, where needed, to protect roadway improvements. Tile drain systems would be constructed under detention basins, if required.

Best Management Practices (BMPs) would be implemented to reduce urban contaminants in the runoff prior to discharge. The proposed project would obtain the required NPDES permits from the Central Valley Regional Water Quality Control Board (RWQCB) for discharge of project surface runoff to the river. See Section 4.2 of this EIR for a description of the proposed BMPs and for an analysis of the potential water quality impacts on the SJR associated with the proposed stormwater discharge.

THRESHOLDS OF SIGNIFICANCE

The Mossdale Landing project would result in significant flood control/drainage impacts if it would result in one or more of the following:

- Develop housing within a 100-year flood hazard area as mapped on a FEMA Flood Insurance Rate Map (FIRM), and/or within a 100-year floodway that would impede or redirect flood flows;

- Substantially increase the rate or amount of surface runoff in a manner that would exceed the capacity of existing/planned drainage facilities and/or result in flooding on- or off-site;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as result of the failure of a levee?
- Result in substantial erosion/siltation that could contribute to a reduction in the operational effectiveness of drainage facilities;
- Remove drainage infrastructure that serves existing offsite development.

PROJECT IMPACTS

Impact **4.I-a**

Flood Control/Drainage - Develop Housing Within a 100-Year Floodplain, and/or Impede/Redirect 100-year Flood Flows. *The project is not located within a FEMA 100-year floodplain, and thus would not place housing within a 100-year flood hazard area or impede/redirect 100-year storm flows.* ***No impact*** *would occur.*

The project site has been taken out of the 100-year floodplain by prior construction of the east levee of the SJR and is not subject to flooding from 100-year stormwater flows. Project development would thus not place housing within a FEMA 100-year flood hazard area or impede/redirect 100-year storm flows. Therefore, no impact would occur with respect to exposure of people and property to 100-year flood events.

Impact **4.I-b**

Flood Control/Drainage - Increased Surface Runoff. *The proposed project would increase the amount of stormwater runoff generated on the project site, thus requiring the installation of a high capacity storm drain system. The project would be built in accordance with City standards and would have adequate capacity to safely convey stormwater runoff through and off the project site without resulting in on- or offsite flooding. Furthermore, the incremental increase in runoff generated on the project site and discharged to the San Joaquin River would not substantially increase flows in the river in a manner that would cause flooding at or downstream of the project site. Therefore, a* ***less-than-significant*** *impact would occur.*

The Mossdale Landing project would include the development of impervious surfaces (e.g., buildings, paved roadways, parking surfaces), which would increase both the total volume and peak discharge rate of runoff generated at the project site during the 100-year storm event. As indicated in Table 4.1-1, the project would increase the total volume of runoff generated at the project site from 20 AF to 121 AF in a 48-hour period. As indicated in Table 4.1-2, the proposed project would increase the peak discharge rate of runoff generated at the project site from 10 cfs to 145 cfs (with implementation of the conceptual drainage plan).

Table 4.1-1
100-year 48-hour Storm Runoff Volume

Sub-shed	Undeveloped Condition[2,3] (AF)	Developed Condition[2,4] (AF)
M1	8	42
M2	6	34

M5 [1]	6	45
TOTAL	20	121

[1] Mossdale Landing encompasses 78% of the M5 sub-shed. Therefore, the values shown above for the M5 sub-shed are 63% of the M5 sub-shed total shown in the Drainage Plan for Mossdale Landing.

[2] Calculated flows are based on discharging 30% of the peak discharge rate, which is the highest rate allowed by the Master Drainage Plan. Actual values may be between 10% and 30%, which would lower the runoff rate.

[3] Estimated at 10% of pre-development because of increased infiltration based on agricultural use and prolonged storage needed for small pumps.

[4] Based on Drainage Plan for Mossdale Landing.

Source: M&S, Drainage Plan for Mossdale Landing, July 2002.

Table 4.1-2
100-year 48-hour Storm Discharge Rate

Sub-shed	Undeveloped Condition [1] (cfs)	Developed Condition w/o Conceptual Drainage Plan (cfs)	Developed Condition with Conceptual Drainage Plan (cfs)
M1	4	157	47
M2	3	165	49
M5	3	162	49
TOTAL	10	484	145

[1] Based on estimate of capacity of existing pumps

Source: M&S, Drainage Plan for Mossdale Landing, July 2002.

As described previously in this section, the proposed project includes the proposed Mossdale Landing Drainage Plan to safely convey project runoff through and off the project site. The proposed drainage plan would provide for the collection of stormwater runoff by a proposed stormwater system of storm drains and drainage pipes, and the discharge of this runoff to the SJR via pump stations and an outfall along the east levee of the SJR. Consistent with the drainage plan, the proposed drainage facilities would be designed to accommodate the designated design flow, and stormwater detention basins would be provided to reduce actual discharge to the SJR to 30% or less of the peak

As indicated in Table 4.1-2, the development of the proposed drainage plan (specifically, the proposed detention basins) would reduce the project peak discharge rate from 484 cfs to 145 cfs. The proposed pipe sizes, pump station, and outfall structure would be sized to accommodate the 145 cfs peak discharge rate in order to avoid on-site and off-site flooding. In addition, backup pumps and generators would be provided to ensure continued operation of the proposed drainage system in the event that either the primary pumps go down or power failures. Finally, toe drains would be provided within the setback area between the east levee of the SJR and the project site to mitigate any existing seepage and potential nuisance flooding.

Because the proposed drainage plan would be adequate to safely convey 100-year stormwater runoff through and off of the project site without resulting in on- or offsite flooding no impact would occur.

In addition to evaluation of the potential flood control/drainage impacts on and adjacent to the project site as discussed above, an evaluation was conducted of the potential flood control/drainage impacts of the project associated with the increased discharge of stormwater runoff to the SJR.

A hydraulic model of the SJR was prepared by MBK Engineers to estimate the impact of increased storm water runoff into the river associated with the Mossdale Landing project and other impending projects in the Lathrop vicinity. The model and associated analysis is included in its entirety as Appendix M of this EIR. Two scenarios were investigated. First, using USACE design information (flow rate of 41,600 cfs and water surface elevation of 20.11 above mean sea level), post-development discharge increased the water level by only 0.04 feet according to the model. Second, using a model based on conditions during the January, 1997 storm (flow rate of 49,000 cfs and water surface of 21.97 msl), the water level of the river went up by only 0.03 feet according to the model (M&S 2002).

The above results appear to indicate that the impact on the water levels of the SJR associated with the Mossdale Landing project and other local development currently being planned would be negligible. However, the MBK report points out that even these minimal increases may not satisfy the California Reclamation Board. The Board's policy is that discharge from new development must have zero impact on the river when the water level is at or above the design water surface elevation. In 1955, USACE determined that elevation to be 21.0 feet msl. This "zero impact" restriction was developed in recognition of the fact that a small increase in flow at any point in the SJR can theoretically impact flooding potential both upstream and downstream of the project (M&S 2002).

Records indicate that during the 1997 event, the water level in the SJR exceeded the design elevation of 21.0 feet msl for approximately 72 hours. Prolonged periods of high water could also result from snowmelt in the upstream mountains. Therefore, it could be necessary to limit project discharge to pre-development rates for significant periods of time during heavy storm events. This can be accomplished by automatically shutting down all but a single pump whenever the river level rises above 21.0 feet msl. Alternatively, based on the particular needs of a given situation, RD17 can accept the responsibility for deciding when pump discharge must be reduced. Given the varying nature of flow conditions that are possible in the SJR system, this latter method would appear to provide a desirable degree of flexibility that can be critical during emergencies. As a result of the shut down, most of the runoff that occurs during high intensity storms shall be stored on the project site in accordance with the proposed Mossdale drainage plan. Hence, a less than significant downstream flooding impact would occur (M&S 2002).

Impact **4.1-c**

Flood Control/Drainage - Expose People or Structures to a Significant Risk of Flooding, Including Flooding as a Result of the Failure of a Levee. *The proposed project would not expose people or structures to a significant risk of flooding, including flooding as a result of the failure of a levee, because the east levee of the San Joaquin River has been constructed consistent with all applicable requirements, has been improved in recent years by RD17 and the U.S. Army Corps of Engineers (USACE) consistent with the latest levee design and construction practices, and has resulted in FEMA removing the greater Mossdale Village area from the 100-year floodplain. Furthermore, there is no substantial evidence to suggest that levee failure in the area of the project site is likely or that the Lathrop segment of the levee is more prone to failure than in other areas, and the proposed project would do nothing to increase the potential for levee failure. Finally, the*

proposed project would: (1) place toe drains along the landside levee frontage which would divert seepage into the project's proposed storm drain system and thus avoid any seepage which might still be occurring since improvement of the levee by RD17 and the USACE; and (2) provide under-curb subdrains along project roadways, and tile drain systems under detention basins, to mitigate the impact of high groundwater. Therefore, a ***less-than-significant*** *impact would occur.*

As indicated under Impact 4.1-a, the project site is not located within a 100-year floodplain. Thus, by FEMA standards, the proposed project would not expose people or structures to a significant risk of flooding.

As indicated in the "Existing Conditions" subsection and under Impact 4.1-a, the project site is protected from 100-year floodwaters by the east levee of the SJR. The levee has been constructed consistent with all applicable requirements, and has been improved since the 1997 flood by RD17 and the USACE consistent with the latest levee design and construction practices. Given the current condition of the levee, FEMA has removed the project site from the 100-year floodplain. Furthermore, the levees in the area of Mossdale Landing have been found to be some of the more stable levees in the Delta under static loading conditions which is the primary concern of the USACE (Kleinfelder 2002). Therefore, the failure potential of the levee is considered low and represents a less-than-significant flood exposure hazard. No improvement of the levees is required.

The proposed project would increase the peak discharge rate of runoff entering the SJR, and would include development of a stormwater outfall up and over the east levee of the SJR. Each of these could potentially affect the stability of the east levee.

As mentioned previously, the total volume of runoff leaving the project site during a 100-year storm event would increase under the proposed project. It is likely that the total would increase from less than 20 to over 120 acre-feet over a 48 period. The runoff rate would also increase. Currently, water is discharged into the SJR from the project site by small agricultural sump pumps at a rate of no more than approximately 10 cfs. After development, the maximum discharge rate would be limited to 30% of the peak 100-year flow rate. If 30% of the post-project runoff is discharged to the SJR during a 100-year storm event, an increase would occur of approximately 135 cfs over the current discharge rate to the SJR. This would have a negligible and unmeasurable affect on the flow rate, freeboard, and channel banks of the SJR (i.e., would increase the water level by about 0.04 feet), and would not increase the potential for failure of the east levee. In addition, toe drains would be installed along the levee to remove any current seepage, thus potentially improving the stability of the levee itself. Therefore, a less-than-significant impact would occur.

Under the Mossdale Landing project, stormwater runoff generated at the project site would be discharged to the SJR through the development and operation of a proposed outfall (Exhibits 3-7 and 3-8). The proposed outfall would include a concrete platform on top of the east levee, pumps on the outboard side of the east levee, up to 30-inch outfall pipes leading from the pumps to the river, and a concrete spillway and hardened slope protection. The discharge itself would occur approximately 15 feet above the ordinary high water mark of the river. Stormwater would run across a concrete spillway located on an existing bench. Below this point, hardened slope armoring would be provided, which would extend below the ordinary high water mark. To protect the integrity of the levee system, RD17 and the State Reclamation Board currently do not permit new pipes to be installed below the top three feet of the levee. Consistent with this requirement, the drainage plan for the proposed project calls for the installation of the proposed outfall pipes within the top 3 feet of the east

levee, which would both protect the structural integrity of the levee and avoid obstruction of the existing service road atop the levee. Also, hardened slope protection is proposed on the river side of the levee below the proposed outfall to avoid gauging of the levee by the proposed stormwater discharge. Furthermore, as requested by RD17, the proposed drainage plan for the project requires discharge into a single outfall, and requires stormwater detention to reduce the peak discharge rate to the SJR to minimize environmental effects on the levee system and the size and/or number of pipe crossings of the levee required. Finally, the outfall would need to be permitted by the USACE, RWQCB, and RD17, and these agencies would need to approve the plan and design specifications for the outfall, which would ensure that the stability of the levee would not be interfered with. Therefore, a less-than-significant impact would occur.

The drainage plan for the proposed project calls for the installation of: (1) toe drains along the landside levee frontage; and (2) under-curb subdrains along project roadways and tile drain systems under detention basins. The former would avoid any seepage which might still be occurring since improvements to the levee by RD17 and the USACE. The latter would mitigate the impact of high groundwater.

Impact **4.1-d**

Flood Control/Drainage - Erosion/Siltation Impacts on the Effectiveness of Drainage Facilities. *On-site soils disturbed during construction could be eroded into existing or proposed drainage facilities, thus potentially reducing the capacity of these facilities. However, the project includes proposals for a comprehensive set of Best Management Practices (BMPs) to reduce siltation and contaminants in project runoff. In addition, the project will be subject to NPDES permitting and Storm Water Pollution Prevention Plan (SWPPP) requirements whereby the RWQCB will identify additional measures, if any, required to avoid substantial erosion/siltation during construction. Therefore, a* ***less-than-significant*** *impact would occur.*

Earth moving activities associated with project construction could temporarily result in erosion. Silt from the construction areas could be washed into drainage facilities, thus potentially reducing their capacity. The drainage facilities that could potentially be affected include the existing stormwater agricultural drainage ditches, the SJR, and the new drainage facilities to be constructed as part of the proposed project. The project includes proposals for a comprehensive set of BMPs to reduce siltation and contaminants in project site runoff (see Section 4.2). Additional BMPs are required by mitigation in Section 4.11 to prevent silt and debris associated with construction of the proposed stormwater outfall from reaching the SJR. Furthermore, the proposed project will be subject to NPDES permitting and SWPPP requirements whereby the RWQCB will identify additional measures, if any, required to avoid substantial erosion/siltation during project construction. These would combine to prevent substantial erosion/siltation from project construction sites that could reduce capacity of drainage facilities. Therefore, a less-than-significant impact would occur.

[redacted]

Flood Control/Drainage - Impacts to Existing Drainage Infrastructure. *An existing 36" pipeline in Louise Avenue bisects the project site. . The existing pipeline and an associated pump station serve properties to the east of I-5. The Mossdale Landing project would not connect to or disturb the existing pipeline or pump station. Therefore,* ***no impact*** *would occur.*

As discussed previously, an existing 36-inch gravity storm drain line serving the existing development bisects the project site (Exhibit 3-7). The pipeline extends through the project site within the existing Louise Avenue right-of-way, and then continues westward to discharge to the SJR. The existing outfall and an associated pump station are not located within the boundaries of the project site. Under the proposed project, Louise Avenue would be removed and replaced. However, the pipeline would be preserved in place, and existing vertical grades along the pipeline alignment would be maintained within approximately 1 foot. During grading, the location of the pipeline would be marked and avoided by project grading equipment. An easement through the project site would be provided for pipeline alignment and maintenance. The pipeline would not be disturbed. Therefore, no impact would occur.

4.1.3 MITIGATION MEASURES

The project includes a number of facilities to reduce or avoid potential impacts, so it would not result in any significant flood control/drainage impacts. Therefore, no mitigation measures are required.

4.1.4 RESIDUAL SIGNIFICANT IMPACTS

No residual significant flood control/drainage impacts would occur associated with the proposed project.

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4.2 SURFACE WATER QUALITY - STORMWATER RUNOFF

This section is based on the Surface Water Quality Analysis Report prepared by RBF Consulting for the Mossdale Landing project (March 28, 2002). The report is included in its entirety as Appendix C of this EIR. This section evaluates the potential surface water quality impacts associated with the proposed discharge of stormwater runoff to receiving waters. Section 4.3 evaluates the potential surface water quality impacts associated with the proposed land disposal of treated wastewater.

The analysis in this section includes the following:

- Review of existing applicable surface water quality standards and regulations for the project site's receiving waters, the San Joaquin River, including the Central Valley Region Water Quality Control Board (CVRWQCB) Basin Plan and NPDES requirements;
- Estimation of the existing runoff water quality conditions at the project site;
- Review of published values of constituent reduction associated with Best Management Practices (BMPs);
- Modeling to estimate the runoff water quality from the project site under the proposed project;
- Comparison of the estimated project runoff water quality with applicable water quality standards for the receiving waters and with applicable NPDES requirements; and
- Evaluation of the potential surface water quality impacts associated with project runoff, and identification of any required mitigation measures.

4.2.1 EXISTING CONDITIONS

PHYSICAL SETTING

Drainage Features

The Mossdale Landing project (proposed project) is located in the San Joaquin River (SJR) Basin. The SJR Basin is bounded on the east by the Sierra Nevada and on the west by the Coast Range. The basin covers 15,880 square miles and includes the entire area drained by the SJR. The Mossdale Watershed occupies a tiny fraction of the SJR Basin, draining a total area of 1,250 acres (Figure 3-3, Appendix C of this EIR). This area is bounded on the east by Interstate 5 (I-5) and on the south and west by 20-foot river levees built in the late 1980s. The accepted northern limit of the watershed is the Robinson property line.

Ground slopes at the project site vary from 0 to 2%, with elevations ranging from 8 to 12 feet above mean sea level. The watershed is characterized by a variety of different soil types, with hydrologic soil Types B and C being predominant. Type B soils have a moderate infiltration rate when thoroughly wet, while Type C soils have a slow infiltration rate when thoroughly wet. However, due to heavy agricultural use of the soils in this area, permeability is higher than would be suggested by soil type alone, and runoff is minimal. The

runoff that does occur is directed to the west via a series of swales and ditches, then pumped through the levee into the SJR.

Receiving Waters

The receiving water for the Mossdale Watershed is the 330-mile-long SJR, which flows through Contra Costa, Fresno, Madera, Merced, Sacramento, San Joaquin, and Stanislaus counties. The river experiences flows of up to 1,500 cubic feet per second (cfs) in dry years, exceeding 40,000 cfs in wet years.

Water quality in the SJR has degraded significantly since the 1940s, mainly due to reservoir development for agricultural purposes both on the east side tributaries and in the upper basin, as well as to drainage from upslope saline soils on the west side of the San Joaquin Valley. Use of pesticides and fertilizers, agricultural return flows, municipal discharges, and channelization of the SJR have all contributed to this degradation.

Stormwater Runoff Conditions at the Project Site

The quantity of runoff currently generated at the project site is approximately 52 acre-feet (AF) per year.

The existing land use condition at the project site is agricultural. Agricultural land use typically results in relatively high discharge of sediment, nutrients, herbicides and pesticides. Additionally, selenium export may also be significant in this area due to the element's natural occurrence in the local shale formation. The use of tile drains for agriculture in the region may also tend to produce elevated concentration of selenium, nutrients and TDS (salinity). Estimated constituent loading for the existing agricultural condition at the project site is shown in Table 4.2-1, as is standard constituent loading for other types of land uses. This table is based on conditions in other municipalities, particularly Ventura County.

Primary Water Quality Issues

Degradation of water quality and impairment of beneficial uses are the primary water quality issues for the Mossdale Watershed.

Degradation of Water Quality

The Environmental Protection Agency (EPA) is the primary federal agency responsible for management of water quality in the United States. The Clean Water Act (CWA) is the federal law that governs water quality control activities initiated by the EPA and others. Section 303 of the CWA requires the adoption of water quality standards for all surface water in the United States. Under Section 303(d), individual states are required to develop lists of water bodies that receive point source dischargers. Total maximum daily loads (TMDLs) standard for all pollutants for which these water bodies are listed must be developed in order to bring them into compliance with water quality objectives. According to the California 1998 303(d) list for the CVRWQCB, the SJR is impaired for the following agricultural pollutants/stressors/indicators:

Table 4.2-1 Average Constituent Concentrations in Stormwater Runoff by Use Type					
Constituent	**Units**	**Residential**	**Commercial**	**Industrial**	**Agricultural**
Chromium-Total	Fg/L	4.61	13.40	9.82	71.00
Chromium-dissolved	mg/L	1.97	2.90	3.24	6.07
Copper-Total	Fg/L	19.29	45.04	26.82	37.04
Copper-Dissolved	Fg/L	8.01	9.67	11.03	24.40
Lead-Total	Fg/L	16.39	16.68	19.92	19.73
Lead-Dissolved	Fg/L	4.44	4.90	5.33	11.40
Mercury-Total	Fg/L	0.10	0.02	0.14	0.11
Mercury-Dissolved	Fg/L	0.00	-	0.00	0.02
Selenium-Total	Fg/L	3.18	0.55	1.10	1.00
Selenium-Dissolved	Fg/L	0.68	-	0.82	0.82
Zinc-Total	Fg/L	108.51	199.60	329.19	217.00
Zinc-Dissolved	Fg/L	44.53	63.40	67.50	32.03
Diazinon	Fg/L	0.71	-	0.19	0.07
Chlorpyrifos	Fg/L	0.06	0.21	0.03	-
Phosphorous-Dissolved	mg/L	0.30	0.27	0.31	0.76
Phosphorous-Total	mg/L	0.73	0.62	0.53	1.72
NO_x	mg/L	1.60	1.54	2.48	6.87
TKN	mg/L	3.56	3.65	2.70	5.51
NH4-N	mg/L	0.84	1.04	0.80	1.95
BOD	mg/L	23.31	23.15	23.53	31.20
TSS	mg/L	135.33	174.52	167.13	577.75
Oil & Grease	mg/L	4.19	8.35	4.63	5.97
Source: RBF Consulting, 2002 (March 28). Water Quality Analysis Report - Mossdale Landing.					

- Boron
- Chlorpyrifos
- DDT
- Diazinon
- Electrical conductivity (salinity)
- Group A pesticides[1]
- Selenium
- Unknown toxicity

Except for selenium, these pollutants are known to be out of compliance with applicable water quality standards for a 130-mile stretch of the SJR upstream of the City of Lathrop, from the Airport Way Bridge

[1] Group A pesticides include aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor epoxide, hexachlorocyclohexane (including lindane), endosulfan and toxaphene. Many of these pesticides have been banned from use.

near Vernalis to the Mendota Dam. Selenium levels exceed applicable water quality standards for 50 miles upstream of the City of Lathrop, from Vernalis to the Salt Slough confluence.

Several of the 303(d) listed pollutants identified above, for which the SJR is impaired, as well as several other pollutants of concern in the SJR, are not evaluated further in this section. These include total disolved solids, carbon, coliform, dissolved oxygen, pH, temperature, boron, and DDT. These pollutants are not evaluated further because they are typically either not components of urban runoff; or if they are components of urban runoff, they occur in such low concentrations as to not be a concern with regard to the water quality of the SJR (RBF 2001).[2]

Impairment of Beneficial Uses

Protection and enhancement of existing and potential "beneficial uses" of water bodies are primary goals of water quality planning. State law defines beneficial uses as "...domestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves" (Water Code Section 13050(f)). Additional protected beneficial uses of the SJR include groundwater recharge and fresh water replenishment (designated GWR and FRSH, respectively, in standard basin plans).

Degradation of water quality in the SJR has impaired many of the beneficial uses for this water body. Among those existing uses adversely impacted by pollutants in the affected reach of the SJR are (listed with standard basin plan designation abbreviations) irrigation (AGR), stock watering (AGR), human contact and non-contact recreation (e.g., swimming, canoeing and rafting) (REC-1 and REC-2), freshwater habitat (WARM and COLD) and wildlife habitat (WILD). Municipal (MUN), industrial (IND), and power generation (POW) are potential uses for some portions of the SJR that may also be negatively affected by pollutants that exceed applicable water quality standards.

REGULATORY SETTING

Surface Water Quality Standards

Of those pollutants/stressors, for which the SJR is considered impaired, the Central Valley Regional Water Quality Control Board (CVRWQCB) currently has TMDLs in place for selenium and drafts under consideration for boron, diazinon, chlorpyrifos, and salinity. TMDLs for other listed constituents are in the planning stages. These TMDLs were based, in large part, on the August 2000 edition of the CVRWQCB, A Compilation of Water Quality Goals, which compiles existing water quality standards for all constituents of concern within the Central Valley Region (CVRWQCB 2000).

[2] For example, in the CVRWQCB's "A Compilation of Water Quality Goals (August 2000): (1) carbon is not listed as a pollutant of concern; (2) typical highway runoff values for boron are identified as on the order of 0.2 mg/l, which is far below the most restrictive standard cited for this pollutant of 0.6 mg/l; (3) typical TDS concentration in storm water runoff is identified as 200 mg/l, which is below all standards listed in the compilation for this pollutant (250 mg/l for taste and odor being the most restrictive); and (4) DDT is identified as a banned substance and thus will not be generated by the proposed project. Additionally, dissolved oxygen, pH and temperature levels should not differ substantially from those in the existing condition. The site storm water management program addresses coliform to the MEP (maximum extent practicable), per statewide NPDES guidelines.

Selenium is a naturally occurring trace element known to be hazardous to waterfowl at elevated levels. Subsurface agricultural drainage discharges are a major source of selenium. The CVRWQCB has adopted the U.S. Environmental Protection Agency (EPA) aquatic life criterion for total selenium of 5 Fg/L 4-day average as the selenium water quality objective for the lower SJR.

Boron is an element commonly found in soils of the western United States. Mainstay California crops, such as citrus fruits, grapes and nuts, are highly sensitive to boron in irrigation water in concentrations as low as 0.5 mg/L. Boron toxicity has been linked to fetal malformations in certain species of fish, toads and frogs, and adverse effects of even moderate boron concentrations have been reported in dogs and rats. The EPA has set a suggested no-adverse response level (SNARL) for boron in drinking water of 0.6 mg/L, while the California State action level is 1 mg/L. No TMDLs for boron have been established; however, it is reasonable to assume that regulated concentration levels would be on the order of those cited in the above paragraph.

Diazinon and chlorpyrifos are insecticides commonly used for agricultural purposes in the SJR Basin. Diazinon is moderately soluble in water and does not readily adsorb to soil organic matter; it is likely to be washed off of crops and soil during rainfall or irrigation. In addition, diazinon can readily volatilize into air or fog, where it can be transported for great distances before being redeposited on soil or surface waters. Conversely, chlorpyrifos is relatively insoluble in water and adheres strongly to soil organic matter. The toxicological effects of these pesticides are cumulative. Both diazinon and chlorpyrifos are toxic not only to aquatic insects, but to freshwater aquatic crustaceans and arthropods, which serve as potential food sources for early life stages of fish. Further, diazinon has been shown to damage the olfactory function of some fish in concentrations as low as 1,000 ng/L.

The CVRWQCB has not established TMDLs for either diazinon or chlorpyrifos. However, the CVRWQCB has determined that an acceptable diazinon target would be between zero and the target derived by the California Department of Fish and Game (CDFG) using EPA methodology: 50 ng/L 4-day average and 80 ng/L 1-hour average. An acceptable chlorpyrifos target would be between zero and the target determined by the CDFG: 14 ng/L 4-day average and 25 ng/L 1-hour average.

Salinity is the dissolved mineral content in water. Whether measured in terms of total dissolved solids (TDS) or electrical conductivity (EC), the CVRWQCB recognizes high concentrations of salt or saline water as the most serious long-term water quality issue on the SJR. High salinity negatively impacts potable water supplies, fish and other aquatic life, crops ranging from tomatoes and alfalfa to beans and apricots, poultry, livestock, and waterfowl. No TMDLs for salinity have been established; however, the Federal Drinking Water primary standard is set at 500 mg/L.

Each of these pollutants/stressors poses a threat to the water quality of the SJR. However, it should be noted that none of the listed pollutants exceed water quality objectives for the Mossdale Watershed, as the defined limits of impairment end upstream of the City of Lathrop, at Vernalis. Additionally, with the possible exception of diazinon, the Mossdale Landing project is unlikely to produce any of these pollutants in concentrations that would adversely impact the water quality in the SJR (see Subsection 4.2.2 for analysis).

Municipal Separate Storm Sewer System (MS4) Permit

The 1987 Water Quality Act (WQA) required, in part, that discharges from large (systems serving a population of 250,000 or more) and medium (systems serving a population of more than 100,000, but less than 250,000) be permitted under the NPDES Program. These types of storm water discharges (MS4s) are part of what is generally referred to as Phase I of the NPDES storm water program. Phase II of the program addresses discharges not covered by Phase I, such as small MS4s that serve populations below 100,000.

The City of Lathrop must obtain coverage under Phase II of the NPDES Program. Operators of small MS4s are required to obtain coverage by March 10, 2003, and a fully implemented storm water program must be in place within 5 years of that date.

The proposed Mossdale Landing project would not commence river discharges until after 2003, after the City of Lathrop has obtained its MS4 permit. Therefore, no discharge will occur without an MS4 permit. The project will be subject to the requirements of City's MS4 permit, when issued.

NPDES General Permit (Construction Activity)

The CWA was amended in 1972 to make the discharge of pollutants to waters of the United States without an NPDES permit unlawful. In 1990, the EPA published final regulations mandating that discharges of storm water to Waters of the U.S. from construction projects that encompass 5 or more acres of soil disturbances without an NPDES permit are prohibited.

While the EPA allows for two permitting options to meet these requirements (individual permits and General Permits), the State Water Resources Control Board (SWRCB) has elected to adopt a statewide General Permit for California that applies to all construction-related storm water discharges except for those located on tribal lands, those located in the Lake Tahoe Hydrologic Unit, and those performed by the California Department of Transportation.

Construction activities subject to this General Permit include clearing, grading, stockpiling, and excavation resulting in soil disturbances of at least 5 acres of total land area. Construction activities disturbing less than 5 acres may still be subject to this permit if the activity is part of a larger common plan of development or if significant water quality impairment will result from the activity.

The General Permit requires all dischargers whose construction activity disturbs 5 acres or more to:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) that specifies BMPs to prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off-site into receiving waters.

- Eliminate or reduce non-storm water discharge to storm sewer systems and other waters of the U.S.

- Perform inspections of all BMPs.

The proposed Mossdale Landing project will disturb more than 5 acres of land. Therefore, it will be subject to the requirements of the NPDES General Permit for construction activity.

Storm Water Pollution Prevention Plan (SWPPP)

Implementation of the NPDES permit-required SWPPP entails the use of post-construction BMPs that would remain in service to protect water quality throughout the life of the project. Two categories of BMPs exist: non-structural and structural. Non-structural BMPs are used to reduce pollutant load to runoff. Structural BMPs are used to treat runoff. The Mossdale Landing project includes proposals to implement both non-structural and structural BMPs. These are discussed in the "Project Proposals" subsection that follows.

City of Lathrop Requirements

Several City plans and environmental documents address surface water quality, including but not limited to the West Lathrop Specific Plan (WLSP) and associated EIR, and the Lathrop Water, Wastewater & Recycled Water Master Plan (Master Plan) and associated EIR. In addition, the City has a policy that requires all new development to provide drainage plans that do not adversely affect adjacent properties and that all properties within a given watershed can be provided an appropriate means of discharging surface runoff. To meet this requirement, a drainage plan is proposed as part of the Mossdale Landing project. Entitled the "Mossdale Landing Drainage Plan", it is included in its entirety as Appendix D of this EIR.

All surface water quality requirements relating to stormwater that were mentioned in the referenced documents have been addressed above. While these documents do include other water quality requirements, they are not applicable to stormwater and thus are not discussed further in this section (RBF 2001).

4.2.2 ENVIRONMENTAL IMPACTS

IMPACT ANALYSIS METHODOLOGY

Constituent Loading Model

The purpose of this model is to estimate the change in local constituent loading that would result from construction of the Mossdale Landing project. The proposed storm drain system would utilize pump stations sized to handle the 2-year storm event and detention facilities sized to accommodate the 100-year storm event. The following three conditions were assessed for the project watershed:

- Existing (condition (I.e., existing land use)
- Developed condition without BMPs, and
- Developed condition with BMPs.

For each case, the annual constituent load is estimated as the product of the annual runoff volume and the average constituent concentration associated with a particular activity or land use.

EPA Simple Method

Annual runoff volumes from the project site were calculated for the existing and developed condition (Table 4.2-2). An annual constituent loading model for the proposed project, using the calculated runoff volume, was developed using methodology developed by the EPA (see Appendix C). The average load for each constituent for each of the three conditions identified above is shown in Table 4.2-3. The data in this table were obtained from numerous studies conducted throughout California, with priority being given to data available from sites located in the Central Valley Region. A unit conversion factor was utilized for those constituents reported in units other than mg/L.

Table 4.2-2
Annual Runoff from the Project Site - Existing and Developed Conditions

	Units	Existing Condition	Developed Condition
Acreage	Acres	477	400
Impervious Cover	-	0.00	0.53
Runoff Coefficient	-	0.10	0.36
Annual Runoff	AF	52	156

Source: RBF Consulting, March 28, 2002, Water Quality Analysis Report - Mossdale Landing.

The existing land use at the project site is agricultural; therefore, runoff was calculated assuming no impervious cover. The proposed Mossdale Landing project is predominantly residential with a proposed impervious cover of 53% at build-out. The annual runoff is calculated based on an average annual precipitation of approximately 13.5 inches at the site. As indicated in Table 4.2-2, average annual runoff for the existing condition is approximately 52 AF, compared to an estimated 156 AF of total runoff in the developed condition. The annual runoff increased by a factor of three, due to a higher runoff coefficient that results from the conversion of approximately 84% of former agricultural land use to residential and commercial land uses.

PROJECT PROPOSALS

The Mossdale Landing project includes a proposal to implement non-structural and structural post-construction BMPs as part of the proposed drainage plan. Non-structural BMPs would be used to reduce pollutant load to runoff, while structural BMPs would serve to treat that runoff. The non-structural and structural BMPs proposed as part of the Mossdale Landing project are described below.

Non-Structural BMPs

One of the best ways to protect water quality is to reduce the number of pollutants entering storm water runoff. Preventing pollution of a water body is much less difficult and expensive than attempting to restore that water body once it has been polluted. Therefore, the proposed Mossdale Landing project would implement the following categories of non-structural BMPs that focus on preventing pollutants from entering storm water.

Table 4.2-3
Annual Constituent Load Estimates - Existing and Developed Conditions

Constituents	Existing Condition [1] in lbs. (Agriculture)	Developed Condition w/o BMP		Developed Condition w/ BMP [2]		
		Total (lbs.)	% Change [4]	% Removal	Total (lbs)	% Change
Acreage		400				
Impervious Cover						
Runoff Coefficient						
Annual Runoff		156				
Chromium-Total	9.950	1.944	-80%	74%	0.507	-95%
Chromium-Dissolved	0.851	0.831	-2%	58%	0.350	-59%
Copper-Total	5.191	8.135	57%	80%	1.632	-69%
Copper-Dissolved	3.419	3.378	-1%	63%	0.915	-73%
Lead-Total	2.765	6.912	150%	86%	0.971	-65%
Lead-Dissolved	1.598	1.872	17%	70%	0.564	-65%
Mercury-Total	0.015	0.040	160%	74%	0.010	-32%
Mercury-Dissolved	0.002	0.001	-62%	58%	0.000	-99%
Selenium-Total	0.140	1.341	857%	84%	0.215	54%
Selenium-Dissolved	0.115	0.287	150%	68%	0.092	-20%
Zinc-Total	30.411	45.761	50%	85%	6.886	-77%
Zinc-Dissolved	4.489	18.779	318%	79%	3.956	-53%
Diazinon [3]	0.010	0.299	2952%	78%	0.067	579%
Chlorpyrifos	0.000	0.025	N/A	78%	0.006	N/A
bis (2-ethylhexyl) phthalate	0.041	0.0006	-98%	57%	0.0003	-99%
Phosphorous-Diss.	107	127	19%	16%	106.614	N/A
Phosphorous-Total	241	308	28%	31%	213.101	-12%
NO_x	963	675	-30%	48%	351.996	-63%
TKN	772	1,501	94%	51%	738.007	-4%
NH_4-N	273	354	30%	75%	87.677	-68%
BOD	4,372	9,830	125%	57%	4,247	-3%
TSS	80,967	57,072	-30%	78%	12,595.953	-84%
Oil & Grease	837	1,767	111%	89%	189.072	-77%

[1] Existing condition information only taken from Larry Walker Associates (Ref 8 & 10)
[2] Combination of pollution prevention/education, regulartory practices, on-site BMPs, and regional BMPs
[3] The EPA estimates diazinon use will decrease by 75% by December of 2003.
[4] Percent change compared with existing condition.

Source: RBF Consulting, March 28, 2002, Water Quality Analysis Report - Mossdale Landing.

Public Education and Outreach on Storm Water Impacts

Public education about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff is a vital component of successful BMPs. Public education and outreach for the Mossdale Landing project will include the following:

- Educational Displays, Pamphlets, Booklets and Utility Stuffers: Printed materials are an inexpensive way to inform the public about storm water pollution. These types of materials are versatile and can be tailored to many different types of audiences. Printed materials that will be used to inform residents and businesses in the proposed Mossdale Landing project about storm water pollution will include educational displays, pamphlets, booklets, and utility stuffers.

- Education/Outreach for Commercial Activities: Many commercial activities, such as vehicle washing, landscape fertilization, and improper hazardous waste disposal, contribute to storm water pollution and they must be specifically addressed in an outreach strategy. Additionally, many business practices use materials and chemicals that are harmful to the environment. Therefore, municipalities must inform owners, operators, and employees about practices that should be avoided to maintain and improve water quality. The City of Lathrop will use printed materials such as those listed above to disseminate this information within the proposed Mossdale Landing project.

- Pollution Prevention for Businesses: Pollution prevention combines activities that reduce or eliminate contaminants at the source of production or that prevent waste from entering the environment. More efficient use of resources, substitution of less harmful substances for hazardous ones, and elimination of toxic substances from the production process are all examples of pollution prevention, as are source reduction, reuse/recycling, and energy recovery. The proponents of the proposed Mossdale Landing project will work together with the City of Lathrop to implement many such measures, including recycling and energy conservation programs.

Public Involvement/Participation

For maximum efficacy, the public should participate in developing, implementing, and reviewing a storm water management program. Public participation in the Mossdale Landing project will focus on storm drain stenciling.

- Storm Drain Stenciling: Storm drain stenciling consists of labeling storm drain inlets with painted messages that warn the public against dumping pollutants into drains. All storm drain inlets within the proposed Mossdale Landing project will implement this BMP, which affords an excellent opportunity to educate its residents about the link between the storm drain system and drinking water quality. Media coverage of the program or stenciling event may also serve to increase public awareness of storm water issues.

Pollution Prevention/Good Housekeeping

Operation and maintenance (O & M) that includes a training component and that has the ultimate goal of preventing or reducing pollutant runoff will be an integral component of the storm water management program for the proposed Mossdale Landing project.

- Alternative Products: The most common toxic substances used in residential and commercial applications are cleaners, paints, automotive products, pesticides, fertilizers, and fuels. Using alternative products greatly reduces the amount of these common substances in storm water and receiving waters. However, one of the biggest impediments to widespread use of such alternative products is a lack of public awareness. Proponents of the proposed Mossdale Landing project will work together with the City of Lathrop to inform the public about alternative products, via printed materials discussed previously, public service announcements, and other means.

- Spill Response and Prevention: Spill response and prevention plans should outline measures to stop, contain, and clean up a spill, to dispose of contaminated materials, and to train personnel to prevent and control future spills. Training, equipment and materials for cleanup must be readily available to workers in order to reduce the likelihood of spills and to ensure that any spills that do occur are dealt with quickly and efficiently. Spill response and prevention plans will be in place in the proposed Mossdale Landing project both during and after construction.

- Parking Lot and Street Cleaning: Employing pavement cleaning practices on a regular basis minimizes pollutant export to receiving waters. As part of an agreement with the project proponent, the City of Lathrop will implement a street sweeping program within the proposed Mossdale Landing project.

Post-construction Storm Water Management

Another key element of a successful storm water management program is maintenance of structural BMPs. Regular inspection of post-construction BMPs will be carried out as a part of the proposed Mossdale Landing project implementation plan.

- BMP Inspection and Maintenance: Routine inspection and maintenance reduce the chance of polluting storm water runoff by identifying and correcting problems before the next storm event. In addition, regular maintenance helps reduce the need for repair and helps prevent the development of nuisance situations, such as mosquitoes, weeds and odor. Proper inspection and maintenance is also essential to avoid the health and safety threats associated with BMP neglect. These measures will be implemented in the proposed Mossdale Landing project as part of the development of the structural BMPs detailed in the following section.

Structural BMPs

Structural BMPs are an integral element of post-construction storm water management and include storage, filtration, and infiltration practices. The selection, design and siting of structural BMPs within a project

depend largely on the development of a project-wide drainage plan. For the proposed Mossdale Landing project, the preferred drainage plan consists of the construction of an extended detention basin in the proposed Community Park area, to which the entire site will drain for both flood control and storm water runoff treatment purposes.

- On-Lot Treatment: "On-lot treatment" describes a series of practices designed to treat runoff from individual residential lots. Their primary purpose is to manage rooftop, driveway and sidewalk runoff. Managing runoff from these sources helps to disconnect impervious surfaces and to reduce the effect of increased impervious cover in a watershed. Detaching roof leaders will be used on all homes built within the proposed Mossdale Landing project to achieve this reduction. Runoff will also be diverted to a pervious area or to a treatment area on each individual lot using site grading, channels or berms, as opposed to flowing directly to the street and thus to the storm drain system.

- Grassed Swales: A swale is a vegetated, open channel management practice designed to treat and attenuate storm water runoff for a specified water quality volume. Storm water runoff flowing through these channels is treated through filtration by vegetation in the channel or through a subsoil matrix, and/or through infiltration into the underlying soils. Swales will be used throughout the proposed Mossdale Landing project where feasible. However, they will be predominantly located in the proposed commercial area in the eastern portion of the project to treat parking lot runoff.

- Grassed Filter Strips: Grassed filter strips are vegetated surfaces designed to treat sheet flow from adjacent surfaces. Filter strips slow runoff velocities and filter out sediment and other pollutants. They can also provide some infiltration into underlying soils. Properly designed and maintained, filter strips can provide relatively high levels of pollutant removal. Filter strips will be used mainly in the commercial area of the proposed project.

- Extended Detention Basins (EDBs): Extended detention basins are designed to detain storm water runoff to allow particles and other pollutants to settle. EDBs are among the most widely applicable storm water management practices, despite limited applicability in highly urbanized settings because of space constraints. EDBs can also provide flood control and channel protection. As previously discussed, the preferred drainage plan for the proposed project incorporates an EDB, located in the proposed Community Park area of the project.

The most effective storm water management programs combine both preventative (non-structural) and treatment (structural) BMPs. The storm water management program for the proposed Mossdale Landing project will utilize the most effective combination of BMPs; the constituent loading model described in the following sections calculates best and worst case removal efficiencies for the combined action of the post-construction BMPs described above.

THRESHOLDS OF SIGNIFICANCE

The proposed project would result in a significant surface water quality impact associated with stormwater runoff it if would result in one or more of the following:

- Cause a measurable violation of enforceable federal and State water quality standards and antidegradation policies.
- Create or contribute stormwater runoff that would substantially degrade water quality such that the NPDES permit to be issued for the project by the CVRWQCB would be violated.

IMPACT ANALYSIS

Impact **4.2-a**

Surface Water Quality - Stormwater Runoff (Operation)*. The proposed project would generate urban pollutants that could be carried to the SJR in stormwater runoff. Proposed BMPs, which are designed to remove constituents from runoff, would substantially improve runoff water quality compared with existing agricultural runoff. Although the project could result in an increase in the load of two pollutants in this runoff for which the SJR is listed as "impaired" (selenium and diazinon), this additional load would not cause a measurable violation of enforceable water quality standards or violate potential NPDES permit requirements. On balance, runoff water quality would be improved. Therefore, stormwater runoff from the project would result in a* ***less-than-significant*** *water quality impact on the SJR.*

The developed condition without BMPs constituent loading from the project site was compared to the constituent loading from the existing undeveloped (agricultural) condition. Due to insufficient average chlorpyrifos concentration data for the existing agricultural land use, a comparison could not be made, and instead only the chlorpyrifos loading at the developed conditions is estimated (a likely worst-case scenario). As shown in Table 4.2-3, the estimated average constituent concentrations in the developed condition without BMPs are less than those observed in the existing agricultural use runoff. However, the increased runoff coefficient associated with development (i.e., the increase in impervious area) without BMPs would serve to increase the load for most constituents in the post-construction condition.

The developed condition with BMPs uses the same calculation procedure described previously except that the resulting constituent load is reduced based on the estimated BMP removal efficiency for the specific constituent. Removal efficiencies were projected assuming that BMPs were applied sequentially: first, non-structural practices such as education and pollution prevention, then smaller structural practices such as on-lot treatment and, finally, larger-scale structural BMPs, like extended detention basins. Table 4.2-3 summarizes the calculated constituent loads for both existing and developed conditions.

As Table 4.2-3 shows, constituent loading under developed conditions with no BMPs in place exceeds loading under existing agricultural conditions, in most cases.

For all the constituents, loading with BMPs in place was considerably lower than loading expected under developed conditions without BMPs in place. For all but two constituents, loading with BMPs in place was also considerably lower than existing loading in the undeveloped condition. The exceptions to this trend are total selenium and diazinon, for which the receiving water, the SJR, is listed as impaired.

According to the water quality analysis model used, selenium loading is projected to increase under developed conditions with BMPs in place. The concentration of dissolved selenium would decrease while total selenium concentrations would increase marginally. However, this projected increase in total selenium

would still result in selenium levels lower than the TMDL set for this constituent by the CVRWQCB of 5 Fg/l (RBF 2002). Additionally, it should be noted that the primary source of selenium in stormwater runoff is the weathering of older marine shales, generally found in mudflats and sloughs. With projected imperviousness increasing from 0 to 53%, there is no evidence to suggest that selenium levels would increase with urbanization. In fact, selenium loading is likely to decrease as a result of increased impervious cover. The projected increase shown in Table 4.2-3 is due to the use of average export coefficients in the model that do not adequately reflect selenium loading for this area.

TMDLs for diazinon have not yet been determined by the CVRWQCB; however, the concentration of diazinon under existing SJR conditions is already higher than the range currently being considered by the Board. Diazinon levels resulting from this project should not result in a measurable increase in the overall diazinon levels in the SJR, which themselves must be reduced by applying regional measures that extend beyond the scope of this project. Source control would be the most effective measure in limiting the discharge of diazinon from this site and others in the region. The EPA is currently phasing out diazinon for over-the-counter use; residential outdoor use of diazinon should cease by December of 2003, which would decrease its use by about 75%, according to the EPA. This phase-out would greatly reduce this constituent in the model, such that loading from urbanized areas would approach zero. The proposed project would not create a measurable increase of diazinon in the SJR, because diazinon is being phased out in residential outdoor uses (which would be applicable to the proposed project as well), and because the majority of the proposed project would not be occupied until after 2003 (after phase-out of diazinon use in residential development); therefore, runoff from the Mossdale Landing project would create a less-than-significant water quality impact on the SJR in terms of diazinon.

Though not specifically addressed in Table 4.2-3, some mention should be made of other constituents, for which the SJR is listed as impaired; namely, boron, salinity (or TDS), and DDT. Typical highway runoff values for boron are on the order of 0.2 mg/L, which is far below the most restrictive standard cited for this constituent, 0.6 mg/L. It is reasonable to assume that runoff from a project with only 53% impervious cover at build-out would generate boron levels even lower than this concentration. TDS in storm water is typically low, on the order of 200 mg/L, which is below all standards listed in the compilation (250 mg/L for taste and odor being the most restrictive, see CVRWQCB 2000). Finally, DDT is a banned substance and, as such, will not be used in or generated by the Mossdale Landing project. Therefore, it is not addressed further.

Typically, removal efficiencies for BMPs are determined by generating and comparing best case removal and worst case removal scenarios based on the individual and cumulative removal efficiencies of a combination of BMPs. The best case removal scenario assumes that each BMP is operating at maximum efficiency, both alone and in conjunction with the other applicable BMPs. Likewise, the worst case removal scenario assumes that each BMP is operating at minimum efficiency, both alone and in combination with other applicable BMPs. Clearly, assuming either case as completely representative of actual removal efficiencies is unreasonable; assuming the worst case removal scenario to provide a conservative analysis would unnecessarily bias design based on said analysis, especially because the BMPs selected for this analysis are those that are particularly suited to a project of this type and its associated land uses. A more reasonable assumption is that the actual removal efficiency lies between the two extremes, with a trend towards the best case removal scenario, based on careful selection of site-specific BMPs; the removal efficiencies shown in Table 4.2-3 reflect this methodology.

Overall, the removal efficiencies for developed conditions with BMPs in place suggest that the proposed project would serve to decrease existing loading for most pollutants and would thereby improve water quality in the SJR. Therefore, a less-than-significant impact would occur.

Impact **4.2-b**

Surface Water Quality - Stormwater Runoff (Construction)*. Project construction activities could temporarily increase the amount of suspended solids and other pollutants in stormwater draining to the SJR. However, as required under the NPDES General Permit for Construction activities, the applicant is required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) detailing BMPs to avoid significant surface water quality impacts. The surface water quality impacts to the SJR associated with construction of the proposed project would be* ***less than significant*** *with implementation of the required SWPPP.*

TaThe SWRCB has issued an NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit) under the Clean Water Act for most construction activities in the State. The Permit requires the preparation of a SWPPP for proposed construction activities of greater than 5 acres in size. The intent of the General Permit and SWPPP is to protect receiving waters (such as the SJR) from sedimentation and pollutants carried to them by stormwater runoff from construction sites. A SWPPP is an operational plan that identifies and describes the BMPs to be implemented at the construction site to control pollution of storm water runoff. A SWPPP is typically prepared by the project applicant and submitted to the SWRCB for review and approval prior to construction. A SWPPP is required to be kept on-site for day-to-day use during construction, and must be made applicable to construction contractors involved with the project.

Project construction activities (grading, excavation, use of fuels and chemicals) on the project site could temporarily increase the amount of suspended solids and pollutants in stormwater runoff from the site. However, as required under the NPDES General Construction Permit, the applicant would prepare a SWPPP for required construction activities. The SWPPP would include BMPs required to avoid a net increase in total suspended solids and pollutants in stormwater runoff from the project site during construction. The BMPs could include, but would not necessarily be limited to, the following:

- Soil stabilization;
- Revegetation;
- Provisions to eliminate or reduce discharge of materials to stormwaters (covering construction materials, etc.);
- Runoff control to limit increases in sedimentation (e.g., detention basins, straw bails, silt fences, drainage swales, sand bag dikes);
- Stockpiling of soils away from drainage channels;
- Fuel and equipment storage guidelines to prevent chemicals from contacting stormwater;
- Waste management practices to prevent waste from contacting stormwater;
- Maintenance guidelines (i.e., drip pans under construction equipment, etc.);
- Restricting earth moving or other construction activities during the rainy season; and/or

- Minimizing soil disturbance.

With implementation of a SWPPP as required under the NPDES General Construction Permit, project construction activities would increase suspended solids and pollutants in stormwater runoff from project construction sites by less-than-significant levels.

Impact **4.2-c**

Surface Water Quality - Proposed Best Management Practices (BMPs). *The Mossdale Landing UDC identifies a comprehensive set of proposed BMPs to reduce contaminants in surface water runoff from the project site. Because the UDC does not identify the party or parties responsible for implementation of some of the proposed BMPs, and because the UDC indicates that the proposed BMPs would be implemented during only the first phases of development (after which BMPs would be implemented as required by a future Master Storm Water Quality Management Plan), there is no guarantee that all the BMPs would be implemented and substantial pollutants could be released in runnoff. This would represent a* ***significant*** *impact.*

The Mossdale Landing UDC Document does not identify the party or parties responsible for the implementation of some of the BMPs proposed as part of the Mossdale Landing project (the BMPs identified under the "Project Proposals" subheading in this section of the EIR). Furthermore, the UDC indicates that while the proposed BMPs would be implemented in the early phases of the proposed project, BMPs for later project phases would be implemented consistent with the requirements of the Master Storm Water Quality Management Plan (Plan) currently being prepared for the greater Mossdale Village area. Because responsible parties have not be identified for implementing some of the proposed BMPs, and because the Storm Water Quality Management Plan has not yet been adopted which spells out BMPs to be implemented in the later phases of the Mossdale Landing project, there are no assurances that the proposed BMPs (which are required to avoid significant runoff-related surface water quality impacts) would be implemented. This would represent a significant impact.

4.2.3 MITIGATION MEASURES

4.2-c **Surface Water Quality - Proposed Best Management Practices (BMPs).** The project applicant shall implement the following measures with respect to the BMPs proposed in the Mossdale Landing UDC Document and described under the "Project Proposals" subheading of Section 4.2 of this EIR:

C Responsibilities for Implementation of Proposed BMPs. For those proposed Best Management Practices (BMPs) identified under the "Project Proposals" subheading of Section 4.2 of the EIR where specific responsible parties or funding sources are not identified in the BMP itself: (1) the developers of each project under the UDC shall be responsible for the physical improvements associated with each BMP; and (2) the homeowner associations and/or other entities established associated with each development under the UDC shall be responsible for the programmatic measures associated with the BMPs. These responsibilities shall be spelled out by the City in the conditions of approval for each development project under the UDC.

- Implementation of Proposed BMPs During All Project Phases. The proposed Best Management Practices (BMPs) listed under the "Project Proposals" subheading of Section 4.2 of the EIR shall be implemented during all phases of the proposed project rather than during only the early phases of the proposed project.

4.2.4 RESIDUAL SIGNIFICANT IMPACTS

No residual significant runoff-related surface water quality impacts would occur.

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4.3 SURFACE WATER QUALITY - RECYCLED WATER

This section is based on the Surface Water Quality Analysis Report prepared for the Mossdale Landing project prepared by RBF Consulting and dated March 28, 2002. The report is included in its entirety as Appendix C of this EIR. This section evaluates the potential surface water quality impacts associated with the proposed land disposal of treated wastewater at the project site. Section 4.2 evaluates the potential surface water quality impacts associated with the proposed discharge of stormwater runoff to the SJR. Section 4.3 evaluates the potential groundwater quality impacts associated with the land disposal of treated wastewater at the project site. Section 4.8 evaluates the potential utilities impacts associated with the conveyance and disposal of treated wastewater at the project site.

The analyses in this section include the following:

- Review of applicable water quality standards and regulations for the surface disposal of treated wastewater (e.g., NPDES, Title 22) and for the project site's receiving waters (e.g., CVRWQCB Basin Plan);
- Estimation of the quantity and quality of treated wastewater to be disposed of at the project site; and
- Evaluation of the potential health and surface water quality impacts associated with the proposed land disposal of treated wastewater split by interim and buildout conditions, where necessary), and identification of any required mitigation.

4.3.1 EXISTING CONDITIONS

PHYSICAL SETTING

Treated wastewater is not currently land disposed of at the project site. The site currently contain several private septic systems that would be removed as part of the proposed project.

REGULATORY SETTING

Applicable Water Quality Standards

Wastewater quality in California is regulated primarily under the National Pollutant Discharge Elimination System (NPDES) program established by the Clean Water Act (CWA) and the California Code of Regulations, Division 4, Title 22.

NPDES Permit Program

Effluent discharges to surface water from wastewater treatment plants (known as point source discharges) are regulated under both Federal and State laws to protect the chemical, physical, and biological integrity of the nation's waters. The Federal Clean Water Act requires that wastewater from publicly-owned treatment plants be treated to secondary or higher standards before being discharged into waterways. The discharge

of wastewater to surface waters is prohibited unless an NPDES permit that allows such discharge has been issued. Each NPDES permit contains effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self monitoring, and other activities. No direct discharge of wastewater to surface waters is proposed under the proposed project.

California Code of Regulations, Title 22

Since 1928, under the California Constitution, Article X, and Section 2, all water uses in the state are required to be reasonable and beneficial. Beneficial uses of treated water include irrigation (AGR), urban (MUN) and industrial (IND) uses, and habitat needs for fish (WARM and COLD) and wildlife (WILD). Whether a beneficial use is "reasonable" depends on the particular circumstance. Under certain conditions, use of potable water for non-potable applications is ruled a waste and unreasonable use if recycled water is available (California Water Code Section 13550-13553).

Wastewater recycling in California is regulated under Title 22. The intent of these regulations is to ensure the protection of public health associated with the use of recycled water. The regulations establish acceptable levels of constituents in recycled water for a range of uses, and prescribe means for assurance of reliability in the production of recycled water. Use of recycled water for non-potable uses is common throughout the State and is an effective means of maximizing use of water resources in water-short communities. The California Department of Health Services (DHS) has jurisdiction over the distribution of recycled wastewater and the enforcement of Title 22 regulations. The Central Valley Regional Water Quality Control Board (CVRWQCB) is responsible for issuing waste discharge requirements, including discharge permits prohibitions, monitoring and reporting programs. The RWQCB is also responsible for user reuse requirements associated with the implementation of wastewater reclamation projects.

It is the intent of the proposed project to maximize reuse opportunities. To this end, project wastewater would need to be treated to standards set forth by Title 22 for disinfected tertiary treatment. These standards are set forth in Table 4.3-1. To achieve this high quality wastewater, secondary effluent is typically coagulated, filtered, and disinfected to achieve a quality suitable for unrestricted use.

Water reuse/reclamation requires the treatment of municipal wastewater to remove sediments and impurities. Different levels of treatment allow different reuses of water. The extent of treatment is determined by the initial quality of the water, the reuse application, and State and Federal laws. The RWQCB defines water quality requirements and has specified some physical features of the reuse through land disposal systems. Table 4.3-2 summarizes the different levels of wastewater treatment, the treatment process, and the corresponding disposal and uses for treated effluent as stipulated in Title 22.

<u>City of Lathrop Requirements</u>

Several City plans and environmental documents address recycled water use, including but not limited to the City of Lathrop General Plan, West Lathrop Specific Plan (WLSP), and Lathrop Water, Wastewater & Recycled Water Master Plan (Master Plan), as well as the EIRs prepared for each of these plans. None of

these documents contain recycled water use policies or requirements above and beyond those already discussed above (RBF 2001).

Table 4.3-1
Standards for Title 22 Disinfected Tertiary Recycled Water for Unrestricted Use

Constituent	Value
Turbidity	24 hour average < 2 NTU less than 5% of values > 5 NTU at all times < 10 NTU
Total Coliform Bacteria	Running 7 day median < 2.2 MPN/100 mL Once every 30 days > 23 MPN/100 mL At all times < 240 MPN/100 mL
Biochemical Oxygen Demand (BOD_5)	< 10 mg/L
Total Suspended Solids (TSS)	< 10 mg/L

NTU = National Turbidity Unit
MPN = Most Probable Number

Source: Nolte Associates, Inc., 2000 (June). City of Lathrop Water, Wastewater and Recycled Water Master Plan. Prepared for the City of Lathrop.

4.3.2 ENVIRONMENTAL IMPACTS

IMPACT ANALYSIS METHODOLOGY

Recycled water flow rates for the proposed project were estimated assuming a 1:1 correspondence between project sewage generation and recycled water generation. The sewage generation estimates for the proposed project (in Section 4.8 of this EIR) are based on sewage generation rates identified in the WLSP. The 1:1 correspondence assumption provides a conservative estimate of recycled water generation. This is because the treatment process typically reduces the volume of the wastewater through evaporation and other factors.

The amount (acreage) of disposal area required to accommodate the recycled water to be generated by the proposed project was calculated using a Water Budget Model prepared by Dixon Agronomics (included in its entirety as Appendix E of this EIR). The model incorporates inputs, including recycled water generation, soil characteristics, crop and landscape water uptake, evaporation, and other factors to determine the acreage of storage and the application area required to dispose of the quantity of recycled water to be generated by the project. The model bases these acreage estimates on the application of recycled water at the agronomic rate (the rate at which water is is applied to both minimize percolation below the root system and minimize surface ponding, taking into account evaporation, evapotranspiration, and other environmental factors.)

Table 4.3-2
Wastewater Treatment Processes and Allowed Effluent Reuse

Treatment Level	Treatment Process	Title 22 Permitted Uses
Primary	< Bar screens remove debris < Grit chamber grinds large particles < Coagulation and flocculation forms settable aggregates < Sedimentation settles out aggregates	< Irrigation of fiber, fodder, and seed crops not consumed by humans
Secondary	< Oxidation of organics in primary treated water by controlled biological masses in aerated tanks < Biological mass is settled out < disinfection inactivates pathogens	< Irrigation of cemeteries, freeway landscaping, and restricted access golf courses < Irrigation of ornamental nursery stock and sod farms < Irrigation of pasture for milk-producing animals < Irrigation of non-edible vegetation with access control < Irrigation of food crops with edible portions above ground with no water contact < Landscape impoundments with no body contact < Restricted recreational impoundment limited to fishing, boating, and other non-body contact recreation < Industrial boiler feed < Air condition or cooling tower with no mist < Backfill consolidation around non-potable piping < Mixing concrete < Dust control and cleaning roads and streets < on-structural fire fighting
Tertiary	< Coagulation and flocculation process repeated on secondary treated water < Filtration removes aggregates and some pathogens < Disinfections inactivates pathogens	< Irrigation of parks, playgrounds, school yards, residential landscaping, and unrestricted golf courses < Irrigation of food crops where edible portion contacts water < Any other irrigation uses not prohibited under state regulations < Groundwater recharge is allowed on a case-by-case basis
Advanced	< Target contaminant removal (e.g., denitrification or nitrate removal, granular activated carbon for organics removal, membrane treatment for micro-contaminant removal, etc.)	< Generally all uses listed above
Source: RBF Consulting, 2002 (March 28). Water Quality Analysis Report - Mossdale Landing.		

The quality of the recycled water to be generated by the proposed project was determined based on the Title 22 disinfected tertiary recycled water requirements for unrestricted use as identified in Table 4.3-1, the quality of the future tertiary-treated water from WRP #1 as identified in Table 4.3-3 (from the Master Plan EIR), and minimum NPDES water quality standards for effluent disposal (significant public access) as identified in Table 4.3-4. The potential public health impact associated with the use of this recycled water were determined by comparing the quality of the recycled water to be generated to applicable health and safety standards for such water (i.e., Title 22, NPDES permit requirements). The potential surface water quality impact associated with this recycled water was determined by identifying the level of pollutants in this recycled water, and the potential for such pollutants to be conveyed to receiving waters (based on plant uptake, root binding, the rate of application, etc.).

Table 4.3-3
Projected Recycled Water Quality for Mossdale Landing

Constituents	Units	Recycled Water Quality	
		South County Surface Water	City of Lathrop Groundwater
Bicarbonate, as HCO_3	mg/L	N/A	229.5
Calcium	mg/L	22	57.8
Carbonate, as CO_3	mg/L	N/A	<6
Chloride	mg/L	41	83
Magnesium	mg/L	12	21
Manganese	mg/L	N/A	0.3
Potassium	mg/L	12	21
Sodium	mg/L	57	80.2
Sodium adsorption ratio	--	2.43	2.30
Sulfate		27	44.33
Total alkalinity, as $CaCo_3$	mg/L	128	264.8
Total dissolved solids	mg/L	320	572.2

Source: Nolte Associates, Inc., 2000 (June). City of Lathrop Water, Wastewater and Recycled Water Master Plan. Prepared for the City of Lathrop.

PROJECT PROPOSALS

The Mossdale Landing project is a mixed-use master-planned community. As indicated in Table 3-1, the project would include 1,690 residential units, 653,399 square feet of commercial uses, 2 schools totaling 164,000 square feet, a fire station on 0.4 acre, 39 acres of parks, 13.8 acres of levee/open space, and 52.2 acres of major streets, at buildout (2010). An interim condition is included as part of the proposal, which would include 1,408 residential units, 499,197 square feet of commercial uses, both schools, the fire station, 39 acres of parks, 13.8 acres of levee/open space, 52.2 acres of streets, and 51.7 acres of recycled water storage ponds and spray fields.

Table 4.3-4
Possible Future Waste Discharge Requirements for Effluent Disposal

Constituent	Units	Method of Disposal		
		Surface Water (San Joaquin River) Discharge to Land	Minimum Public Access [1]	Significant Public Access [2]
BOD_5	mg/L	10	30	10
Suspended Solids	mg/L	10	--	--
Settleable Solids	mg/L	0.1	0.2	--
Total Coliform	MPN/100 ml	2.2/23 [3]	23 [4]	2.2/23 [5]
Turbidity	NTU	2	--	2
Acute Toxicity	% Survival	70/90 [6]	--	--
Chlorine	mg/L	<0.01	--	--
Residual Oil and Grease	mg/L	10	--	--

[1] Examples of land application with minimum public access include the irrigation of fodder and fiber crops.
[2] Examples of land application with significant public access include the irrigation of golf courses, parks, playgrounds, schoolyards, and residential landscaping.
[3] First value represents monthly median, second value represents daily maximum.
[4] Monthly median value.
[5] First value represents 7-day median, second value represents 7-day maximum.
[6] First value represents minimum survivability for one bioassay, second value represents median survivability for 3 or more consecutive bioassays.

Source: Nolte Associates, Inc. 2000 (June). City of Lathrop Water, Wastewater and Recycled Water Master Plan. Prepared for the City of Lathrop.

Under the proposed project, project wastewater would be conveyed to the City of Lathrop Wastewater Recycling Plant (WRP) #1 for tertiary treatment to Title 22 standards. WRP #1 is located along Howland Road, east of Interstate 5 (I-5) near the I-5/State Route 120 intersection. The plant currently treats wastewater to secondary standards, but is proposed to be upgraded to tertiary treatment standards and expanded prior to the proposed project coming online. This expansion of WRP #1 has been planned within the adopted Lathrop Water, Wastewater and Recycled Water Master Plan (Master Plan), and was evaluated in the certified Master Plan EIR. This expansion would serve the near-term development in the City, including Mossdale Landing, the first phases of River Islands, Lathrop Station, Stonebridge, and the Crossroads Commerce Center. A summary of the potential environmental impacts identified in the Master Plan EIR associated with this plant expansion is provided in Section 4.8 of this Mossdale Landing EIR. At present, project-level plans for expansion and improvement of WRP #1 are currently being prepared by the City and are undergoing project-level CEQA review as the WRP #1 Phase 1 Expansion Project. It is anticipated that this project-level analysis will refine the analysis contained in the Master Plan EIR, although the summary of impacts provided in this EIR represents the currently known foreseeable impacts associated with the plant expansion. During initial project development, 100% of the wastewater generated by the project would be treated at WRP #1 and then conveyed back to the project site for disposal via spray fields and landscape irrigation. If and/or when additional disposal capacity were to become available, such as river discharges and/or off-site land disposal, the proposed project would be fully built out.

This section evaluates the interim condition of the proposed project because it would be during this time frame (2007) that the greatest amount of recycled water would be disposed of at the project site. After 2007, the quantity of recycled water disposed of at the project site, and thus the potential for this recycled water to result in surface water quality impacts, would be reduced, as on-site storage ponds and spray fields would be replaced with residential and commercial development.

This section also evaluates the potential surface water quality impacts that would occur associated with the off-site disposal of treated wastewater that would be required if buildout of the project were to occur. For an analysis of the potential groundwater and utilities impacts associated with such off-site disposal, see Sections 4.4 and 4.8, respectively.

Flow Rates and Disposal Capacity

The proposed project would generate an estimated Average Dry Weather Flow (ADWF) of 0.431 million gallons per day (MGD) and 0.513 MGD of sewage during interim and buildout conditions, respectively. See the wastewater generation tables in Section 4.8 for the calculations.

To dispose of the recycled water to be generated by the proposed project, the project includes proposals to develop a certain amount of on-site disposal capacity. Under interim conditions, the project would include approximately 19.7 acres of storage ponds and 83 acres of application area (consisting of 29.3 acres of spray fields and 53.7 acres of irrigated landscape area). Under buildout, where the on-site storage ponds and spray fields would be replaced by residential and commercial development, the project would include 0 acres of storage ponds and approximately 52.1 acres of application area (all irrigated landscape area).

A Water Budget Model for the Mossdale Landing project was prepared by Dixon Agronomics and is included as Appendix E of this EIR. The model defines the acreage needed for pond storage and application areas for disposal of the recycled water to be generated by the proposed project. For interim conditions, the model concludes that the Mossdale Landing project would require approximately 14.5 acres of pond storage and 83 acres of application area to dispose of the 0.431 MGD of recycled water to be generated, during interim (2007) conditions..

For buildout, the model concludes that the proposed project would result in an incremental increase in the demand for storage capacity of approximately 0.141 MGD. This would include 0.082 MGD associated with the incremental increase in on-site development, 0.029 MGD associated with the loss of the on-site storage ponds, and 0.03 MGD associated with the loss of on-site application area (primarily spray fields). Because no additional acreage would be available at the project site for the on-site land disposal of recycled water, off-site disposal would be required. Such off-site disposal capacity could originate with approximately 20 acres of off-site storage ponds and 34 acres of off-site application area if land disposed (the other option being river disposal). The project does not currently include proposals to provide the additional disposal capacity required for buildout of the project. Therefore, buildout of the project would not be permitted until the required additional disposal capacity were to become available.

Treatment

As discussed previously, wastewater generated by the proposed project would be tertiary treated at WRP #1 to Title 22 standards. The tertiary treatment process involves screening, settling, coagulation, flocculation, filtration, and disinfection of the wastewater. Tertiary treatment enhances normal sewage treatment operations to provide water of potable quality using further chemical and physical treatment. Tertiary treatment of wastewater has been found to be successful in the removal and inactivation of pathogenic microorganisms.

The expected quality parameters for the wastewater can be estimated by identifying the likely mineral content of the source water, and then applying standard pollutant reduction rates associated with tertiary treatment. The projected water quality for tertiary recycled water was previously analyzed in the Master Plan and associated EIR. Future source water for the City is expected to be from conjunctive use from two sources: surface water from the SCSWSP and groundwater from the City's expanded well field. Surface water is considered a lower boundary for inorganic constituent concentration and groundwater is considered an upper boundary. Table 4.3-3 shows the projected recycled water quality for the proposed project, based on the above inputs.

Effluent Disposal

Effluent disposal for the proposed project would consist of two phases. First, the treated effluent would be stored in on-site ponds, sized to contain all wastewater flow (as well as rainfall) during the 100-year storm. Then it would be pumped into the proposed on-site recycled water distribution system. The system would be a set of pressurized pipelines leading to on-site spray fields for use as irrigation for crops, and to public landscape areas use for as landscape irrigation.

The RWQCB requires, through the issuance of a discharge permit, that tertiary effluent meet minimum water quality standards prior to disposal. The proposed project would involve discharges to land, both in areas with minimum public access (agriculture) and significant public access (landscaping). As such, all recycled water to be generated by the proposed project would need to meet the more stringent requirements for significant public access (see Table 4.3-4). The tertiary treatment process would be operated to meet these discharge requirements at all times, in accordance with the RWQCB permit, prior to disposal.

THRESHOLDS OF SIGNIFICANCE

The proposed project would result in significant health and surface water quality impacts associated with recycled water use if it would result in one or more of the following:

- Cause a violation of enforceable water quality standards designed to protect public health.
- Cause a violation of State and Federal antidegradation policies.
- Cause a violation of waste discharge requirements as specified in the waste discharge permit (WDR) permit to be issued for the project by the RWQCB.

IMPACT ANALYSIS

Impact **4.3-a**

Surface Water Quality - Effects of Recycled Water Use (Construction). *Recycled water would not be disposed of at the project site during construction. Therefore,* ***no impacts*** *would occur*

Recycled water would not be disposed of at the project site during construction. Therefore, no public health or surface water quality impacts would occur associated with recycled water during construction. For discussions of the potential environmental affects associated with the construction of the proposed recycled water pipelines from WRP #1 to the project site, see Sections 4.6, Air Quality, 4.7, Noise, 4.8, Utilities, 4.10, Terrestrial Biology, and 4.12, Cultural Resources.

Impact **4.3-b**

Surface Water Quality - Effects on Public Health of Recycled Water Use (Operation). *Recycled water would be disinfected and tertiary treated to Title 22 standards for unrestricted use prior to land application under the Mossdale Landing project. The State of California (Department of Health Services) has determined that the use of such recycled water for crop landscape irrigation does not represent a public health hazard. Furthermore, the use of such recycled water is consistent with, and would not cause violations of, water quality standards designed to protect public health. Therefore, the use of recycled water for irrigation under the proposed project would represent a* ***less-than-significant*** *public health impact.*

Recycled water would be disinfected and tertiary treated to Title 22 standards for unrestricted use prior to storage and land application as irrigation water under the proposed project (see Tables 4.3-1 and 4.3-4 for a listing of the standards). The State of California (Department of Health Services) has determined that the storage and use of such recycled water for crop and landscape irrigation, including irrigation of food crops, parks, playgrounds, school yards, residential landscaping, and other uses, does not represent a public health hazard (see Table 4.3-2 for a listing of the permitted uses of recycled water by wastewater treatment level). Even groundwater recharge is identified by Title 22 as an appropriate use for tertiary treated recycled water. Furthermore, the proposed storage and use of such recycled water is consistent with, and would not cause violations of, water quality standards designed to protect public health. Finally, recycled water pipelines and other recycled water infrastructure would be properly marked (ie.g., purple pipe), and signage would be provided in the application to inform the public that these areas are being irrigated with recycled water. Therefore, the storage and use of recycled water for irrigation under the proposed project would represent a less-than-significant public health impact.

There is an unlikely potential that the proposed recycled water pipelines could rupture, that the proposed storage ponds could leak, and/or that the capacity of the proposed storage ponds could be exceeded associated with rain during a greater than 100-year storm event. Any potential accidental release of recycled water associated with the above, or associated with some other unforseen event, would not represent a public health hazard because the recycled water would be Title 22 water (i.e., appropriate for unrestricted use, including human contact). Therefore, any accidental releases of recycled water at the project site would represent a less-than-significant public health impact.

[redacted]

Surface Water Quality - Potential for Violation of Water Quality Standards (Operation). *The proposed storage and use of recycled water at the project site would occur*

consistent with the discharge permit to be issued for the proposed discharge by the RWQCB, the treatment, application and design requirements of the State of California (Department of Health Services). These permits would require compliance with water quality standards. Therefore, the proposed storage/use of recycled water would not violate water quality standards, and a ***less-than-significant*** *impact would occur.*

Based upon the Water Budget Model (Table 4.3-4), the proposed project would reuse all produced effluent for irrigation (during the interim condition). The recycled water would be tertiary treated to Title 22 standards (unrestricted use). As previously discussed, all applicants for projects that result in treated effluent disposal through land application must obtain a discharge permit from the RWQCB for recycling of effluent. The permit specifies the maximum allowable level of total suspended solids, biochemical oxygen demand, nutrients, bacteria, and other pollutants that could be stored or discharged through the proposed project.

The proposed project would include the storage/use of recycled water under the following conditions:

- The proposed quality of the recycled water to be land applied (i.e., tertiary treatment to Title 22 standards for unrestricted use) would meet the treatment and disposal requirements for all irrigation and public contact purposes;
- The design of the proposed recycled water facilities, along with the discharge itself, would occur consistent with DHS requirements and City of Lathrop design requirements;
- The recycled water would be applied at the agronomic rate (the rate at which water is applied to maintain the existing moisture content of the soild while both minimizing percolation below the root system and avoid surface ponding). By application of recycled water at the agronomic rate, runoff from areas where the recycled water would be applied would be limited to natural rainfall.
- The proposed discharged would occur consistent with the discharge permit to be issued by the RWQCB;
- The project would include proposed management practices to assure early identification of changes in soil structure or infiltration of effluent and require changes to mitigate any potential adverse health effects. Measures that would be implemented, as required, include but are not necessarily limited to: (1) incorporation of runoff barriers in the design of the irrigation areas; (2) proper signage indicating reclaimed water use; (3) construction of shallow monitoring wells for sampling and analysis of impacts to groundwater levels; and (4) water quality monitoring in nearby surface streams.

Based on the above, and because the proposed storage/use of recycled water would not create any significant surface water or groundwater quality impacts after mitigation, the proposed storage/use of recycled water at the project site would not violate water quality standards. Therefore, a less-than-significant impact would occur in terms of compliance with such standards.

The proposed storage ponds would be sized to accommodate both recycled water and rainfall from the 100-year storm event, and would also provide appropriate freeboard. Under conditions of greater than 100-year storm events, water levels in the storage ponds could potentially exceed the 100-year plus freeboard capacity

of the ponds, and result in direct discharges to land and/or indirect discharges to the San Joaquin River. Any such accidental releases would result in a less-than-significant surface water quality impact given the high level of proposed treatment , the relatively high volume of river water in flood stages, and prior analysis in the Master Plan EIR that demonstrates that even substantial levels of direct discharge of recycled water to a low-flow scenario in the SJR would not adversely affect water quality. Furthermore, the storage and disposal of recycled water at the project site would occur consistent with DHS, RWQCB and City requirements as discussed above. Therefore, the proposed storage/use of recycled water at the project site would not violate water quality standards, even in the eventuality of an accidental release, and thus a less-than-significant impact would occur in terms of compliance with water quality standards.

Under the proposed project, the incremental increase in treated wastewater generated by the proposed project between interim conditions and buildout would require off-site disposal either to land or to the San Joaquin River. The potential surface water quality impacts associated with any off-site disposal to land would be the same (i.e., less than significant) as described under this impact, assuming disposal would occur consistent with DHS requirements, would be applied at the agronomic rate, and would be accompanied by the same management practices proposed for on-site land disposal under the proposed project.

The potential surface water quality impacts associated with any river disposal have been evaluated in the Master Plan EIR. As indicated, any discharge of tertiary treated wastewater to the SJR associated with development in the WLSP area, including the Mossdale Landing project, would result in a less than significant project-level surface water quality impact and a potentially significant unavoidable cumulative surface water quality impact related to dissolved oxygen in the Stockton Ship Channel. See Chapters 5 and 7, Cumulative Impacts and Significant Unavoidable Adverse Impacts, for further discussion of potential impacts associated with river discharges. See Impact 4.4-c for a discussion of groundwater quality impacts associated with any project-related off-site land disposal of treated wastewater associated with the proposed project.

Impact **4.3-d**

Surface Water Quality - Effects on Receiving Water Quality of Recycled Water Use (Operation). *Runoff from areas of the project site where recycled water is to be applied could potentially drain to the San Joaquin River and affect river water quality. However, the high level of treatment to be applied to the recycled water the pollutant reduction capacity of the soil and plant matter onto which the recycled water is to be applied, the proposed application of the recycled water at the agronomic rate, the fact that all stormwater would first pass through the project's proposed BMPs, and the existence of the east levee between the river and the project site that would avoid gravity flow of recycled water (or stormwater containing recycled water) to the river, would combine to result in* ***less-than-significant*** *water quality impacts to the river.*

At least one regulatory agency submitted an NOP comment registering concern that the proposed application of recycled water to land (i.e., land disposal of treated wastewater) could result in a build-up of pollutants in the soil, and that these pollutants could subsequently be carried by runoff to the San Joaquin River and affect river water quality.

The recycled water to be disposed of at the project site would be tertiary treated to Title 22 standards. By definition, tertiary treatment is an advanced treatment process, following the secondary treatment of

wastewater, that produces high-quality water. Tertiary treatment includes the removal of nutrients such as phosphorus and nitrogen, and practically all suspended and organic matter, from wastewater. As indicated in the Master Plan EIR, the direct discharge of tertiary treated wastewater to the San Joaquin River associated with WRPs under the Master Plan would result in a less-than-significant water quality impact to the river. Because even the direct discharge of tertiary treated wastewater to the river would not result in significant water quality impacts to the river, because the level of treatment is such that the deposition of minerals and other pollutants in project site soils would be minimal, because infiltration and vegetative uptake would substantially reduce any potential pollutant deposition that does occur, and because any particulates that could make it through the treatment process would likely become bound in the root systems of plants growing in the application areas, because a levee separates the project site from the SJR such that there will be no gravity flow of recycled water to the river, and because all project storm water would first pass through the stormwater BMPs proposed as part of the proposed project, the proposed use of recycled water at the project site would result in a less-than-significant impact to the water quality of the San Joaquin River (RBF 2001). See Section 4.4 of this EIR, Groundwater Quality, for evaluation of the potential groundwater quality impacts associated with the proposed on-site application of recycled water.

4.3.3 MITIGATION MEASURES

No significant impacts would occur, and thus no mitigation measures are required.

4.3.4 RESIDUAL SIGNIFICANT IMPACTS

No residual significant recycled water-related surface water quality impacts would occur.

4.4 GROUNDWATER QUALITY

The following section evaluates the potential environmental effects of the Mossdale Landing project on groundwater quality. Specifically, this section evaluates the impacts to groundwater quality of: (1) stormwater runoff from developed areas of the project site (i.e., urban or first flush runoff); and (2) the storage and disposal of treated wastewater (i.e., recycled water) at the project site. . This section is based on the Groundwater Quality Report prepared for the proposed project by Kleinfelder, Inc. This report is included in its entirety as Appendix F of this EIR. For an evaluation of potential environmental effects of the Mossdale Landing project on surface water quality, see Sections 4.2 and 4.3 of this EIR.

4.4.1 EXISTING CONDITIONS

PHYSICAL SETTING

Regional Conditions

The site lies within the Great Valley Geomorphic Province of California. The Great Valley is approximately 400 miles long, 50 miles wide, and comprises approximately 20,000 square miles. It has been filled with a thick sequence of marine and non- marine sediments from the late Jurassic to Holocene. The uppermost strata of the Great Valley represent, for the most part, the alluvial, flood, and delta plains of two major rivers (the Sacramento and the San Joaquin) and their tributaries. Valley geomorphology includes dissected uplands, low alluvial plains/fans, river flood plains and channels, overflow lands, and lake bottoms.

The groundwater basin in the Lathrop area is part of the Sacramento-San Joaquin Delta subregion, a part of the Central Valley aquifer system. Most of the fresh groundwater is unconfined and at depths of less than 2,500 feet. Several geologic formations underlie the Lathrop area; however, only the top two, the Victor and the Laguna formations, are currently being used as a source of fresh water. The Victor formation is the uppermost, and extends from the ground surface to a maximum depth of approximately 150 feet. The underlying Laguna formation is hydrologically connected to the Victor formation and is estimated to be 75- to 1,000 feet thick. Most of the municipal and industrial wells in the Lathrop area penetrate through the Victor formation (shallow aquifer) into the Laguna formation (deep aquifer).

The groundwater surface in the Lathrop area generally slopes from south to north, with the highest groundwater elevation occurring near Yosemite Avenue east of McKinley Avenue, and the lowest groundwater elevation occurring along Roth Road. In 1997 (the latest date for which area data was available), groundwater elevations in the Lathrop area ranged from -14 to +10 feet above mean sea level (msl), with an average of 0 feet. The groundwater elevation in the fall, after the high-use summer months, averages approximately 3 feet lower than during the spring. Since 1993, there have been several years of above-average precipitation, and over this 6-year period groundwater in the Lathrop area has increased approximately 4 feet in elevation.

Because of saltwater intrusion into the Delta region of the County, and because of infiltration of runoff from the San Joaquin River, agricultural areas, and urban areas, groundwater in the Lathrop area is generally poor, having concentrations of chloride above 300 milligrams per liter (mg/l) and TDS above 500 mg/l (and in

many instances exceeding 1,000 mg/l). However, this poor quality shallow groundwater is generally not used for drinking water purposes. Groundwater used for drinking water in the Lathrop area is generally obtained from depths of 150 feet to 1,000 feet (i.e., deep aquifer).

Site Conditions

General Conditions

The 477.3-acre project site consists of flat agricultural fields that have recently been ripped and disked, planted in alfalfa, or that has stubble from previous crops. Several homes and farm-related structures exist on the properties. There are also numerous ditches and roadways that border individual farm parcels. Several underground storm drains and a stormwater pump station are located on-site (see Section 4.2 of this EIR for description), as well as private irrigation lines associated with the on-site agricultural use.

Field Explorations

Soil borings, test pits, monitoring wells, CPT soundings, and percolation tests were performed at the project site in late December 2000 and continuing into February 2001 to characterize soils and groundwater conditions. Also, six backhoe test pits were dug on June 23, 2000. The depth of the borings was 40 feet. Continuous logs of the soils encountered were maintained, and relatively-undisturbed soil samples were obtained for visual observation, classification and laboratory testing. The approximate locations of these test pits at the project site are identified in Plate A-1of the groundwater report (Appendix F).

Soil Conditions

Soil conditions at the project site vary considerably, from sandy silt and silty clay to silty sand, with the sands ranging from loose to dense and the silts and clays ranging from stiff to very stiff. Groundwater was encountered at all of the points of exploration. A summary of the soils encountered in the test pits, test borings, and monitoring wells is provided in Plates A-3 through A-11of the groundwater report (Appendix F).

Groundwater Conditions

The depth to groundwater at the project site was measured on four occasions between January 25 and June 13, 2001. The first two readings were taken during the winter months after periods of moderate to heavy rainfall. The last two readings were taken in May and June while adjacent fields were or had been recently flood irrigated. The depth to groundwater during these periods averaged from 3½ to 4½ feet near the San Joaquin River (SJR), and increased with distance from the river to an average of 10 to 12 feet in the southeastern portion of the site where the recycled water storage ponds are proposed. There was a relatively rapid, nearly 2-foot drop in groundwater after irrigation ceased from May 31 to June 13, 2001. A summary of these readings is presented on Plate A-14 of the groundwater report (Appendix F).

Existing groundwater quality conditions underlying the project site at a 40-foot depth (i.e., shallow aquifer) is characterized in Table 4.4-1 based on the field explorations. As indicated, the water is of relatively poor

quality due to its high dissolved salt content. Many of the concentrations presented exceed primary or secondary drinking water standards per 22 CCR.

Table 4.4-1
Existing Groundwater Quality at the Project Site (Shallow Aquifer) [1]

Constituents	Sampled Levels
Hardness	109 to 1,100 mg/l
Calcium	5.0520.4 to 301 mg/l
Copper	all 0.139 mg/l
Iron	0.0386 to 184 mg/l
Magnesium	14.1 to 184 mg/l
Manganese	0.0100 to 9.40 mg/l
Potassium	4.56 to 29.0 mg/l
Sodium	131 to 694 mg/l
Zinc	0.6032 to 2.04 mg/l
Total Alkalinity	319 to 900 mg/l
Bicarbonate Alkalinity	319 to 900 mg/l
Carbonate Alkalinity	all <10 mg/l
Hydroxide Alkalinity	all <10 mg/l
Methylene Blue Active Substances	all <0.0500 mg/l
pH	7.13 to 8.33 units
Total Dissolved Solids (TDS)	737 to 2,110 mg/l
Chloride (Cl-)	146 to 610 mg/l
Sulfate as SO_4	87.2 to 409 mg/l
Specific Conductivity [EC]	1,330 to 3,190 mg/l

[1] Based on groundwater quality testing conducted by Kleinfelder of the shallow aquifer underlying the project site.

Source: Kleinfelder 2002

Existing groundwater quality conditions underlying the City of Lathrop's (City) well field (from the deep aquifer) is summarized in Table 4.4-2 in terms of mineral levels. Total dissolved solids (TDS) provides a measure of the level of saltwater intrusion into the groundwater supply. The recommended secondary TDS standard for drinking water is 500 mg/L, although the upper limit is 1,000 mg/L for long-term use and 1,500 mg/L for short-term use. TDS levels in water from the City's wells have averaged from 245 mg/L to 422 mg/L, with an overall average of 297 mg/L.

Table 4.4-2
Existing Groundwater Quality in the Lathrop Area (Deep Aquifer) [1]

Constituents	Average Annual Concentration (mg/L)
Bicarbonate (as HCO_3)	154.5
Calcium	41.8
Carbonate (as CO_3)	<1
Chloride	43
Magnesium	11
Manganese	<0.03
Potassium	11
Sodium	25.2
Sodium absorption ratio	0.90
Sulfate	19.33
Total alkalinity (as $CaCO_3$)	164.8
Total dissolved solids	164.8
Total dissolved solids	297

[1] Based on information from the Lathrop Water, Wastewater and Recycled Water Master Plan for the deep aquifer underlying the City's existing and proposed expanded well field.

Source: Nolte Associates, Inc. 2000

Other groundwater quality concerns in the Lathrop area include nitrate, iron, manganese, and bacteriological and radiological contamination (see the Groundwater Quality Report, Appendix F of this EIR, for further discussion). As a result of the bacteriological contamination, the City began chlorinating water at all of its municipal wells in 1996. In general, groundwater within the City currently meets all drinking water standards.

REGULATORY SETTING

Table 4.4-3 outlines the water quality regulations and permits likely applicable to the Mossdale Landing project. Table 4.4-4 summarizes applicable groundwater quality goals for the constituents tested.

The State of California Water Resources Control Board (SWRQB) and State of California Regional Water Quality Control Board (RWQCB) regulate dischargers of waste into waters of the state through waste discharge requirements (WDRs) which are authorized under the state's Porter-Cologne Water Quality Control Act and under NPDES permits. Each of these is authorized under the Clean Water Act (CWA). The WDRs are issued to regulate activities of entities subject to the state's jurisdiction that would discharge waste that may affect groundwater quality or that may discharge waste in a diffused manner (e.g., through erosion from soil disturbance). The discharge of recycled water to land is one type of activity that falls under this requirement.

The Central Valley RWQCB would issue WDRs for the proposed project following the City's filing of a report of waste discharge (ROWD) for the proposed project. WDRs typically specify many of the provisions of Title 22 with which the discharger would be required to comply (in particular, the maintenance of the land application sites and the control of runoff), and specify prohibitions and requirements, such as a monitoring and reporting program and the implementation of best management practices (BMPs) with respect to effluent disposal. In addition, the WDRs for the proposed project may specify a required separation between the bottom of recycled water storage ponds and the highest known historical groundwater elevation; calendar restrictions for irrigation using recycled water; and required setbacks from water bodies or other land uses (Wyles and O'Brien 2002).

Table 4.4-3
Water Quality Regulations/Permits Likely Applicable to the Proposed Project

Regulation/Permit Requirement	Regarding
Clean Water Act of 1972	Primary federal law that regulates surface water quality (including discharge quality, pretreatment standards, etc.).
National Pollutant Discharge Elimination System (NPDES) Permitting	Established under Clean Water Act of 1972 to regulate discharge to Surface Waters of the United States. The primary discharges, which are regulated industrial and municipal wastewater and stormwater.
Safe Drinking Water Act of 1974 (reauthorized in 1986)	Gives the U.S. EPA authorization to establish maximum contaminant levels (MCLs) that are allowable in drinking water.
National Toxics Rule of 1992 and California Toxics Rule of 2000	Promulgated from the Clean Water Act. Establishes water quality standards for "priority pollutants" in surface water.
Federal Anti-Degradation Policy	Provides that surface water quality shall not be "degraded" except under specific conditions.
Clean Water Act Section 303(d) Impaired Waters List	Requires Total Maximum Daily Load Requirements for listed pollutants and for listed water bodies.
Porter-Cologne Water Quality Control Act of 1970	The primary statutory authority for surface and ground water quality. The act established the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs), and requires the RWQCBs to adopt basin plans. These plans establish the beneficial uses of water and water quality objectives.
California Non-Degradation Policy	Provides that surface and ground water quality shall not be "degraded" except under specific conditions.
Waste Discharge Requirements	Provided for under the Clean Water Act, the Porter-Cologne Water Quality Control Act and the individual Basin Plans. Waste Discharge Requirements (WDRs) are discharge-specific. WDRs commonly state discharge limitations on quantity, quality and timing and normally include a Monitoring and Reporting Program (MRP) for monitoring frequency/location analysis and reporting.

Source: Kleinfelder 2002

Table 4.4-4 Groundwater Quality Goals for the Constituents Tested	
Constituents	**Water Quality Goal (value and reference)**
Hardness	*No known applicable Water Quality Goal.*
Calcium (Ca)	*No known applicable Water Quality Goal.*
Fecal Coliform	< 200 MPN/100 ml (Basin Plan for Surface Water)
Copper (Cu)	< 1.3 mg/l (California Primary Maximum Contaminant Level [MCL]) < 1.0 mg/l (California Secondary MCL [SMCL])
Iron (Fe)	0.3 mg/l (California SMCL)
Magnesium (Mg)	*No known applicable Water Quality Goal.*
Manganese (Mn)	< 0.050 mg/l (California SMCL)
Dissolved Oxygen (DO)	< 5 mg/l (Basin Plan for Surface Water)
Potassium(K)	*No known applicable Water Quality Goal.*
Sodium (Na)	< 2.0 mg/l (U.S.E.P.A. Suggested No Adverse Response Level for Drinking Water [SNARL]
Zinc (Zn)	< 5.0 mg/l (California SMCL)
Total Alkalinity	*No known applicable Water Quality Goal.*
Bicarbonate Alkalinity	*No known applicable Water Quality Goal.*
Carbonate Alkalinity	*No known applicable Water Quality Goal.*
Hydroxide Alkalinity	*No known applicable Water Quality Goal.*
Methylene Blue Active Substances (MBAS)	*No known applicable Water Quality Goal.*
pH	< within the range of 6.5 to 8.5 units (California SMCL)
Total Dissolved Solids (TDS)	< 500 mg/l Recommended California SMCL < 1,000 mg/l Upper California SMCL < 1,500 mg/l Short Term California SMCL
Chloride (Cl^-)	< 250 mg/l Recommended California SMCL < 500 mg/l Upper California SMCL < 600 mg/l Short Term California SMCL
Sulfate as SO_4	< 250 mg/l Recommended California SMCL < 500 mg/l Upper California SMCL < 600 mg/l Short Term California SMCL < 0.110 mg/l (Taste and Odor Threshold)
Specific Conductance (EC)	< 700 µmhos/cm (Basin Plan for Surface Water 9/1 - 3/31) < 900 µmhos/cm Recommended California SMCL < 1,000 µmhos/cm (Basin Plan for Surface Water 9/1 - 3/31) < 1,600 µmhos/cm Upper California SMCL < 2,200 µmhos/cm Short Term California SMCL
Source: Kleinfelder 2002	

One additional relevant requirement may be applicable in addition to these water quality regulations, permits, goals, and text identified in the aforementioned tables. The RWQCB and local agencies have required a

5-foot separation between the bottom of recycled water storage ponds and the highest known historical groundwater elevation in the area of said ponds. If the ponds are lined, these agencies some times require only a 2-foot separation.

These regulations and permit requirements represent the regulatory requirements applicable to the groundwater aspects of the proposed project. There are no groundwater quality requirements in City of Lathrop plans (i.e., WLSP, Lathrop Water, Wastewater and Recycled Water Master Plan) that are applicable to the proposed project.

PROJECT PROPOSALS

Wastewater generated by the proposed project would be treated at City of Lathrop Water Recycling Plant #1 (WRP #1), and then land disposed. The wastewater would be tertiary treated to Title 22 standards for unrestricted use. During interim (year 2007) and buildout (2010) conditions, the proposed project would generate approximately 0.431 million gallons per day (MGD) and 0.513 MGD of sewage, respectively. See Section 4.8 of this EIR for the detailed wastewater generation estimates.

During interim conditions 100% of the 0.431 MGD of wastewater generated by the proposed interim development would be treated at WRP #1 and then returned to the project site for land disposal. This land disposal would be accomplished through the use of spray fields in agricultural areas of the site, and through use as landscape irrigation in proposed public landscaped areas of the site (i.e., schools, parks, street medians, etc.). During most of the year, the recycled water would be directly land applied. During certain winter months when the demand for irrigation water is not as great, a portion of the recycled water would be stored in on-site storage ponds to be developed in the southeastern portion of the project site (Exhibit 3-9) for use later in the year when demand is once again available. During interim conditions, 83 acres of application (spray fields and irrigated landscaping) area and 19.7 acres of storage ponds would be provided on the site. The application areas would include 29.3 acres of spray fields and 63.7 acres of irrigation landscaping. The storage ponds would be 16 feet deep (10 feet above and 5 feet below original grade) and have a total storage capacity of approximately 166 acre-feet.

The ponds would be lined with clay or synthetic liners. If clay liners are used, they would have a minimum thickness of 12 inches of material, having a permeability of 1×10^{-6} cm/second. In addition, because the water levels in the ponds could fluctuate, the clay liner would be covered with at least 12 inches of native soil (clayey silt, clayey fine-grained sand, or silty clay) to protect the clay liner from excessive moisture loss. The clay liner would be compacted to a minimum of 90% of the maximum dry density based on the ASTM D-1557 test procedure at a moisture content of at least 4% over optimum.

If after 2007 off-site areas were to become available for the land disposal of treated wastewater generated by the proposed project, and/or if river discharges of treated wastewater commence in the City of Lathrop, the need for the proposed on-site spray fields and storage ponds would no longer exist (although the use of recycled water as landscape irrigation at the site would continue to be maximized). In such an instance, these areas of the project site would be developed with residential and service commercial uses as set forth in Table 3-1 (under "buildout condition"). The incremental increase in wastewater generated by project buildout (0.082 MGD) would be treated at WRP #1. Both this treated wastewater and the recycled water requiring disposal as a result of the conversion of the on-site spray fields and storage ponds to urban uses (0.059 MGD)

would then be land disposed at off-site locations and/or discharged to the San Joaquin River (SJR) (for a total of 0.141 MGD disposed of off-site).

4.4.2 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

The Mossdale Landing project would result in significant groundwater quality impacts if storm water runoff from the project site, and/or the proposed storage and land disposal of recycled water increased the concentration of pollutants (heavy metals, minerals, nitrate, etc.) in groundwater such that groundwater quality goals or standards were exceeded.

IMPACT ANALYSIS

Impact **4.4-a**

Groundwater Quality - Construction Activity Impacts on Groundwater Quality. *Project construction activities, specifically excavations, could potentially intersect with shallow groundwater and require dewatering. One of two potential disposal options for the disposal of such water would be land disposal with subsequent percolation back to the groundwater. Because project dewatering activities would not degrade the quality of the water being removed the eventual percolation of said water back to the groundwater would not degrade groundwater quality or result in an exceedence of groundwater quality goals/standards. Therefore, a* ***less-than-significant*** *impact would occur.*

The proposed project would include excavations of up to 10 feet in depth, which could encounter groundwater associated with the shallow groundwater aquifer, thus requiring dewatering. As indicated previously, shallow groundwater beneath the project site is of poor quality (generally high in dissolved solids) due to saltwater intrusion within the Delta and to runoff/infiltration of agricultural and urban drainage waters.

The groundwater quality consultant discussed with the RWQCB the elevated TDS values present in the shallow groundwater and the possibility of discharging dewatering effluent directly to the San Joaquin River. For smaller quantities, the RWQCB indicated that it would be possible to obtain a "construction waiver" that would allow flow from dewatering operations to land or area drainage ditches, providing this water does not directly enter the river. Such land disposal would include the impoundment of dewatered effluent at the surface and percolation of said water into the ground. As an alternative, the RWQCB would permit direct discharge to the river for up to 250,000 gallons per day for no more than a 4-month time period each year for a construction activity (RBF 2001b). There are numerous permits and legal documents that must be obtained for this option.

It is possible that dewatering would cause minor lateral movement of the poor quality groundwater within the shallow groundwater aquifer. However, because all of the area's shallow groundwater is poor, and the proposed construction and possible dewatering activities would not degrade this poor quality groundwater further, project construction activities (including excavation and dewatering) would not cause appreciable degradation of groundwater quality (as long as the dewatering wells do not span across a relatively impermeable aquitard such as pure clay of greater than five feet in thickness). which can be accomplished

through the maintaining by an engineer or geologist of logs during drilling. Therefore, a less-than-significant impact would occur.

Impact **4.4-b**

Groundwater Quality - Stormwater Runoff Impacts on Groundwater Quality. *The proposed project would generate first flush urban stormwater runoff that could contain pollutants that, if allowed to percolate to the groundwater, could degrade the quality of said groundwater. However, such a potential would be partially offset by an overall reduction in percolation at the project site as a result of project development, and by the eventual elimination of the use of agricultural pesticides, herbicides, and fertilizers at the site. In addition, best management practices (BMPs) to be employed to reduce contaminants in project site runoff, along with hydrologic conditions underlying the project site (i.e., slow percolation rates, 150-foot. depth to groundwater used as a potable water supply), would avoid percolation of said contaminants to the groundwater, would avoid degradation of the groundwater, and would avoid accedence of applicable groundwater quality goals/standards. Therefore, a* ***less-than-significant*** *impact would occur.*

The National Urban Runoff Program (NURP) consists of 28 USEPA project areas (cities) across the United States. The program goals were to answer the following three questions: (1) to what extent is urban runoff a contributor to water quality problems across the nation; (2) what is the effectiveness of controls, short of treatment, in reducing water quality problems where they exist; and (3) are BMPs for control of urban runoff cost-effective in comparison to alternative options? There were 2 California project areas, Fresno and Castro Valley. The Fresno report is referenced because it is one of only two projects that addresses impacts to groundwater (Long Island, New York, being the other). The Fresno Area is a "sole-source aquifer" with similar geology and hydrogeology to the project site. The most noticeable similarities between the Fresno area and the project site is the depth to groundwater used as a potable water sources by area wells, 150 feet below ground surface (bgs) or greater in both areas. Contaminants, climate, geology, hydrogeology, land uses, and use of unlined stormwater retention basins are also similar between both areas.

The findings of the Fresno NURP project showed that metals and oil/grease in urban stormwater runoff were of concern to groundwater quality. In particular, lead, iron, and manganese commonly exceeded EPA Safe Drinking Water Act standards. Pollutants of lesser but still some concern included cadmium, chromium, mercury, and oil/grease. Although some organic compounds were detected in the runoff, none of these compounds were of concern. None of the constituents from the stormwater basins were labeled as being a threat to groundwater resources due to the rapid attenuation and low leachability of the constituents. The highest concentrations in stormwater, with the greatest potential to impact groundwater resources, occurred during the initial "first flush" of rain. Furthermore, the lower the flow into the basin, the higher the concentrations in the stormwater and the greater the potential to impact water quality. Periodic sediment removal from the bottom of the basin for use as onsite fill soil or use on nearby lands was noted as a prime method of reducing concentrations in basin water, which may percolate to groundwater. In summary, the NURP project shows that normal urban runoff is high in some contaminants, but that these contaminants are controllable with the use of stormwater detention basins combined with good basin maintenance (i.e., less than significant groundwater impacts). The proposed project would be similar to the project evaluated in the NURP study, and includes the good basin maintenance discussed in the study (including sediment removal from proposed detention basins - see Section 4.4.2 for discussion). At the same time, the environmental conditions at the project site are almost identical to those evaluated in the NURP study as discussed

previously. Hence, stormwater generated by the proposed project would have a less than significant impact on potable groundwater quality.

Impact **4.4-c**

Groundwater Quality - Recycled Water Impacts on Groundwater Quality. *Recycled water to be generated by the proposed project would meet all applicable water quality standards and waste discharge requirements for its use/disposal. These standards and requirements are health based and designed to avoid public health hazards. In addition, because the recycled water to be land disposed would be tertiary treated and applied at the agronomic rates, and because of the depth to potable groundwater (150 feet) the application of recycled water would not result in the percolation of pollutants to potable groundwater. Therefore, the proposed storage/disposal of recycled water at the project site would result in a* ***less-than-significant*** *groundwater quality impact.*

During interim (year 2007) and buildout (2010) conditions, the proposed project would generate an estimated 0.431 MGD and 0.513 MGD of sewage, respectively, and commensurate quantities of recycled water requiring land disposal. During interim conditions, 100% of the recycled water generated by the proposed project would be disposed of at the project site via spray fields and as landscape irrigation in public areas (i.e., schools, parks, landscape medians, etc.). At buildout, the incremental increase in recycled water generation (i.e., 0.082 MGD) would either be land disposed at an off-site location, as would the small amount of recycled water, that could no longer be disposed of on-site due to the replacement of the interim spray fields and storage ponds with urban development, or would be discharged to the San Joaquin River. The recycled water to be land applied would be land applied at an agronomic rate (i.e., the rate at which water can be applied to land, while maintaining the existing water content of the soil (given evaporation, evapotranspiration, and uptake by the root system). It has been estimated that approximately 20 acres of off-site pond storage and 34 acres of off-site sprayfields would be required to facilitate disposal of the buildout recycled water given the agronomic rate. See Appendices E and F of this EIR for calculations of the agronomic rate and the land disposal acreage requirements, respectively.

It is the intent of the Mossdale Landing project that reuse opportunities for recycled water be maximized. To this end, the project proposes treatment of project wastewater at WRP #1 to Title 22 standards for disinfected tertiary treatment. These standards are set forth in Table 4.4-5. The tertiary treatment process involves screening, settling, coagulation, flocculation, filtration, and disinfection of the wastewater. Tertiary treatment enhances normal sewage treatment operations to provide water of potable quality using further chemical and physical treatment. Tertiary treatment of wastewater has been found to be successful in the removal and inactivation of pathogenic microorganisms.

The RWQCB requires that WDRs be obtained before disposal of treated effluent can occur. The RWQCB sets forth the level of treatment required depending on the type of disposal proposed. The proposed project would involve discharges to land, both in areas with minimum public access (agricultural irrigation) and significant public access (landscape irrigation). As such, all effluent would be tertiary treated to meet the more stringent requirements for significant public access as identified in Table 4.4-6. Wastewater treated to this level is used for irrigation of parks, schools, golf course, and other areas of high human contact; irrigation of both grazing and food crops; and recharge of groundwater aquifers (RBF 2001).

Table 4.4-5
Standards for Title 22 Disinfected Tertiary Recycled Water for Unrestricted Use

Constituent	Title 22 Standards for Unrestricted Use
Turbidity	24-hour average <2 NTU less than 5% of values >5 NTU at all times values <10 NTU
Total Coliform Bacteria	running 7-day median <2.2 MPN/100 ml once every 30 days >23 MPN/100 ml at all times <240 MPN/100 ml
Biochemical Oxygen	<10 mg/l
Total Suspended Solids	<10 mg/l

Source: EDAW 2001

Table 4.4-6
Title 22 Treatment Requirements for Significant Public Access

Constituent	Units	Significant Public Access[1]
BOD_5	mg/L	10
Suspended Solids	mg/L	--
Settleable Solids	mg/L	--
Total Coliform	MPN/100ml	2.2/23[2]
Turbidity	NTU	2
Acute Toxicity	% Survival	--
Chlorine	mg/L	--
Residual Oil and Grease	mg/L	--

[1] Examples of land application with significant public access include the irrigation of golf courses, parks, playgrounds, schoolyards, and residential landscaping.

[2] First value represents monthly median, second value represents daily maximum.

Source: Nolte Associates Inc. 2000

The expected quality parameters for the recycled water to be generated by the proposed project can be estimated based upon approximating the mineral pick-up and applying it to the quality parameters of the source water utilized by the community. The source water for the proposed project would be groundwater (see Chapter 3 and Section 4.8 for further discussion). Table 4.4-7 shows the projected recycled water quality for the proposed project.

Table 4.4-7
Projected Recycled Water Quality for Mossdale Landing

Constituents	Units	Levels
Bicarbonate, as HCO_3	mg/L	229.5
Calcium	mg/L	57.8

Carbonate, as CO_3	mg/L	<6
Chloride	mg/L	83
Magnesium	mg/L	21
Manganese	mg/L	0.3
Potassium	mg/L	21
Sodium	mg/L	80.2
Sodium adsorption ratio	--	2.30
Sulfate	mg/L	44.33
Total alkalinity, as $CaCo_3$	mg/L	264.8
Total dissolved solids	mg/L	572.2
Source: EDAW 2001		

The tertiary treated Title 22 disinfected treated wastewater to be disposed of at the project site under interim project conditions would meet all applicable water quality standards and waste discharge requirements for significant public access. These water quality standards/requirements are health based and designed to avoid public health hazards. This high level of treatment would deposit a minimum of pollutants at the ground surface (Table 4.4-7). This minimum of pollutants would be reduced by the uptake of nutrients/minerals by the root systems of plants within the application areas (see Appendix E). In particular, TDS concentrations in the recycled water to be applied would be lower than the TDS concentrations in the existing shallow groundwater. The depth to potable groundwater (150 feet and greater) would further reduce the potential that any pollutants would reach the groundwater. Furthermore, because this recycled water would be applied at an agronomic rate, it would minimize percolation of pollutants below the root system. Finally, even if the recycled water to be land applied would come into contact with the groundwater, which would occur infrequently if at all as recycled water use would not occur during the wet season when groundwater is near the surface, the high level of treatment of the recycled water would avoid adverse affects. Therefore, the proposed storage/disposal of treated wastewater at the project site would result in a less-than-significant public health impact.

The proposed project would include the storage of recycled water during certain times of the year in on-site storage ponds. These ponds would be lined with non-permeable compacted clay or synthetic liners, and would comply with RWQCB pond/water table separation requirements, thus representing a minimal source of percolation. Even if any percolates from the ponds were to occur and reach the potable groundwater, which is unlikely given the above along with the depth to potable groundwater (150 feet and greater), any contact of these percolates with the potable water aquifer would not violate applicable water quality standards/requirements that permit recycled water, which has been treated to the proposed level, to be used for groundwater recharge. Therefore, these ponds would represent a less-than-significant groundwater quality impact.

As discussed previously, the incremental increase in treated wastewater generated by the proposed project between interim conditions and buildout would require off-site disposal either to land or to the San Joaquin River. If this treated wastewater were to be disposed of onto land, the associated groundwater quality impact would be the same as described above for on-site land disposal (i.e., less than significant). This assumes that, like under the proposed on-site land disposal, and off-site land disposal would involve treated wastewater

tertiary treated to Title 22 standards for unrestricted use, treatment and discharges consistent with DHS and RWQCB discharge requirements, application of the treated wastewater at the agronomic rate, and implementation of the same discharge management practices. See Impact 4.3-c for a discussion of surface water quality impacts associated with any project-related river discharge associated with the proposed project.

4.4.3 MITIGATION MEASURES

No significant impacts were identified in this section. Therefore, no mitigation measures are required.

4.4.4 RESIDUAL SIGNIFICANT IMPACTS

No residual significant groundwater-related quality impacts would occur.

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4.5 TRAFFIC

The following section, prepared by Crane Transportation Group, evaluates the construction- and operations-related traffic impacts of the proposed project. Technical tables and information in support of the traffic analysis are included as Appendix G of this EIR.

This section documents existing traffic conditions in the vicinity of the project site and evaluates the traffic impacts associated with the addition of project traffic to the existing condition (i.e., "existing baseline (2001) plus project"). The evaluation of the existing baseline (2001) plus project condition, was performed to understand the implications of project-only development. Evaluation of the baseline plus project condition is undertaken because of the high degree of unknowns concerning future development and future road improvements in the area. The City of Lathrop adopted the West Lathrop Specific Plan (WLSP) in 1996. The WLSP covers approximately 6,995 acres of open space in the City west of the I-5. Under the WLSP, 10,369 housing units, 16,527 square feet of commercial, office, warehouse, industrial, and community uses, 27,150 residents, and 18,852 jobs would be created. In addition, a fully developed roadway system would be created, including major arterials such as Gold Rush Boulevard and Golden Valley Parkway, new loop on-ramps on at the I-5/Louise Avenue interchange, etc. Basically, a whole new traffic and roadway environment would be created. However, unlike many other development projects where future development and thus future traffic can be easily forecasted, and where the roadway network is relatively static, these are not readily predicable in the case of Mossdale Landing . For instance, assuming the fully developed roadway system planned for in the WLSP by buildout of Mossdale Landing in 2010 would provide considerably different traffic impact results than assuming that one-quarter of the planned roadway system is developed by 2010. Similarly, assuming the presence of all development planned for in the WLSP area by 2010 would provide very different future baseline traffic volumes on area streets than would assuming one-quarter or one-half buildout. There are simply too many unknowns about the future of the area upon which to base a traffic analysis of the proposed project.

While this section (Section 4.5) of the EIR evaluates the existing plus project condition, the future baseline (2010) plus project condition is also fully considered. The future baseline (2010) plus project condition is evaluated as the cumulative condition in Chapter 5, Cumulative Impacts. For the future baseline (2010) plus project condition evaluated in Chapter 5, assumptions about the extent of future development and roadway improvements are made based on the status of present project-level proposals under the WLSP and educated guesses about the extent of the remainder of development planned for under the WLSP.

The traffic mitigation applicable to the proposed project will be a combination of both the mitigation measures identified in this section and in the cumulative traffic analysis contained in Appendix G of this EIR. The majority of the mitigation measures, especially in the cumulative analysis, require fair-share payments by the project applicant for future regional traffic improvements. These improvements will ultimately serve all the related projects (including the proposed project).

4.5.1 ENVIRONMENTAL SETTING

PHYSICAL SETTING

Roadways

Regional access to the Lathrop area is provided by the Interstate 5 (I-5), Interstate 205 (I-205), and State Route 120 (SR 120) freeways. Local access in the project vicinity is provided by Louise Avenue and Manthey Road. See Exhibit 4.5-1. Each freeway or roadway is briefly described below.

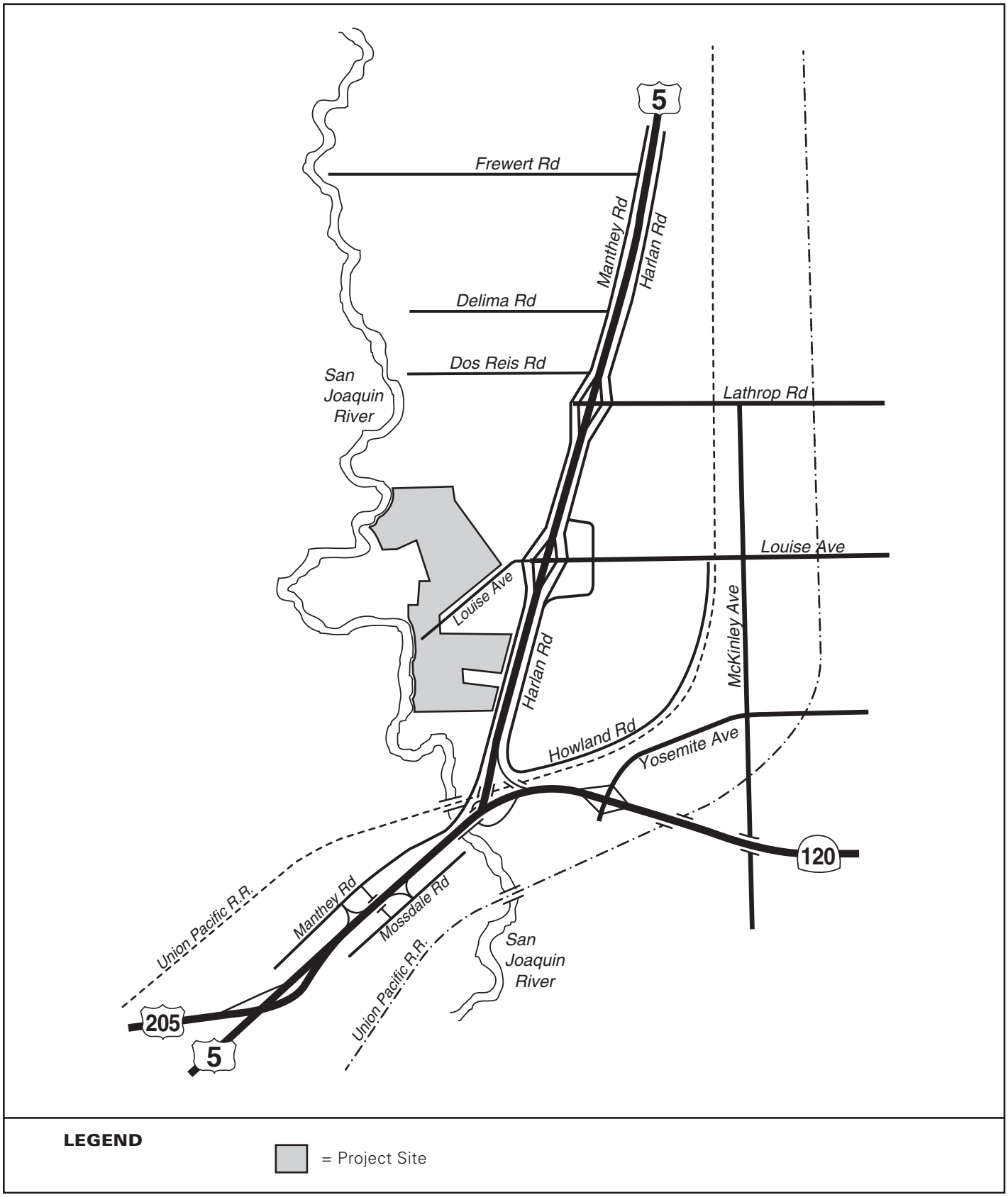
I-5 is a major north-south thoroughfare in the City of Lathrop. It continues north of Lathrop to Stockton, Sacramento and Oregon; and south of Lathrop through the San Joaquin Valley to Los Angeles and San Diego. In the project vicinity it has three travel lanes in each direction and interchanges with Louise Avenue (directly east of the site), Lathrop Road (approximately a 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 the I-205 and SR 120 freeways approximately 4 and 1.5 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 the State Route 99 (SR 99) freeway. I-5 has a minimum of five southbound and four northbound travel lanes between its connections to the I-205 and SR 120 freeways.

I-205 extends west from I-5 (just south of the City of Lathrop) to the City of Tracy and a connection with the I-580 freeway. 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 eastward 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.



Source: Crane Transportation Group, 5/02.

Area Map

EXHIBIT 4.5-1

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 5/02

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Lathrop Road is an arterial that extends approximately 200 feet to the west of its interchange with I-5 to its terminus at a "T" intersection with Manthey Road, and to the east through Lathrop to the City of Manteca and an interchange with SR 99. It has two lanes from Manthey Road to the I-5 southbound ramps intersection, three lanes in its underpass of I-5 between the north and southbound ramps intersections, and two lanes to the east of the northbound ramps through its intersection with Harlan Road. In its underpass of I-5 there are single through-travel lanes in each direction and back-to-back left-turn pockets for turn movements to both the north and southbound on-ramps. Lathrop Road is stop-sign controlled at Manthey Road.

Louise Avenue is an arterial roadway that extends west of I-5 almost to the San Joaquin River (SJR) 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 SJR. It ends near a set of single lane on- and off-hook ramps connecting to the southbound I-5 freeway. Left-turn lanes are not provided on the approaches to any intersection. 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.

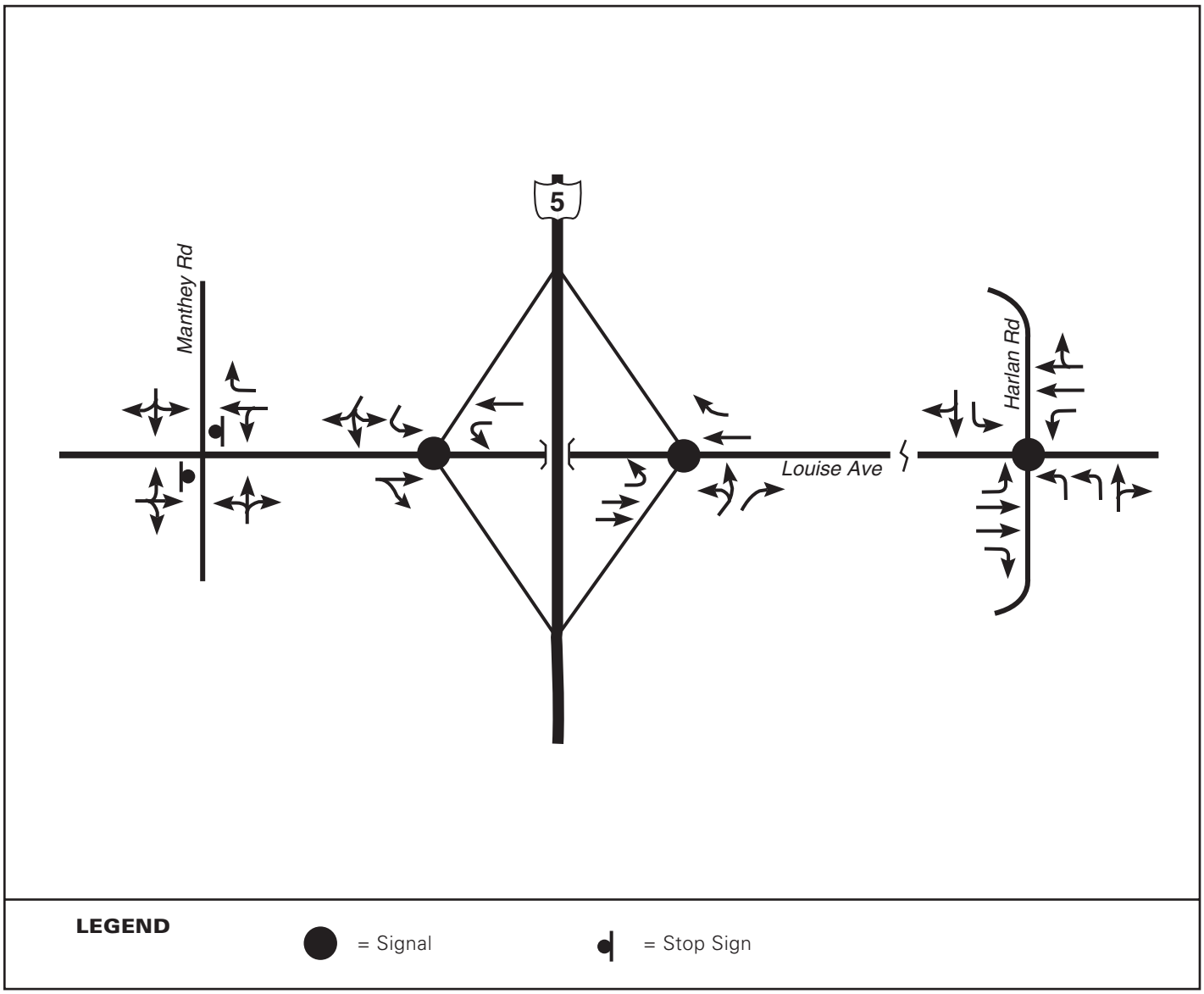
Exhibit 4.5-2 provides a schematic presentation of existing lane geometrics at intersections along Louise Avenue (including the I-5 interchanges), which will serve as the primary access to the project.

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 in June and August 2001 at four intersections in the study area. Count locations were:

- Louise Avenue/Manthey Road
- Louise Avenue/I-5 southbound ramps
- Louise Avenue/I-5 northbound ramps
- Louise Avenue/Harlan Road

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 also conducted in June or August 2001. All intersection and freeway counts differentiated between autos and trucks. A summary presentation of volumes at Louise Avenue intersections during the AM and PM peak traffic hours is presented in Exhibit 4.5-3, while AM and PM peak hour freeway volumes are presented in Exhibit 4.5-4.



Source: Crane Transportation Group, 5/02.

Existing Baseline (2001) Intersection Lane Geometrics and Control

EXHIBIT 4.5-2

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

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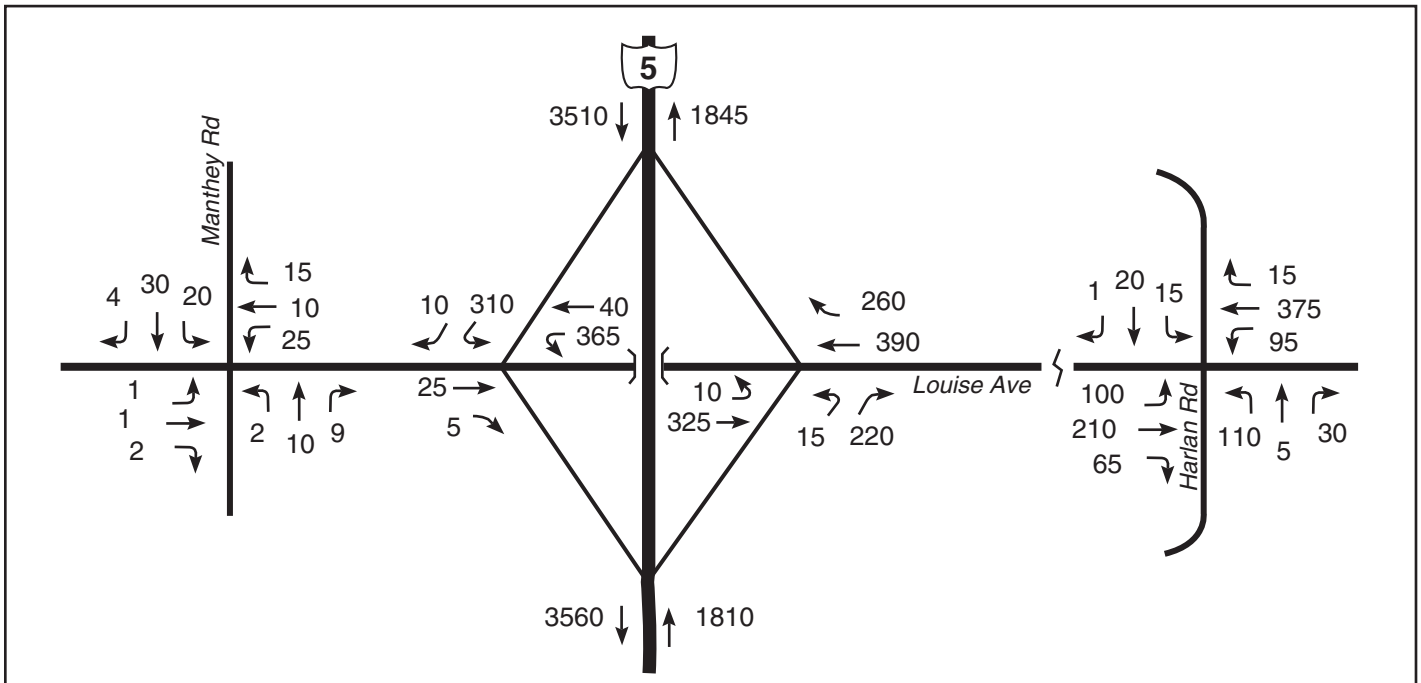
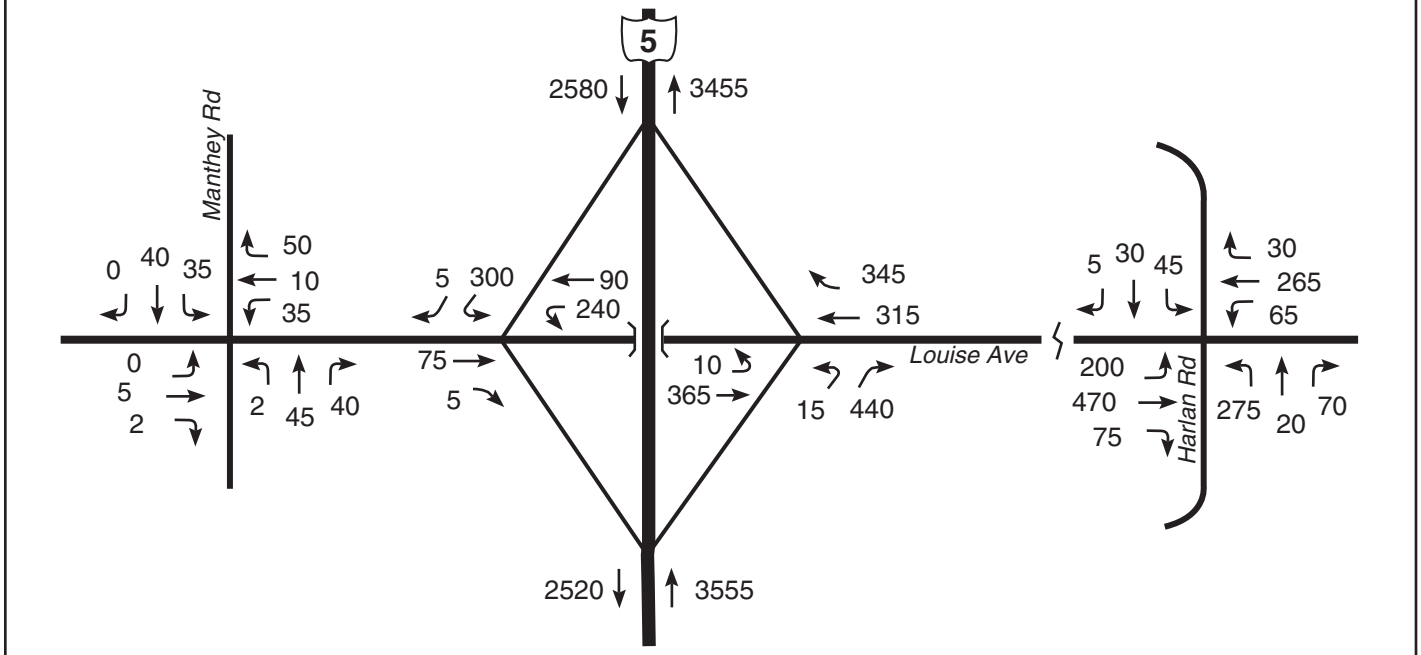


AM Peak Hour (7:00-8:00)



PM Peak Hour (4:30-5:30)

Source: Crane Transportation Group, 5/02.

Existing Baseline (2001) Traffic Volumes
AM and PM Peak Hour

EXHIBIT 4.5-3

Mossdale Landing UDC EIR
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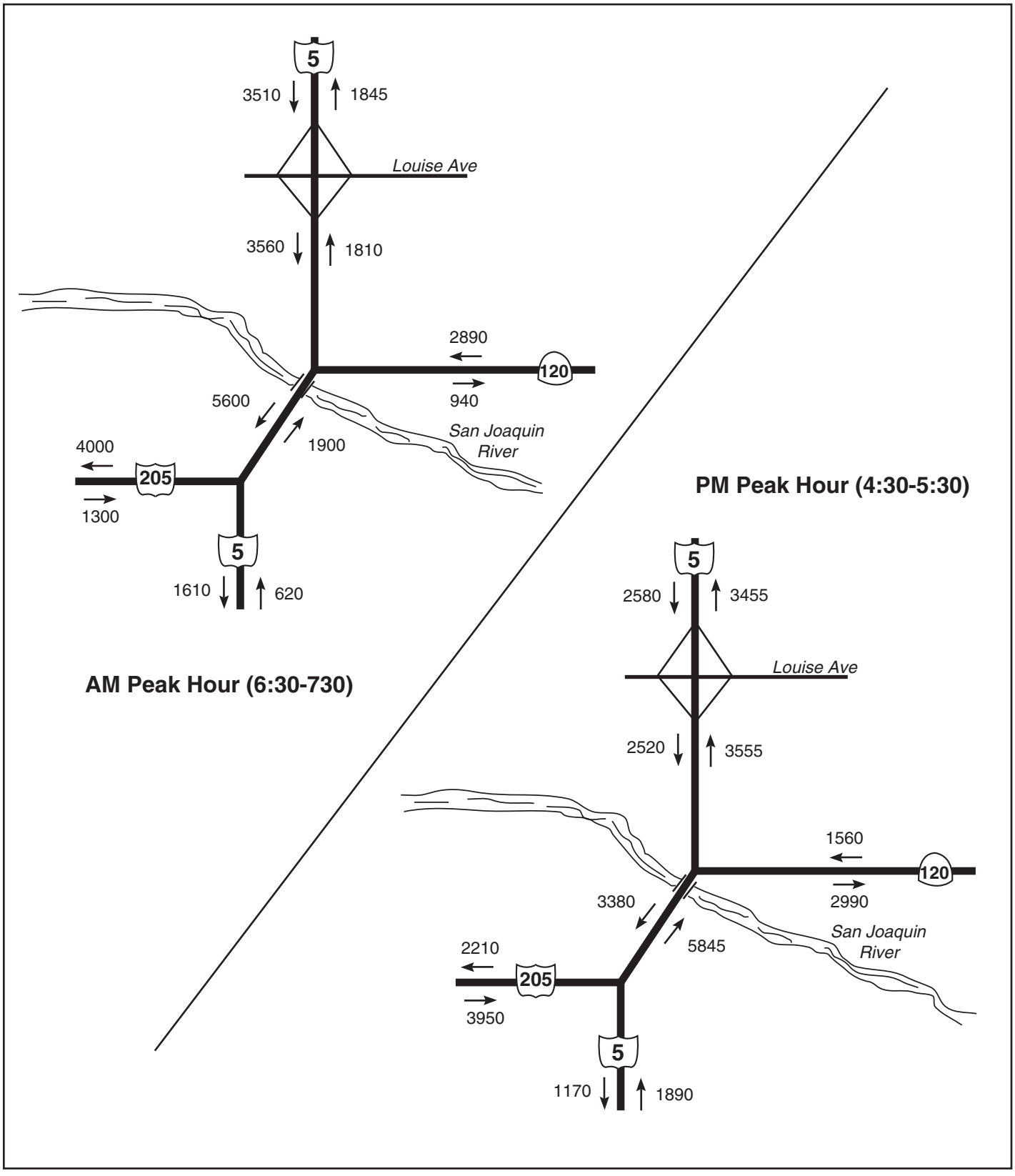


Source: Crane Transportation Group, 5/02.

Existing Baseline (2001) Freeway Volumes
AM and PM Peak Hour

EXHIBIT 4.5-4

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

NOT TO SCALE

NORTH

EDAW

The AM peak traffic hours along Louise Avenue varied by intersection between Manthey Road and Harlan Road. Peaks ranged between 6:45 to 7:45 and 7:15 to 8:15 AM. A 7:00 to 8:00 AM system peak was used for evaluation purposes. 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 the I-5 freeway. 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).

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 to June and August volumes were made, 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 G, Table 4.4-A-1. Operation of the Louise Avenue intersections with the I-5 North and Southbound Ramps and with Manthey Road has been evaluated using the SYNCHRO software system. Results obtained using this software are reflective of results due to the interaction of traffic between intersections.

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 G, Table 4.4-A-2, provides greater detail about unsignalized analysis methodologies.

Acceptable Intersection 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[1] has indicated that all-way-stop minimum standards should be the same as signalized (LOS D), while the minimum LOS for movements at side street stop-sign controlled intersections should be no worse than LOS E.

Existing Intersection Operation

Table 4.5-1 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: At Louise Avenue/Harlan Road, there is LOS B signalized operation during both the AM and PM peak traffic hours; at the Louise Avenue/I-5 northbound ramps there is LOS B signalized operation during the AM peak traffic hour and LOS A operation during the PM peak traffic hour; and at the Louise Avenue/I-5 southbound ramps there is LOS B signalized operation during both the AM and PM peak traffic hours. The stop-sign controlled Louise Avenue approaches to Manthey Road are operating at either LOS A or B conditions during both peak traffic hours.

Table 4.5-1
Existing Baseline (2001) Intersection Level of Service

Intersection	LOS
Intersection LOS - AM Peak Hour	
Louise Avenue/Harlan Road (Signal)	B-16.0 [1]
Louise Avenue/I-5 northbound ramps (Signal)	B-13.2 [1]
Louise Avenue/I-5 southbound ramps (Signal)	B-16.0 [1]
Louise Avenue/Manthey Road	A-9.7/A-8.5/A-9.1 [2]
Intersection LOS - PM Peak Hour	
Louise Avenue/Harlan Road (Signal)	B-17.5 [1]
Louise Avenue/I-5 northbound ramps (Signal)	A-9.7 [1]
Louise Avenue/I-5 southbound ramps (Signal)	B-19.1 [1]
Louise Avenue/Manthey Road	B-10.8/A-9.0/B-10.2 [2]

[1] Signalized LOS–control delay in seconds.
[2] Unsignalized LOS–average control delay in seconds: Louise Avenue stop-sign controlled westbound combined through-left turn lane/right turn lane/Louise Avenue stop-sign controlled eastbound approach.
2000 Highway Capacity Manual Analysis Methodology including SYNCHRO operation results for the North and Southbound Ramps intersection system.
Source: Crane Transportation Group

[1] Mr. Ramon Batista, IV, Lathrop Assistant City Manager (November 2001).

Vehicle Queues at Interchanges

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 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 using the SYNCHRO software program which calculates intersection level of service using the year 2000 HCM methodology and also determines the maximum expected vehicle queuing (to a 95th percentile back of queue projection) for each through and turn movement.

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. The SYNCHRO 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, SYNCHRO 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.

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 applied in consideration of the unsignalized Louise Avenue/Manthey Road intersection.. When Warrant 11 is met there is a strong indication that a detailed signal warrant analysis covering all possible warrants is appropriate. These rigorous analyses are described in the Caltrans Traffic Manual, while Warrant 11 is presented in Appendix G, Table 4.4-A-3, of this EIR.

Existing Need for Signalization

Currently, the Louise Avenue/Manthey Road intersection does not 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 as the poorest acceptable operation for freeways in the Lathrop area.

Existing Freeway Operation

Table 4.5-2 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 4.5-3 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

Public Transit

The San Joaquin Regional Transit District 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 San Joaquin Regional Transit District 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 4.5-2 Existing Baseline (2001) Freeway Level of Service AM Peak Hour		
Location	**LOS**	
	Southbound	**Northbound**
I-5 North of Louise Avenue Interchange	C	A
I-5 South of Louise Avenue Interchange	C	A
I-5 Between SR 120 and I-205	B*	A
	Westbound	**Eastbound**
SR 120 Between I-5 and Yosemite Interchange	C	A
I-205 Between I-5 and MacArthur Drive Interchange	E	A

* Congestion on westbound I-205 can also produce LOS D or E operation on the two southbound lanes of I-5 leading to I-205.

2000 Highway Capacity Manual Analysis Methodology

Source: Crane Transportation Group

Table 4.5-3 Existing Baseline (2001) Freeway Level of Service PM Peak Hour		
Location	**LOS**	
	Southbound	**Northbound**
I-5 North of Louise Avenue Interchange	B	C
I-5 South of Louise Avenue Interchange	B	C
I-5 Between SR 120 and I-205	B	C
	Westbound	**Eastbound**
SR 120 Between I-5 and Yosemite Interchange	B	C
I-205 Between I-5 and MacArthur Drive Interchange	C	E

2000 Highway Capacity Manual Analysis Methodology.

Source: Crane Transportation Group

REGULATORY SETTING

Caltrans freeways are subject to the following minimum acceptable operations criteria.

- I-5, I-205 and 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

4.5.2 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

Introduction

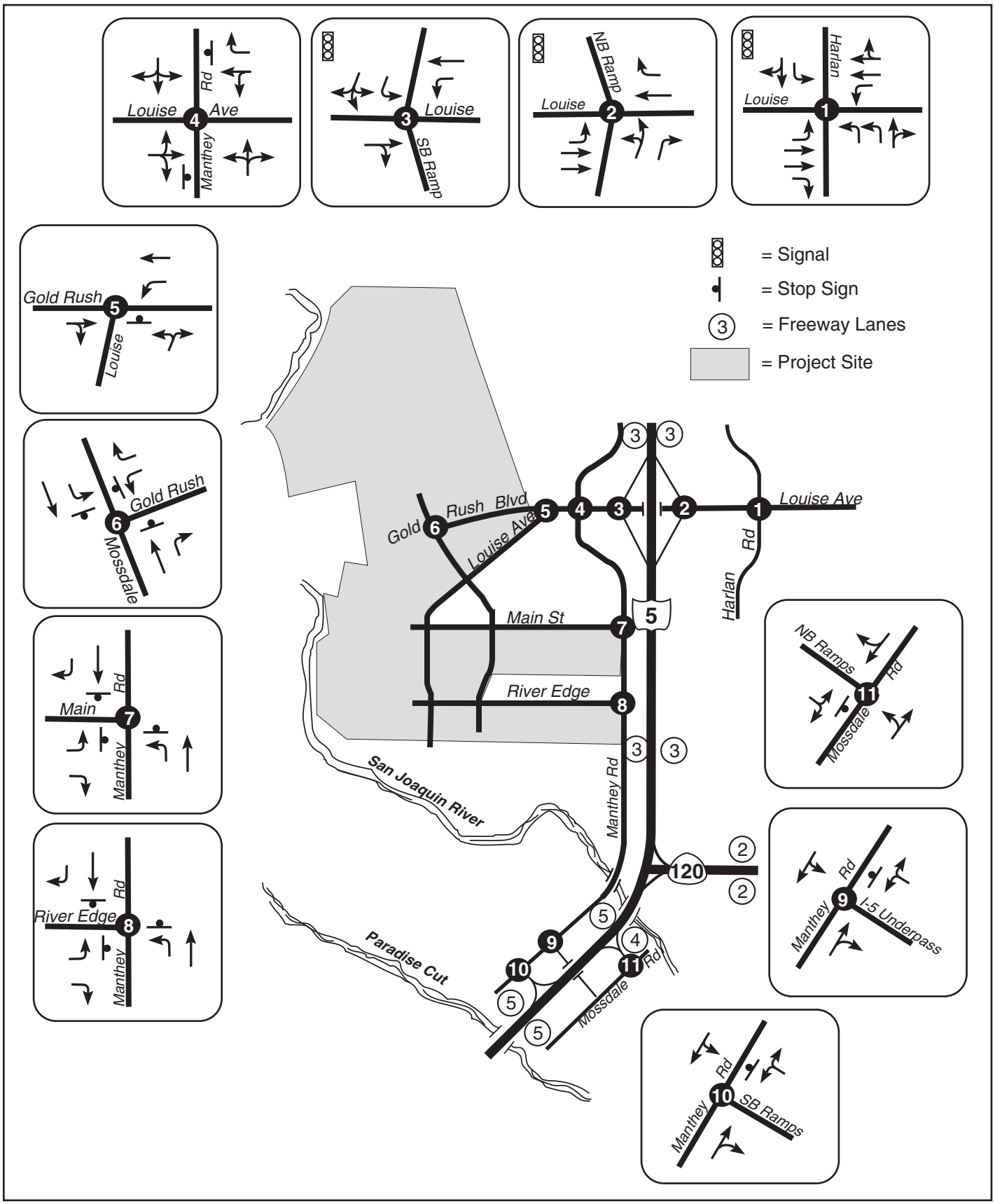
As discussed at the beginning of this section, this section evaluates the traffic impacts associated with the addition of project traffic to the existing condition (i.e., "existing baseline (2001) plus project").

Proposed Circulation Improvements

Circulation system improvements proposed under the Mossdale Landing project and assumed as part of the evaluation are listed below. Exhibit 4.5-5 presents projected geometrics and control at all analyzed intersections under existing baseline (2001) plus project conditions.

- The existing westerly (Louise Avenue) leg of the Louise Avenue/Manthey Road intersection would be eliminated. A 39-foot-wide roadway (named Gold Rush Boulevard) would then be extended westerly into the project site. It would end at a proposed north-south street

  designated Mossdale Boulevard. A two-lane connection would be made to the south side of Gold Rush Boulevard west of Manthey Road providing access to the remaining section of Louise Avenue.D
- Project internal collector streets (Main Street and River Edge Drive) would extend westerly from Manthey Road into the project site.
- No signals are proposed at any intersection.
- No widening of Manthey Road is proposed adjacent to any project parcel or at any intersection.
- No improvements are proposed to the Louise Avenue interchange.
- All-way-stop control has been assumed in place at the Louise Avenue/Manthey Road/Gold Rush Boulevard, Manthey Road/Main Street and Manthey Road/River Edge Drive intersections due to its low cost and enhancement of intersection operation where high volumes are combined with no or minimal approach lane widening.



Source: Crane Transportation Group, 5/02.

Existing Baseline (2001) Plus Project Intersection and Freeway Lane Geometrics

EXHIBIT 4.5-5

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

NOT TO SCALE

NORTH

EDAW

Project Trip Generation and Distribution

Project trip generation is shown in Table 4.5-4. As indicated, the project at buildout would generate a total of 44,436 daily trips, including 2,544 AM peak hour and 4,081 PM peak hour trips.

Projected exernal trip distribution is shown in Table 4.5-5. As indicated, the majority of inbound and outbound project traffic during both the AM and PM peak hours would travel on Louise Avenue east and I-5 south. With buildout of the Mossdale Landing project but no other adjacent developments, one of the project's K-8 schools would likely attract most or all of its students from the east of the I-5 freeway as there are not enough residential units in the project to supply students for the two proposed K-8 schools within the project. Also, the project's commercial areas would be dependent upon a substantial customer base from residential areas east of the I-5 freeway. These two conditions would add a measurable amount of traffic along Louise Avenue through its interchange with the I-5 freeway and are accounted for in Table 4.5-5.

Existing Baseline (2001) Plus Project Traffic Volumes

Existing baseline (2001) plus project traffic volumes on the intersections analyzed are identified for the AM and PM peak hours in Exhibits 4.5-6 and 4.5-7, respectively. Existing baseline (2001) plus project traffic volumes on the freeway segments analyzed are identified for the AM and PM peak hours in Exhibit 4.5-8.

THRESHOLDS OF SIGNIFICANCE

The Mossdale Landing project would result in a significant traffic impact if it would result in one or more of the following (which are based, in part, upon standards established in the City's General Plan and conventional thresholds established by the Lathrop Public Works Department):

- If project traffic reduces existing intersection operation at a signalized or all-way stop intersection from LOS A-D to LOS E or F, or side street stop-sign controlled intersection from LOS A-E to LOS F.
- If the project increases traffic 1% or more at existing signalized or all-way-stop intersections operating at LOS E or to side street stop sign controlled intersections operating at LOS F.
- If the projects adds traffic to existing unsignalized intersections such that Caltrans Peak Hour Warrant #11 criteria levels are exceeded.
- If the project increases traffic 1% or more at existing intersections that have volumes already exceeding Caltrans Peak Hour Warrant #11 criterial levels.
- If 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 existing 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 downstream intersection by 1% or more.

Table ~~4.5-9~~ 4.5-4
Trip Generation, Proposed Mossdale Landing Project (Buildout)

Use	Size	Daily 2-way Trips (Inbound + Outbound)		Am Peak Hour Trips				Pm Peak Hour Trips			
				Inbound		Outbound		Inbound		Outbound	
		Rate	Vol	Rate	Vol	Rate	Vol	Rate	Vol	Rate	Vol
Single Family Residential	1591	9.57	15,226	0.15*	239	0.45*	716	0.52*	827	0.29*	462
Apartments	122	6.63	810	0.06*	7	0.35*	43	0.34*	41	0.16*	20
Village Commercial											
Retail	133,295	(1)	8200	(2)	116	(2)	74	(3)	364	(3)	395
Office	44,430	(4)	712	(5)	86	(5)	12	(6)	22	(6)	107
Service Commercial											
Retail	362,635	(1)	15,608	(2)	210	(2)	134	(3)	706	(3)	764
Office	120,880	(4)	1536	(5)	191	(5)	26	(6)	37	(6)	178
K-8 School North of Gold Rush Blvd.	1,050 students total K-6: 813 7-8: 235	1.02 1.45	832 340 1172	0.17 0.26	139 61 200	0.12 0.20	98 47 145	0.015 0.07	12 17 29	0.035 0.09	29 21 50
K-8 School South of Gold Rush Blvd.	1,050 students total K-6: 815 7-8: 235	1.02 1.45	832 340 1172	0.17 0.26	139 61 200	0.12 0.20	98 47 145	0.015 0.07	12 17 29	0.035 0.09	29 21 50

* Residential peak hour trip rates reduced 20% from average to reflect existing Lathrop area subdivision trip generation characteristics.

Trip Rate Source: Trip Generation, 6th Edition by the Institute of Transportation Engineers, 1997; San Diego Traffic Generators by the San Diego Association of Governments.

1 Ln(T) = 0.643 Ln(X) + 5.866
2 Ln(T) = 0.596 Ln(X) + 2.329 (61% in/39% out)
3 Ln(T) = 0.660 Ln(X) + 3.403 (48% in/52% out)
4 Ln(T) = 0.768 Ln(X) + 3.654
5 Ln(T) = 0.797 Ln(X) + 1.558 (88% in/12% out)
6 T = 1.121(X) + 79.295 (17% in/83% out)

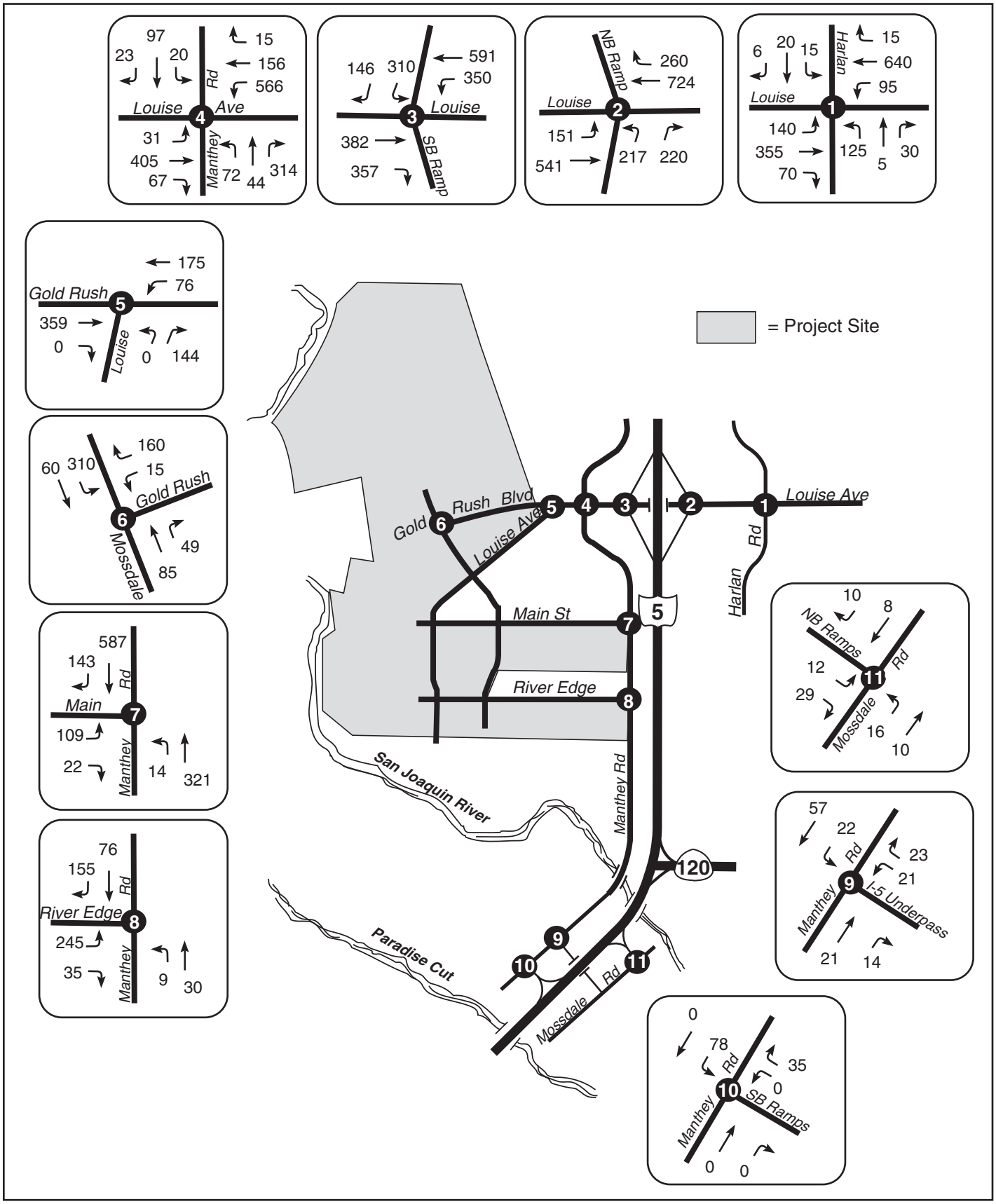
T = Trips
Ln = Natural Log
X = 1,000 SQ.FT.

Compiled by: Crane Transportation Group

Table 4.5-5
Mossdale Landing Residential Trip Distribution (external trips)

	AM Peak Hour		PM Peak Hour	
Direction	**Inbound**	**Outbound**	**Inbound**	**Outbound**
NORTH				
I-5	20%	20%	21%	15%
Manthey Rd	5%	5%	8%	12%
	(20%)	(25%)	(29%)	(27%)
SOUTH				
I-5	27%	53%	45%	29%
Manthey Rd	3%	4%	3%	5%
	(30%)	(57%)	(48%)	(34%)
EAST (of I-5)				
Louise Ave.	45%	18%	23%	39%
	(45%)	(18%)	(23%)	(39%)
TOTAL	100%	100%	100%	100%

Source: Crane Transportation Group. Based upon October 1999 directional distribution surveys of traffic to/from the Valley Haven and Stonebridge subdivisions in Lathrop.



Source: Crane Transportation Group, 5/02.

Existing Baseline (2001) Plus Project Traffic Volumes
AM Peak Hour

EXHIBIT 4.5-6

Mossdale Landing UDC EIR
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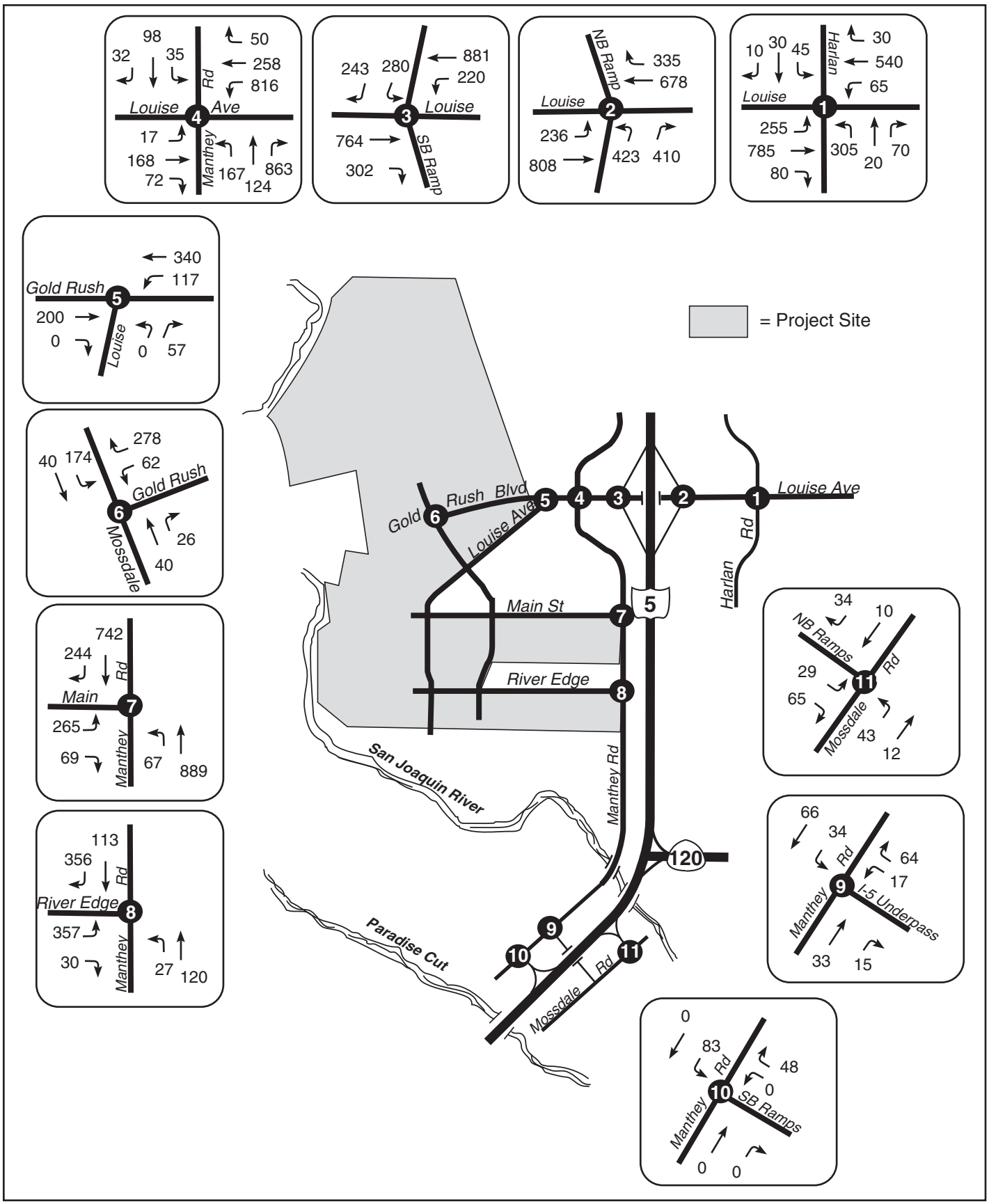


Source: Crane Transportation Group, 5/02.

Existing Baseline (2001) Plus Project Traffic Volumes PM Peak Hour

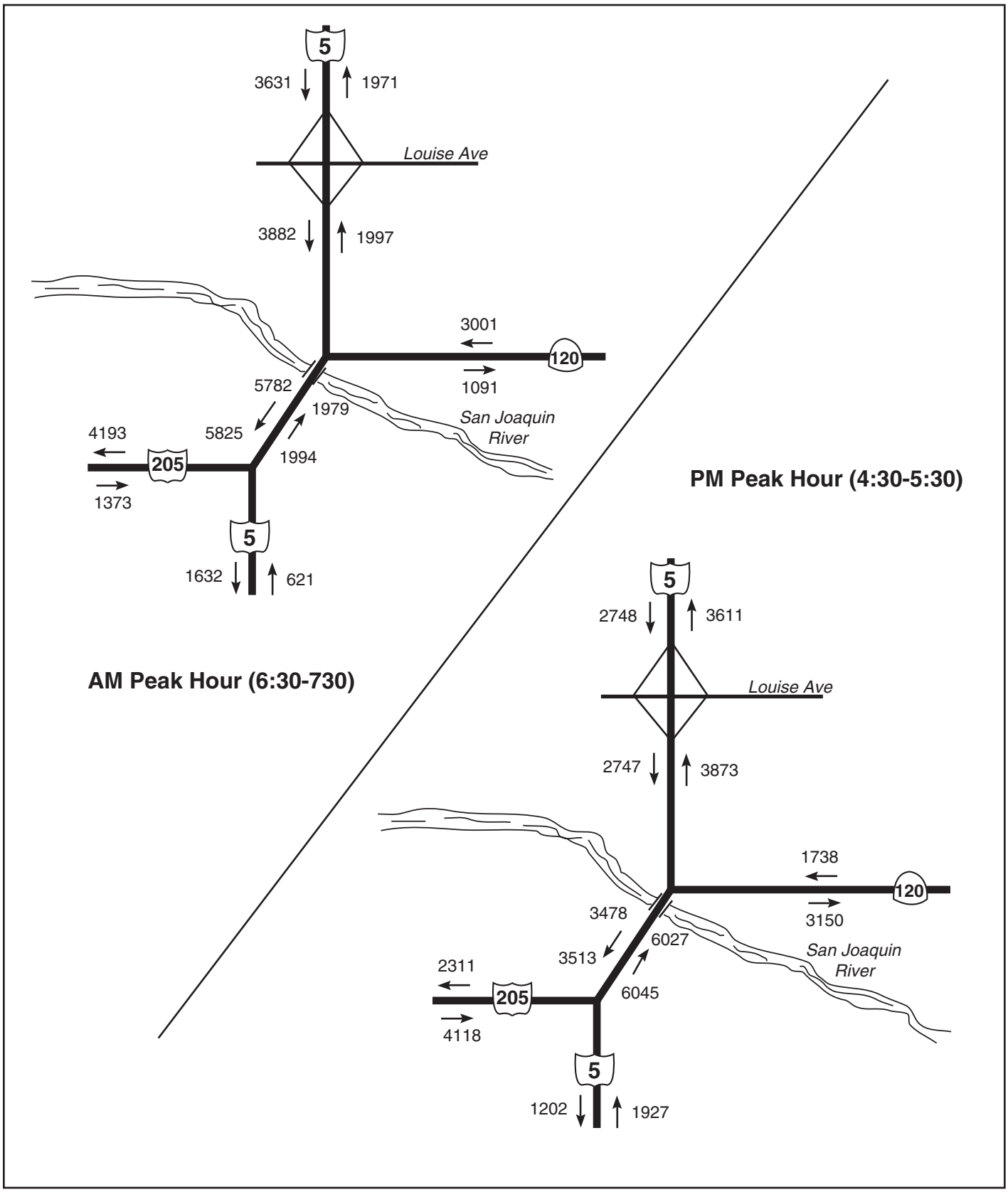
EXHIBIT 4.5-7

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

NOT TO SCALE

NORTH

EDAW



Source: Crane Transportation Group, 5/02.

Existing Baseline (2001) Plus Project Freeway Traffic Volumes
AM and PM Peak Hour

EXHIBIT 4.5-8

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

NOT TO SCALE

NORTH

EDAW

- If project traffic degrades existing freeway segment operation from LOS A-D to LOS E or F.
- If the project increases existing freeway segment traffic by 1% or more that already operates at LOS E or F.
- If, in the opinion of the EIR registered traffic engineer, certain project-related traffic changes or proposed designs would substantially increase auto, pedestrian or bicycle rider safety concerns.
- If the project's internal circulation does not provide for or allow flexibility to provide for public transit service along major internal streets.

PROJECT IMPACTS

Impact **4.5-a**

Traffic - Degradation of LOS at Signalized Intersections. *The proposed project would degrade operation at the Louise Avenue/I-5 Northbound Ramps intersection from acceptable operation to an unacceptable LOS E during the AM peak hour and to an unacceptable LOS F during the PM peak hour. The project would also degrade acceptable operation at the Louise Avenue/I-5 Southbound Ramps intersection to an unacceptable LOS F during both the AM and PM peak traffic hours. These would be* ***significant*** *impacts.*

As indicated in Tables 4.5-6 and 4.5-7, the proposed project would degrade operation at the Louise Avenue/I-5 Northbound Ramps intersection from acceptable operation to an unacceptable LOS E during the AM peak hour and to an unacceptable LOS F during the PM peak hour. As indicated in these tables, the project would also degrade acceptable operation at the Louise Avenue/I-5 Southbound Ramps intersection to an unacceptable LOS F during both the AM and PM peak traffic hours. These would be significant impacts.

Impact **4.5-b**

Traffic - Degradation of LOS at Existing Unsignalized Intersections and Unacceptable Operation at New Unsignalized Intersections. *The proposed project would degrade operation of the Louise Avenue/Manthey Road all-way-stop intersection to an unacceptable LOS F during both the AM and PM peak traffic hours. In addition, the proposed Manthey Road/Main Street all-way-stop intersection would be operate unacceptably at LOS F during both the AM and PM peak traffic hours. Finally, volumes would exceed peak hour signal warrant criteria levels during both time periods at both these locations. These would be* ***significant*** *impacts.*

As indicated in Tables 4.5-6 and 4.5-7, the proposed project would degrade operation of the Louise Avenue/Manthey Road all-way-stop intersection to an unacceptable LOS F during both the AM and PM peak traffic hours. In addition, the proposed Manthey Road/Main Street all-way-stop intersection would operate unacceptably at LOS F during both the AM and PM peak traffic hours. Finally, volumes would exceed peak hour signal warrant criteria levels during both time periods at both these locations. These would be significant impacts.

Table 4.5-6
Existing Baseline (2001) Plus Project Intersection Level of Service
AM Peak Hour

Intersection	Existing	Existing + Project
Louise Avenue/Harlan Road (signal)	B-16.0 [1]	B-16.8
Louise Avenue/I-5 Northbound Ramps (signal)	B-13.2 [1]	E-64.3
Louise Avenue/I-5 Southbound Ramps (signal)	B-16.0 [1]	F-85.7
Louise Avenue/Manthey Road	A-9.7/A-8.5/A-9.1 [2]	F** [3]
Gold Rush Boulevard/Mossdale Boulevard	N/A	B-11.7 [3]
Gold Rush Boulevard/Louise Avenue	N/A	B-12.3/A-8.3 [4]
Manthey Road/Main Street	N/A	F-51.9 [3]
Manthey Road/River Edge Drive	N/A	B-10.6 [3]

[1] Signalized level of service-control delay in seconds.
[2] Unsignalized level of service-average control delay in seconds. Louise Avenue stop sign controlled westbound combined through/left turn lane/right turn lane/Louise Avenue stop sign controlled eastbound approach.
[3] All-way-stop level of service-average control delay in seconds.
[4] Unsignalized level of service-average control delay in seconds. Louise Avenue stop sign controlled approach to River Islands Parkway/westbound left turn to Louise Avenue.
* See Figure 4.5-5 for projected Existing + Project intersection geometrics and control.
** Software does not provide vehicle delay values at extreme levels of congestion.
2000 Highway Capacity Manual Analysis Methodology
Source: Crane Transportation Group

Table 4.5-7
Existing Baseline (2001) Plus Project Intersection Level of Service
PM Peak Hour

Intersection	Existing	Existing + Project
Louise Avenue/Harlan Road (signal)	B-17.5 [1]	B-19.0
Louise Avenue/I-5 Northbound Ramps (signal)	B-9.7 [1]	F-82.9
Louise Avenue/I-5 Southbound Ramps (signal)	B-19.1 [1]	F-182.8
Louise Avenue/Manthey Road	B-10.8/A-9.0/B-10.2 [2]	F** [3]
Gold Rush Boulevard/Mossdale Boulevard	N/A	B-10.2 [3]
Gold Rush Boulevard/Louise Avenue	N/A	A-9.7/A-7.9 [4]
Manthey Road/Main Street	N/A	F** [3]
Manthey Road/River Edge Drive	N/A	C-21.3 [3]

[1] Signalized level of service-control delay in seconds.
[2] Unsignalized level of service-average control delay in seconds. Louise Avenue stop sign controlled westbound combined through/left turn lane/right turn lane/Louise Avenue stop sign controlled eastbound approach.
[3] All-way-stop level of service-average control delay in seconds.
[4] Unsignalized level of service-average control delay in seconds. Louise Avenue stop sign controlled approach to River Islands Parkway/westbound left turn to Louise Avenue.
* See Figure 4.5-5 for projected Existing + Project intersection geometrics and control.
** Software does not provide vehicle delay values at extreme levels of congestion.
2000 Highway Capacity Manual Analysis Methodology
Source: Crane Transportation Group

Impact **4.5-c**

Traffic - Vehicle Backups Extending From One Intersection Through an Adjacent Intersection. *The proposed project would produce queues on the approaches to the Louise Avenue/I-5 Northbound Ramps, Louise Avenue/I-5 Southbound Ramps and Louise Avenue/Manthey Road/Gold Rush Boulevard intersections that would extend through adjacent intersections or would back out of the available turn pocket storage lengths during both the AM and PM peak hours. These would be* ***significant*** *impacts.*

Table 4.5-8
Existing Baseline (2001) Plus Project Vehicle Queues [1] and Available Storage

Intersection	Movement	Storage Distance	Existing + Project Storage Demand (vehicles per cycle)	
			AM Peak Hour	PM Peak Hour
Louise Avenue/I-5 Northbound Ramps (signal)	Eastbound Through	390' (± 15 cars)	7 [3]	7 [3]
	Eastbound Left	100' (± 4 cars)	2 [3]	4 [3]
Louise Avenue/I-5 Southbound Ramps (signal)	Westbound Through	390' (± 15 cars)	11 [3]	46+ [4]
	Westbound Left	190' (± 8 cars)	3 [3]	2 [3]
	Eastbound Through/Right	190' (± 8 cars)	42+ [4]	67+ [4]
Louise Avenue/Manthey Road/Gold Rush Boulevard (signal)	Westbound Through/Left	185' (± 7 cars)	40+ [5]	40+ [5]
	Westbound Right	50' (± 2 cars)	1	1

[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.
[3] Maximum potential 95th percentile vehicles queues not realized due to congestion at adjacent upstream intersection limiting flow to this movement.
[4] 95th percentile volume exceeds capacity, queue may be longer. Queue is maximum after two cycles.
[5] Queue beyond software ability to compute accurate projections. Well in excess of 40 vehicles.

Source: Crane Transportation Group

As indicated in Table 4.5-8, the proposed project would produce unacceptable AM peak hour queues at the following locations:

Louise Avenue/I-5 Southbound Ramps
Eastbound through/right turn approach lane

Louise Avenue/Manthey Road/Gold Rush Boulevard

Westbound through/left turn approach lane

As indicated in Table 4.5-8, the proposed project would produce unacceptable PM peak hour queues at the following locations:

Louise Avenue/I-5 Southbound Ramps
Westbound through approach lane
Eastbound through/right turn approach lane

Louise Avenue/Manthey Road/Gold Rush Boulevard
Westbound through/left turn approach lane

The unacceptable queues at the above intersections would represent a significant impact.

Impact **4.5-d**

Traffic - Lack of Both Right and Left Turn Deceleration Lanes on Approaches to Manthey Road Intersections and Driveways. *The lack of right and left turn deceleration lanes on the approaches to all intersections and driveways along Manthey Road would result in both operational and safety concerns due to the increased potential for rear-end accidents and unsafe passing maneuvers. This would be a* ***significant*** *impact.*

The lack of right and left turn deceleration lanes on the approaches to all intersections and driveways along Manthey Road would result in both operational and safety concerns. This would be a significant impact.

Impact **4.5-e**

Traffic - Manthey Road Pavement Condition Could Deteriorate Significantly with Proposed Volume Levels. *Manthey Road would experience substantial increases in traffic between River Edge Drive and Louise Avenue (from more than 900 to over 2,000 vehicles per hour). These volume levels could significantly degrade the pavement condition of this frontage road. This would be a* ***significant*** *impact.*

Manthey Road would experience substantial increases in traffic between River Edge Drive and Louise Avenue (from more than 900 to over 2,000 vehicles per hour). These volume levels could substantially degrade the pavement condition of this frontage road. This would be a significant impact.

Impact **4.5-f**

Traffic - Degradation of Freeway Operation. *The addition of project traffic would not change LOS along any analyzed segments of I-5, I-205 or SR 120 to unacceptable levels. However, the project would increase AM and PM peak hour traffic by more than 1% along westbound I-205 (just west of I-5) during the AM peak hour and along eastbound I-205 (just west of I-5) during the PM peak hour, thus exacerbating unacceptable existing LOS E operations during both the AM and PM peak hours on this segment. Therefore, a* ***significant*** *impact would occur.*

As indicated in Table 4.5-9, the addition of project traffic would not change LOS along any analyzed segments of I-5, I-205 or SR 120 to unacceptable levels. However, the project would increase AM and PM

peak hour traffic by more than the 1% significance threshold along westbound I-205 (between I-5 and MacArthur Drive) during the AM peak hour and along eastbound I-205 (between I-5 and MacArthur Drive) during the PM peak hour, thus exacerbating unacceptable existing LOS E operations during both the AM and PM peak hours on this segment. Therefore, a significant impact would occur.

Table 4.5-9
Existing Baseline (2001) Plus Project Freeway Level of Service

I-5

Location	AM Peak Hour				PM Peak Hour			
	Existing (2001)		Existing + Project		Existing (2001)		Existing + Project	
	S.B.	N.B.	S.B.	N.B.	S.B.	N.B.	S.B.	N.B.
North of Louise Avenue Interchange	C	A	C	B	B	C	B	C
South of Louise Avenue Interchange	C	A	C	B	B	C	B	C
Between SR 120 and I-205	B	A	C	A	B	C	B	C

SR 120

Location	AM Peak Hour				PM Peak Hour			
	Existing (2001)		Existing + Project		Existing (2001)		Existing + Project	
	S.B.	N.B.	S.B.	N.B.	S.B.	N.B.	S.B.	N.B.
Between I-5 and Yosemite Interchange	C	A	C	B	B	C	B	C

I-205

Location	AM Peak Hour				PM Peak Hour			
	Existing (2001)		Existing + Project		Existing (2001)		Existing + Project	
	S.B.	N.B.	S.B.	N.B.	S.B.	N.B.	S.B.	N.B.
Between I-5 and MacArthur Drive Interchange	E	A	E	B	C	E	C	E

2000 Highway Capacity Manual Analysis Methodology
Source: Crane Transportation Group

Traffic - Construction Traffic Impacts. *During the eight-year course of project development there would be an additional increment of project-related traffic associated with ongoing construction. Given the applicant's desire to construct approximately 200 residential units per year, from 100 to more than 300 construction workers could be on site at any given time. This would result in a flow of 80 or 90 to more than 300 vehicles into the site during the AM peak hour and the same number of vehicles leaving the site during the PM peak hour. Virtually all these vehicles would travel through the Louise Avenue/I-5 interchange. In addition, material deliveries and infrequent heavy-equipment movements would occur throughout daylight hours. These levels of construction-related traffic could intermittently degrade operation of the Louise Avenue/I-5*

north and/or southbound ramps intersections to unacceptable levels during peak construction seasons during either the AM or PM peak traffic hours. This would represent a ***significant*** *impact.*

Impact **4.5-h**

Traffic - Proposed Internal Circulation Plan. *The proposed internal circulation plan would function acceptably with a few exceptions. These exceptions would represent traffic hazards and a* ***significant*** *impact.*

Exhibit 3-5 in Chapter 3 of the EIR shows the proposed internal circulation system, roadway classifications, rights-of-way, and curb-to-curb widths. The proposed internal circulation plan would function acceptably with the following exceptions:

Potential Operational and Safety Problems

a) The first intersection along Mossdale Boulevard to the north of Gold Rush Boulevard (at Red Barn Street) would be located too close to Gold Rush Boulevard. Commute period vehicle queues extending northward from the Gold Rush Boulevard signal could intermittently block turn movements to/from this intersection.

b) The first intersection along Mossdale Boulevard to the south of North Forty Parkway (at Pioneer Street) would be located too close to North Forty Parkway. Commute period as well as pre- and post-school vehicle queues on Mossdale Boulevard extending southward from the North Forty Parkway intersection could intermittently block turn movements to/from this intersection.

c) The proposed traffic circle at the Main Street/Mossdale Boulevard intersection would likely not be conducive to safely accommodating the high pedestrian volumes expected at this location.

d) Proposed right-of-way and curb-to-curb width along Main Street would likely not be adequate to accommodate all needed turn and through lanes in the vicinity of its intersections with the future Golden Valley Parkway, and with Mossdale Boulevard, Louise Avenue, and Manthey Road. In particular, until at least two lanes of Golden Valley Parkway are completed between Main Street and River Edge Drive, the segment of Main Street between the Golden Valley Parkway right-of-way (ROW) and Manthey Road would not function acceptably as a two- or three-lane roadway with the existing baseline (2001) plus project traffic volumes as analyzed .

e) Proposed rights-of-way and curb-to-curb widths on the major low density residential street approaches to collector streets would not be wide enough to provide all needed approach and departure lanes (Hidden Cove approach to River Road North; Marsh Point approach to North Forty; Mossdale Boulevard southbound approach to North Forty Parkway and northbound approach to River Edge Road; Village Circle approach to Mossdale Boulevard and River Road North; Louise Avenue approaches to Mossdale Boulevard, River Edge Road and Main Street).

f) The proposed right-of-way of Manthey Road would not allow provision of both right and left-turn deceleration lanes on the approaches to commercial center driveways.

g) Parking and backing maneuvers at proposed diagonal parking spaces along Main Street in the village commercial area (just west of the Golden Valley Parkway ROW) and near Mossdale Boulevard could significantly disrupt the flow of traffic through the Main Street/Golden Valley Parkway and Main Street/Mossdale Boulevard intersections.

h) All medium density and minor low density streets are proposed to have a 32-foot curb-to-curb width. While this width would be minimally acceptable along straight sections of residential streets, it would produce a significant safety concern at curves.

Traffic Planning Issues

i) No potential local street connections are shown along the north and east project boundaries for the residential areas north of Gold Rush Boulevard.

j) No potential local street connection is shown between the Silvera property and Homestead Street along the southern boundary of the Terry K-8 school.

k) No conceptual plan is presented to divert traffic from Main Street to the village commercial parking areas as closely as operationally possible to the Golden Valley Parkway intersection.

The above identified problems with the proposed internal circulation plan would represent a significant impact.

Impact **4.5-i**

Traffic - Pedestrian Circulation. *The project's pedestrian circulation plan proposes sidewalks along both sides of all internal streets unless superseded by a Class I pedestrian/bicycle way. This proposed pedestrian circulation would be adequate to serve the proposed project. Therefore, a* ***less-than-significant*** *impact would occur.*

The project's pedestrian circulation plan (Exhibit 3-6) proposes sidewalks along both sides of all internal streets unless superseded by a Class I pedestrian/bicycle way. The pedestrian/bicycle trails would be provided along the river edge open space as well as along River Road North (west of Main Street), Mossdale Boulevard (between Main Street and North Forty Parkway), Golden Valley Parkway, and the Gold Rush Boulevard ROW. This proposed pedestrian circulation would be adequate to serve the proposed project. Therefore, a less-than-significant impact would occur.

Traffic - Bicycle Circulation. *The project's proposed bicycle circulation plan proposes a mix of multi-use trails (Class I pedestrian/bikeways) and bicycle lanes (Class II bikeways). The bicycle route plan channels bike riders along the highest traffic volume streets and through the highest volume intersections (with the exception of the river edge pathway). While such routing is necessary in many locations (due to the limited number of locations to cross arterial roadways), an alternative, potentially lower traffic volume route to Mossdale Boulevard*

(Louise Avenue) would exist to the south of the Mossdale Boulevard/Louise Avenue intersection. Failure to provide an alternate bike route along a direct, lower volume street would increase safety concerns. Also, no Class II bike lanes are shown extending along residential streets to the north project boundary or even into the neighborhood north of North Forty Parkway. These would represent a ***significant*** *impact.*

The project's proposed bicycle circulation plan (Exhibit 3-6) proposes a mix of multi-use trails (Class I pedestrian/bikeways) and bicycle lanes (Class II bikeways). Multi-use trails are proposed along Gold Rush Boulevard from Golden Valley Parkway to the west end of the project frontage, along Mossdale Boulevard north of Louise Avenue, along the portion of River Road North that is west and north of Louise Avenue, and within the proposed river parks. Bicycle lanes are proposed along portions of the north-south collector street (Mossdale Boulevard) south of Main Street, and along the two east-west collectors (River Edge Drive and North Forty Parkway) located in the northern and southern portions of the project site. The bicycle route plan channels bike riders along the highest traffic volume streets and through the highest volume intersections (with the exception of the river edge pathway). While such routing is necessary in many locations (due to the limited number of locations to cross arterial roadways), an alternative, potentially lower traffic volume route to Mossdale Boulevard (Louise Avenue) would exist to the south of the Mossdale Boulevard/Louise Avenue intersection. Failure to provide an alternate bike route along a direct, lower volume street would increase safety concerns. Also, no Class II bike lanes are shown extending along residential streets to the north project boundary or even into the neighborhood north of North Forty Parkway. These would represent a significant impact.

Impact **4.5-k**

Traffic - Provisions for Public Transit. *No provisions are provided in the residential or commercial area designs that would encourage use of public transit. This would potentially result in higher traffic volumes on congested roadways, as transit would be less convenient. This would represent a* ***significant*** *impact.*

Impact **4.5-l**

Traffic- Timing of, and Payment for, Required Traffic Improvements. *There is a potential that the traffic improvements required by the mitigation measures in this section of the EIR will not be constructed when needed (i.e., when intersection operation at the identified intersections becomes unacceptable). There is also the potential that the City of Lathrop will not receive fair share payments from Mossdale Landing to pay for Mossdale Landing's fair share of the required traffic improvements. Either of these would represent a* ***significant*** *impact.*

4.5.3 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" will occur, no mitigation is identified below (this is the reason why some of the mitigation measures may skip numbers).

4.5-a **Traffic - Degradation of LOS at Signalized Intersections**. The project applicant shall pay the fair share cost for the following improvements, as determined by the WLSP Fair-Share Traffic Improvement Program, at a time to be determined by the traffic monitoring program discussed under Mitigation Measure 4.5-l:

Louise Avenue/I-5 Southbound Ramps

- As indicated in Exhibit 4.5-9, provide two additional through lanes and an additional right turn lane on the Louise Avenue eastbound intersection approach (extending from Manthey Road).
- As indicated in Exhibit 4.5-9, provide an additional through lane on the Louise Avenue westbound intersection approach (extending from the I-5 Northbound Ramps intersection).

Resultant Operation
AM Peak Hour: LOS C – 22.0 seconds vehicle delay
PM Peak Hour: LOS D – 36.0 seconds vehicle delay

Louise Avenue/I-5 Northbound Ramps

- As indicated in Exhibit 4.5-9, provide an additional through lane on the Louise Avenue westbound intersection approach.

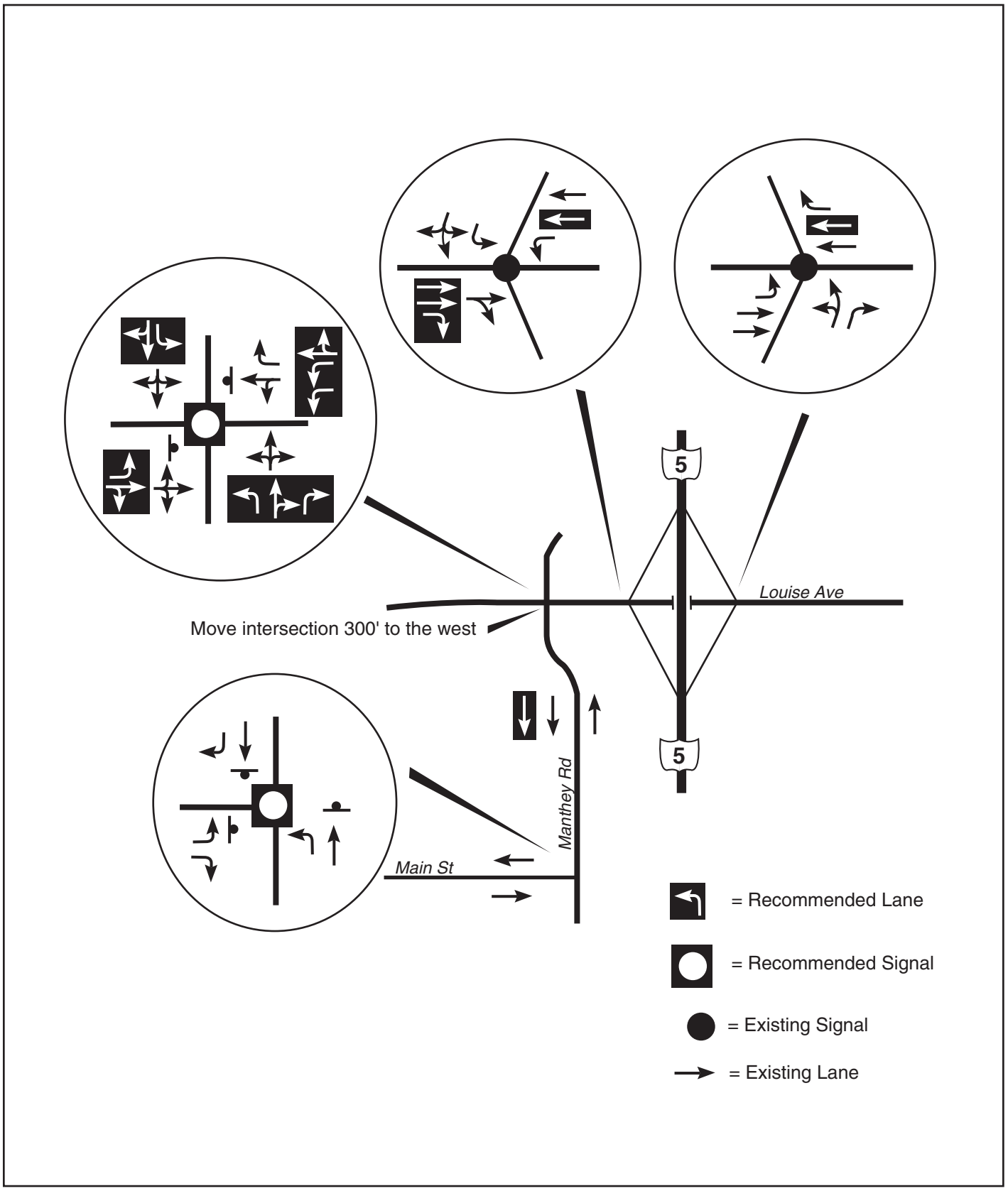
Resultant Operation
AM Peak Hour: LOS C – 20.7 seconds vehicle delay
PM Peak Hour: LOS D – 36.4 seconds vehicle delay

These measures would reduce Impact 4.5-a to a less-than-significant level.

4.5-b **Traffic - Degradation of LOS at Existing Unsignalized Intersections and Unacceptable Operation at New Unsignalized Intersections.** The project applicant shall pay the fair share cost for the following improvements at a time to be determined by the traffic monitoring program discussed under Mitigation Measure 4.5-l:

Louise Avenue/Manthey Road

- As indicated in Exhibit 4.5-9, provide signalization when warranted.



Source: Crane Transportation Group, 5/02.

Existing Baseline (2001) Plus Project
Mitigation Measures

EXHIBIT 4.5-9

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

NOT TO SCALE

NORTH

EDAW

As indicated in Exhibit 4.5-9, provide exclusive left turn lanes on the north, south and eastbound intersection approaches.

- As indicated in Exhibit 4.5-9, provide two exclusive left turn lanes on the Louise Avenue westbound intersection approach (extending to the Southbound Ramps intersection).
- As indicated in Exhibit 4.5-9, provide a second southbound departure lane on the intersection's Manthey Road south leg. This second southbound lane should be extended to the Main Street intersection.
- As indicated in Exhibit 4.5-9, provide an exclusive right turn lane on the Manthey Road northbound intersection approach and stripe the through lane to also allow right turns.

Resultant Operation
AM Peak Hour: LOS C – 20.0 seconds vehicle delay
PM Peak Hour: LOS A – 7.7 seconds vehicle delay

These measures would reduce Impact 4.5-b to a less-than-significant level.

4.5-c **Vehicle Backups Extending from One Intersection Through an Adjacent Intersection.** The project applicant shall pay the fair share cost to provide added approach and departure lanes as listed in Mitigation Measures 4.5-a and 4.5-b, at a time to be determined by the traffic monitoring program discussed under Mitigation Measure 4.5-l:

- As indicated in Exhibit 4.5-9, move the Manthey Road connection to Louise Avenue at least 300 feet to the west.

  Resultant operation at the intersections evaluated after implementation of the above mitigation is identified in Table 4.5-10. As indicated, these measures would reduce Impact 4.5-c to a less-than-significant level.

4.5-d **Traffic - Lack of Both Right and Left Turn Deceleration Lanes on Approaches to Manthey Road Intersections and Driveways.** The project applicant shall provide left and right turn deceleration lanes on the Manthey Road approaches to all roadway and driveway intersections.

This measure would reduce Impact 4.5-d to a less-than-significant level.

4.5-e **Traffic - Manthey Road Pavement Condition Could Deteriorate Significantly with Proposed Volume Levels.** The project applicant and the City of Lathrop Department of Public Works shall survey pavement conditions along Manthey Road before and after each phase of residential, school and commercial construction associated with the proposed project. Any degradation to pavement conditions along Manthey Road shall be repaired at the applicant's expense to the satisfaction of the City.

This measure would reduce Impact 4.5-e CEQA to a less-than-significant impact.

Table 4.5-10
Resultant Vehicle Queues per Lane[1] after Mitigation
(95th Percentile Maximum Queue)

Location	Vehicle Storage[1]	Storage Demand	
		AM Peak Hour	PM PEAK HOUR
Louise Avenue/I-5 Northbound Ramps			
Eastbound Through	15	8	7[2]
Eastbound Left Turn	4	2[2]	4[2]
Louise Avenue/I-5 Southbound Ramps			
Westbound Through	15	7	9[2]
Westbound Left Turn	8	1[2]	4[2]
Eastbound Through	19	6	7
Eastbound Right Turn	19	3	9
Louise Avenue/Manthey Road			
Westbound Through/Right	19	6[2]	4
Westbound Left Turn	19	7	9

[1] 25 feet per vehicle.
[2] Maximum potential 95th percentile vehicles queues not realized due to congestion at adjacent upstream intersection limiting flow to this movement.

Source: Crane Transportation Group

4.5-f **Traffic - Degradation of Freeway Operation.** The project applicant shall pay its required regional traffic impact fee for its fair share contribution for already planned I-205 freeway improvements.

Mitigation Measure 4.5-f would provide the project's share of the funding required for the needed I-205 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 by the proposed project is outside the scope of the project (i.e., is a regional improvement), the Mossdale Landing project would result in ***significant unavoidable*** (short term) traffic impacts to the I-205 (I-5 to MacArthur segment) until said improvements are completed.

4.5-g **Traffic - Construction Traffic Impacts.** Project construction worker commute traffic shall be scheduled on the Lathrop roadway system such that it avoids the peak hours of 6:45-8:15 AM and 4:15-5:45 PM.

This mitigation measure would reduce Impact 4.5-g to less-than-significant levels.

4.5-h **Traffic - Proposed Internal Circulation Plan.** The project applicant shall undertake the following revisions of the project site plan and UDC prior to UDC approval to ensure safe and efficient internal circulation:

a) Eliminate the Red Barn Street connection to Mossdale Boulevard and connect the east end of Red Barn Street to Homestead Street, or prohibit left turn movements to/from Red Barn Street at Mossdale Boulevard.

b) Eliminate the Pioneer Street connection to Mossdale Boulevard and connect Pioneer Street to Stage Coach Way, or prohibit left turn movements to/from Pioneer Street at Mossdale Boulevard.

c) Provide adequate safety measures for pedestrian crossings at the traffic circle proposed for the Main Street/Mossdale Boulevard intersection.

d) Increase the ultimate right-of-way and potential curb-to-curb width of the Main Street approaches to the Golden Valley Parkway ROW, Mossdale Boulevard and Louise Avenue to be the same as collector streets. Also, increase the ultimate right-of-way of Main Street between the Golden Valley Parkway ROW and Manthey Road to accommodate five travel lanes and right turn deceleration lanes on the approaches to driveways and major streets.

e) Provide rights-of-way on all major low density residential street connections to collector streets to allow a minimum 40-foot curb-to-curb width (which will allow two approach and one wide departure lane).

f) Provide adequate right-of-way along Manthey Road to allow two wide through-travel lanes plus left and right turn deceleration lanes on the approaches to all commercial property driveways.

g) Do not provide diagonal parking along Main Street within 150 to 200 feet of the Golden Valley Parkway ROW and the Mossdale Boulevard intersection.

h) Provide 36-foot curb-to-curb widths through all curves along minor low density and medium density residential streets, or prohibit on-street parking along all curved sections of 32-foot curb-to-curb width streets.

i) Consider provision of rights-of-way for at least one to two minor or major low density street extensions along the north and east project boundaries for the residential area north of the Golden Valley Parkway ROW.

j) Provide right-of-way for the potential extension of Homestead Street into the Silvera property to the west.

k) Provide a conceptual plan showing efficient diversion of traffic between Main Street and village commercial parking areas. This may require more curb-to-curb width and right-of-way than currently planned for Main Street.

This mitigation would reduce Impact 4.5-h to a less-than-significant level.

4.5-j **Traffic - Bicycle Circulation.** The project applicant shall provide bike lanes along North 40 Avenue and Mossdale Boulevard south of Louise Avenue, Class II bike lanes along at least one residential street leading to the north project boundary (or River Road North), and bike paths along Gold Rush Boulevard to the west of Mossdale Boulevard along most project frontages.

This mitigation would reduce Impact 4.5-j to a less-than-significant level.

4.5-k **Traffic - Provisions for Public Transit.** The applicant shall incorporate the suggestions from the local transit agency into the final residential and commercial area circulation system designs to provide extra street width and/or right-of-way where considered potentially needed for bus stops or to facilitate bus flow through the project (other than along arterial roadways).

This mitigation would reduce Impact 4.5-k to a less-than-significant level.

4.5-l **Traffic- Timing of, and Payment for, Required Traffic Improvements.** The project applicant shall undertake the following measures to ensure the proper timing of, and payment for, the traffic improvements required for the proposed project:

- Traffic Monitoring Program. The project applicant shall commence traffic monitoring at the I-5/ Louise Avenue interchange and at the Louise Avenue/Manthey Road intersection starting with occupancy of the 50th on-site residential unit and continuing until all the traffic improvements required by mitigation in Section 4.5.3 of this EIR have been completed. The project applicant shall undertake similar traffic monitoring of the Manthey Road/Main Street intersection once Main Street is developed. The traffic monitoring program shall be developed by the applicant consistent with requirements to be identified by City of Lathrop Community Development Department and Public Works Department staff, and traffic shall be monitored on a yearly basis until completion of development. The program shall be used as the basis for determining when each of the traffic improvements required by the mitigation measures below are required to be implemented. Each traffic improvement required by mitigation listed below shall be undertaken when and/or if the traffic monitoring program indicates that traffic conditions at the identified location will soon reach unacceptable LOS. The advance warning of impending unacceptable operations at each identified location shall be of a timeframe sufficient to allow for completion of the required improvement before the location reaches unacceptable operating conditions (the length of advance warning to be identified by the Public Works Department on a location-by-location basis). For any intersection that is already at an unacceptable LOS, the applicant shall construct the improvement required at hat location by mitigation in Section 4.5.3 upon development of the 50th on-site residential unit. Development of phases of the proposed project shall not be permitted until the roadway improvements required to serve that development are first constructed (i.e., development of the required roadway improvements must always precede the need for those improvements).

  The above monitoring shall occur under the direction of City of Lathrop Public Works Department staff, and shall be paid for by the developer(s) of the Mossdale Landing project

in concert with the developers of other future development in the WLSP area (i.e., River Islands, Lathrop Station, etc.).

This mitigation measure would ensure that the mitigation measures identified in this section are implemented when required. The applicant would be required to pay the fair share cost of all improvements based on traffic from the proposed project and other projects in Lathrop currently not yet approve that would contribute to significant roadway impacts. Also see Chapter 5, Cumulative Impacts.

- Fair Share Funding Program. In conjunction with the required Traffic Monitoring Program discussed above, the City shall require the payment of Capital Facility Fee ("CFF") impact fees for funding transportation improvements required within the Mossdale Landing UDC area. The City's 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. The CFF program has been in place since 1991 and is currently being updated to reflect new growth within the Mossdale Village area, generally, and the Mossdale Landing and Lathrop Station UDC areas specifically. The new update report identifies the impact of new commercial and residential development within the Mossdale Village area and sets a fee for mitigating those impacts. In regards to transportation, the CFF includes funding for the following improvements:

  1. Golden Valley Parkway
  2. Gold Rush Boulevard
  3. Interstate 5 Interchange improvements at Louise Avenue
  4. Class I bike paths along the linear park and Gold Rush Boulevard rights-of-way
  5. Certain segments of Mossdale Village Boulevard and River Edge Drive

In addition to the CFF Transportation fee, the Mossdale Landing UDC project shall be subject to the West Lathrop Specific Plan Regional Transportation Fee, first adopted in 1997, also in accordance with Government Code §66000 et. seq. The "regional fee" as it is called includes a number of regional transportation improvements located in the Lathrop area, as well as others Countywide, including widening and interchange improvements to Interstates 5 and 205 and State Routes 99 and 120. Payment of these fees mitigates both local and regional impacts to the transportation system and is considered fair share payments for the Project.

The timing of payments from the transportation fee programs is at building permit issuance. Monies collected from the fees are used either to fund the construction of the affected improvements, if enough exists for such a purpose, or to provide reimbursement or credit for improvements "fronted" by the project developer. In conjunction with the Traffic Monitoring Program above, 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 arise sooner than anticipated, the Mossdale Landing project applicant shall be required to fully fund the necessary improvement and receive either reimbursement or credit from the applicable fee program when paid by others benefitting from the improvement.

The above measures would reduce Impact 4.5-l to a less-than-significant level.

4.5.4 RESIDUAL SIGNIFICANT IMPACTS

The project would contribute traffic on the I-205 between the I-5 and MacArthur Drive which would increase AM and PM peak hour traffic on this segment by more than 1%, thus exacerbating unacceptable 2010 Base Case (Without Project) operations during these peak hours (Impact 4.5-f). The impact would occur to westbound traffic during the AM peak hour, and to eastbound traffic during the PM peak hour. This would represent a temporary residual significant traffic impact until improvements programmed for this freeway segment by Caltrans are completed (anticipated in 2007).

4.6 AIR QUALITY

The potential air quality impacts associated with the construction and operation of the proposed project are evaluated in this section. The air quality modeling output for operational air emissions is provided in Appendix H of this EIR.

4.6.1 EXISTING CONDITIONS

PHYSICAL SETTING

The project site is located in the San Joaquin Valley Air Basin (SJVAB), which is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). The factors affecting air quality conditions applicable to the proposed project area are discussed below.

Topography, Meteorology, and Dispersion

Dispersion of air pollution in an area is determined by such natural factors as topography, meteorology, and climate, coupled with atmospheric stability conditions and the presence of inversions. The factors affecting the dispersion of air pollution in the SJVAB are discussed below.

Topography

The SJVAB occupies the southern half of the Central Valley and is approximately 250 miles in length and, on average, 35 miles in width. The Coast Range, which has an average elevation of 3,000 feet, is the western border of the SJVAB. The San Emigdio Mountains, part of the Coast Range, and the Tehachapi Mountains, part of the Sierra Nevada, are both located to the south of the SJVAB. The Sierra Nevada, which extends in a northwesterly direction and includes Mt. Whitney (elevation 14,495 feet), forms the eastern border of the SJVAB. The SJVAB is basically flat with a downward gradient 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 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, resulting 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. During the summer, a Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. In the winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore and in storms.

Summer temperatures that often exceed 100 degrees Fahrenheit (F) coupled with clear sky conditions are favorable to ozone formation. The majority of the precipitation in the valley occurs during the winter due to the presence of storms. 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 that result in high carbon monoxide (CO) concentrations and particulate matter (PM). Summer wind conditions promote the transport of ozone and precursors to the SJVAB from the Bay Area through the Carquinez Strait (a gap in the Coast Range), and low mountain passes such as Altamont Pass and Pacheco Pass.

With respect to the project site, San Joaquin County is located in the northern portion of the SJVAB. The climate is semi-arid with an annual normal precipitation of approximately 14 inches. January temperatures range from a normal minimum of 37EF to a normal maximum of 53EF. July temperatures range from a normal minimum of 61EF to a normal maximum of 95E F (NOAA 1992). The predominant wind direction and speed is from the NWN at 10 mph (CARB 1994).

Atmospheric Stability and Inversions

Stability describes the resistence of the atmosphere to vertical motion. The stability of the atmosphere is dependent upon the vertical distribution of temperature with height. When the temperature decreases vertically at 10 degrees Celsius (C) per 1000 meters, the atmosphere is "neutral". When the lapse rate (change in temperature with respect to height) is greater than 10 degrees C per 1000 meters, the atmosphere is "unstable". When the lapse rate is less than 10 degrees C per 1000 meters, the atmosphere is "stable". Stability categories range from "Extremely Unstable" (Class A), through Neutral (Class D), to "Stable" (Class F). Unstable conditions 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 due to a decrease in the amount of solar heating. Under Class C stability conditions, solar heating is weak along with horizontal and vertical fluctuations due to 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 will travel downwind with poor dispersion. The dispersive power of the atmosphere decreases with progression through the categories from A to F.

With respect to the SJVAB, stability categories D through F predominate during the late fall and winter due to cool temperatures and entrapment of cold air near the surface. March and August are transition months with equally occurring percentages of category F and category A. During the spring months of April and May as well as the summer months of June and July, category A is predominant. The fall months of September, October, and November have comparable percentages of category A and category 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 frequency than the surface-based ones, 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 the months of December and January.

REGULATORY SETTING

Air quality in the project area is regulated by several jurisdictions, including the U.S. Environmental Protection Agency (U.S. EPA), California Air Resources Board (CARB), and the SJVAPCD. These agencies develop rules, regulations, policies, and/or plans to achieve the goals and directives imposed through legislation, which shall not supersede the U.S. 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 concentrations considered safe for the protection of public health and welfare. These standards are designed to protect people that 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) were originally established by the U.S. EPA in 1971 for six air pollution constituents, and have been periodically revised since then. Each individual state or district possesses the authority to add pollutants, require more stringent compliance, or include different exposure periods. California Ambient Air Quality Standards (CAAQS) and NAAQS are listed in Table 4.6-1.

San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulations

The SJVAPCD is the agency primarily responsible for assuring that national and state ambient air quality standards are not exceeded and that air quality conditions are maintained in the SJVAB. Responsibilities of the SJVAPCD include, but are not limited to the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of 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 (FCAA) and the California Clean Air Act (CCAA). In an attempt to achieve national and state ambient air quality standards and maintain air quality, the SJVAPCD has completed the 1991 Air Quality Attainment Plan (AQAP), 1994 Ozone Attainment Demonstration Plan, 1997 PM_{10} Attainment Demonstration Plan, 1997-1999 PM $_{10}$Progress Report, 2000 Ozone Rate of Progress Report, 2000 Annual Progress Report, and the 2000 Triennial Plan (SJVAPCD 2001).

Criteria Air Pollutants

The CARB and the U.S. EPA currently focus on five "criteria pollutants" as indicators of air quality. These are ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter. A brief description, including adverse health effects and formation processes, of each criteria air pollutant is provided below.

Table 4.6-1
Ambient Air Quality Standards

California (CAAQS)[1]		National (NAAQS)[2]	
Air Pollutant	**Concentration[5]**	**Primary (>)[3,5]**	**Secondary (>)[4,5]**
Ozone	0.09 ppm, 1-hr avg	0.12 ppm, 1-hr avg 0.08 ppm, 8-hr avg [3]	0.12 ppm, 1-hr avg 0.08 ppm, 8-hr avg[3]
Carbon Monoxide	9 ppm, 8-hr avg 20 ppm, 1-hr avg	9 ppm, 8-hr avg 35 ppm, 1-hr avg	9 ppm, 8-hr avg 35 ppm, 1-hr avg
Nitrogen Dioxide	0.25 ppm, 1-hr avg	100 µg/m^3 annual	100 µg/m^3 annual
Sulfur Dioxide	0.04 ppm, 24-hr avg 0.25 ppm, 1-hr avg	0.03 ppm, annual avg 0.14 ppm, 24-hr avg	0.5 ppm, 3-hr avg
Respirable Particulate Matter (PM_{10})	30 µg/m^3 annual geometric mean 50 µg/m^3, 24-hr avg	50 µg/m^3 annual arithmetic mean 150 µg/m^3, 24-hr avg	50 µg/m^3 annual arithmetic mean 150 µg/m^3, 24-hr avg
Fine Particulate Matter ($PM_{2.5}$)	--	15 µg/m^3 annual arithmetic mean 65 µg/m^3, 24-hr avg	15 µg/m^3 annual arithmetic mean 65 µg/m^3, 24-hr avg
Lead	1.5 µg/m^3, 30-day avg	1.5 µg/m^3 calendar quarter	1.5 µg/m^3 calendar quarter
Sulfates	25 µg/m^3, 24-hr avg	--	--
Hydrogen Sulfide	0.03 ppm, 1-hr avg	--	--
Vinyl Chloride	0.01 ppm, 24-hr avg	--	--
Visibility Reducing Particles	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer-visibility of ten miles or more (0.07-30 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 and 24 hour), nitrogen dioxide, suspended particulate matter (PM_{10}), 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 Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, suspended particulate matter (PM_{10}), 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 eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when 99 % of the daily concentrations, averaged over three 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 three years, are equal to or less than the standard.

[3] National Primary Standards: The levels of air quality necessary to protect the 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 µg/m^3=micrograms per cubic meter.

Source: California Air Resources Board 2001

Ozone (O_3)

Ozone (O_3) is a photochemical oxidant and the primary component of smog. Ozone is not directly emitted into the air, but 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. Ozone located in the upper atmosphere (stratosphere) acts in a beneficial manner by shielding earth from harmful ultraviolet radiation that is emitted by the sun. However, ozone located in the lower atmosphere (troposphere) is a major health and environmental concern. Since sunlight and heat serve as catalysts for the reactions between ozone precursors, peak ozone concentrations typically occur during the summer in the Northern Hemisphere (U.S. EPA 2001). In general, ozone concentrations over or near urban and rural areas reflect an interplay of emissions of ozone precursors, transport meteorology, and atmospheric chemistry (Godish 1991).

The adverse health effects of exposure to ozone primarily pertain to the respiratory system. Ozone not only affects sensitive receptors, such as asthmatics and children, but also healthy adults. Exposure to ambient levels of ozone ranging from 0.1 to 0.4 parts per million (ppm) for 1 to 2 hours has been found to alter lung function. Levels of above 0.12 ppm are linked to symptomatic responses such as throat dryness, chest tightness, shortness of breath, headache, and nausea. Evidence also exists relating ozone exposure to bronchoconstrictive challenges and the interference with the immune system (Godish 1991).

Carbon Monoxide (CO)

Carbon monixide (CO) is a colorless, odorless, poisonous gas produced by the incomplete burning of carbon in fuels, principally from mobile (transportation) sources. In fact, 77% of the nationwide CO emissions are from such sources. The other 23% consist of CO emissions from wood-burning stoves, incinerators, and industrial sources. Peak carbon monoxide levels are localized near areas with high concentrations of mobile sources and typically occur during winter when calm conditions are prevalent.

Carbon monoxide results in a drastic reduction in the amount of oxygen available to human cells, and can result in dizziness, headaches, slow reflexes, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (U.S. EPA 2001).

Nitrogen Dioxide (NO_2)

Nitrogen dioxide (NO_2) is a brownish, highly reactive gas that is present in all urban environments. The major man-made sources of NO_2 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 NO_2 (U.S. EPA 2001). The combined emissions of NO and NO_2 are referred to as oxides of nitrogen (NO_x), which are reported as equivalent NO_2. Since NO_2 is formed and depleted by reactions associated with photochemical smog (O_3), the NO_2 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 NO_2. The severity of adverse health effects depend primarily on the concentration inhaled rather than the duration of exposure. An individual may experience acute symptoms, including cough, difficulty breathing, vomiting, headache, and eye irritation during or

shortly after exposure. After a period of approximately 4 to 12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema. Severe, symptomatic NO_2 intoxication after acute exposure has been linked with prolonged respiratory impairment, chronic bronchitis, and decreased lung functions.

Sulfur Dioxide (SO_2)

Sulfur dioxide (SO_2) 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 SO_2 exposure pertain to the upper respiratory tract. Sulfur dioxide is a respiratory irritant with bronchoconstriction occurring with inhalation of SO_2 at 5 ppm or more. Concentration rather than duration of the exposure is an important determinant of respiratory effects. Exposure to high concentrations of sulfur dioxide may result in edema and respiratory paralysis.

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers, or less, are referred to as PM_{10}. PM_{10} consists of particulates directly emitted into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulates formed in the atmosphere by condensation and/or transformation of sulfur dioxide and reactive organic gases (U.S. EPA 2001). $PM_{2.5}$ includes a subgroup of finer particle called PM_{10} which have an aerodynamic diameter of 2.5 micrometers or less (CARB 2001).

The adverse health effects associated with PM_{10} 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, which is referred to as the piggy backing effect, or with fine dust particles of silica or asbestos. Generally, adverse health effects associated with PM_{10} may result from both short-term and long-term exposure to elevated PM_{10} 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 (U.S. EPA 2001). $PM_{2.5}$ poses an increased health risk because they can deposit deep in the lung and contain substances that are particularly harmful to human health. As a result, the U.S. EPA promulgated national $PM_{2.5}$ standards in 1997; however, the standards have been challenged in court and implementation is on hold (CARB 2001).

EXISTING AIR QUALITY

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 stations are the closest to the project site that have sufficient data to meet U.S. EPA and/or CARB 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 project site.

Table 4.6-2 summarizes the air quality data from 1997 to 2000 for the applicable monitoring stations. The state (1-hr) and federal (1-hr/8-hr) ozone standards were exceeded several times at both of the stations in the

past four years. The suspended (PM_{10}) national standard (24-hr avg, 150 µg/m^3) was not exceeded; however, the state standard (24 hr-avg, 50 µg/m^3) was exceeded an average of 5 times per year with an annual average maximum concentration of 103 µg/m^3 from 1997-2000. With respect to carbon monoxide and nitrogen dioxide, neither the state or national standards were exceeded from 1997 to 2000.

Table 4.6-2
Summary of Annual Air Quality Data

	1997	1998	1999	2000
Ozone (O_3)				
Stockton-East Mariposa Air Quality Monitoring Station				
State Standard (1-hr avg, 0.09 ppm)				
Federal Standard (1-hr/8-hr avg, 0.12/0.08 ppm) [1]				
Maximum Concentration (1-hr/8-hr avg)	0.10/.08	0.12/.10	0.14/.09	0.11/.08
Number of Days State Standard Exceeded	3	9	4	3
Number of Days Federal 1-hr/8-hr Standard Exceeded	0/0	0/2	1/4	0/0
Stockton-Hazelton Air Quality Monitoring Station				
State Standard (1-hr avg, 0.09 ppm)				
Federal Standard (1-hr/8-hr avg, 0.12/0.08 ppm) [1]				
Maximum Concentration (1-hr/8-hr avg)	0.10/.08	0.13/.10	0.14/.11	0.11/.08
Number of Days State Standard Exceeded	1	10	6	3
Number of Days Federal 1-hr/8-hr Standard Exceeded	0/0	1/4	2/4	0/0
Carbon Monoxide (CO)				
Stockton-Claremont Air Quality Monitoring Station				
State Standard (1-hr/8-hr avg, 20/9.1 ppm)				
Federal Standard (1-hr/8-hr avg, 35/9.5 ppm)				
Maximum Concentration (1-hr/8-hr avg)	6.3/4.2	10.2/7.9	11.3/7.8	8.1/4.7
Number of Days State Standard Exceeded	0	0	0	0
Number of Days Federal 1-hr/8-hr Standard Exceeded	0/0	0/0	0/0	0/0
Stockton-Hazelton Air Quality Monitoring Station				
State Standard (1-hr/8-hr avg, 20/9.1 ppm)				
Federal Standard (1-hr/8-hr avg, 35/9.5 ppm)				
Maximum Concentration (1-hr/8-hr avg)	7.7/3.6	8.9/7.2	8.3/5.3	5.8/3.6
Number of Days State Standard Exceeded	0	0	0	0
Number of Days Federal 1-hr/8-hr Standard Exceeded	0/0	0/0	0/0	0/0
Nitrogen Dioxide (NO_2)				
Stockton-Hazelton Air Quality Monitoring Station				
State Standard (1-hr avg, 0.25ppm)				
Federal Standard (annual, 100µg/m^3)				
Maximum Concentration (1-hr avg)	0.090	0.102	0.106	0.099
Number of Days State Standard Exceeded	0	0	0	0
Annual Average (ppm)	0.022	0.023	0.024	NA

Table 4.6-2
Summary of Annual Air Quality Data

	1997	1998	1999	2000
Tracy-24371 Patterson Pass Road Air Quality Monitoring Station				
State Standard (1-hr avg, 0.25ppm)				
Federal Standard (annual, 100µg/m^3)				
Maximum Concentration (1-hr avg)	0.060	0.079	0.074	0.068
Number of Days State Standard Exceeded	0	0	0	0
Annual Average (ppm)	0.012	0.013	0.015	NA
Suspended Particulate (PM_{10})				
Stockton-Hazelton Air Quality Monitoring Station				
State Standard (24-hr avg, 50µg/m^3)				
Federal Standard (24-hr avg, 150µg/m^3)				
Maximum Concentration	98	106	150	61
Number of Days State Standard Exceeded	5	8	10	2
Number of Days Federal Standard Exceeded	0	0	0	0
Stockton-Wagner-Holt School Air Quality Monitoring Station				
State Standard (24-hr avg, 50µg/m^3)				
Federal Standard (24-hr avg, 150µg/m^3)				
Maximum Concentration	130	99	118	64
Number of Days State Standard Exceeded	4	5	4	2
Number of Days Federal Standard Exceeded	0	0	0	0

[1] The U.S. EPA is phasing out and replacing the previous 1-hour primary ozone standard (health-based) with a new 8-hour standard. The Federal 1-hour ozone standard (0.12 ppm) will not be revoked in a given area until that area has achieved 3 consecutive years of air quality data meeting the 1-hour standard.

[2] Data presented are valid, but incomplete in that an insufficient number of valid data points were collected to meet U.S. EPA and/or ARB criteria for representativeness.

[3] The U.S. EPA has recently revised the primary (health-based) and secondary (welfare-based) PM standards by adding a new annual $PM_{2.5}$ standard set at 15 µg/m^3 and a new 24-hour $PM_{2.5}$ standard set at 65 µg/m^3. Rules and standards pertaining to $PM_{2.5}$ monitoring are currently being developed. As a result, $PM_{2.5}$ monitoring data is not available for the periods indicated.

ppm = parts per million by volume
µg/m^3 = micrograms per cubic meter

Source: California Air Resources Board 2001

Attainment Status

Pursuant to the California Clean Air Act (CCAA), CARB 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

nonattainment status. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The U.S. EPA designates areas for O_3, CO, and NO_2 as "Does not meet the primary standards," "Cannot be classified," or "Better than national standards." For SO_2, areas are designated as "Does not meet the primary standards," "Does not meet the secondary standards," "Cannot be classified," or "Better than national standards." In 1991, new nonattainment designations were assigned to areas that had previously been classified as Group I, II, or III for Particulate Matter (PM_{10}) based on the likelihood that they would violate national PM_{10} standards. All other areas are designated "Unclassified." The state and national attainment status designations pertaining to the SJVAB are summarized in Table 4.6-3. The SJVAB is currently designated as a severe nonattainment area for the state and national 1-hour ozone standards and serious/nonattainment for the state PM_{10} standard. The attainment designations with respect to the national 8-hour ozone and $PM_{2.5}$ have not yet been determined.

Table 4.6-3
San Joaquin Valley Air Basin Attainment Status Designations

Pollutant	National Designation	State Designation
Ozone - One hour	Nonattainment/Severe	Nonattainment/Severe
Ozone - Eight hour	Designation to be Determined	No State Standard
PM_{10}	Nonattainment/Serious	Nonattainment
$PM_{2.5}$	Designation to be Determined	No State Standard
CO - Fresno Urbanized Area	Attainment [1]	Nonattainment[2]/Moderate
CO - Remainder of Fresno County	Unclassified/Attainment	Attainment
CO - Merced, Madera and Kings counties	Unclassified/Attainment [1]	Unclassified
CO - Kern (SJVAB portion), Tulare, Stanislaus, San Joaquin	Unclassified/Attainment [1]	Attainment
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide - Kern County (SJVAB portion)	Attainment	Attainment
Sulfur Dioxide - All Other Counties	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

[1] Redesignated on March 31, 1998, effective June 1, 1998

[2] Area has reached attainment status. Redesignation request approved by ARB on September 24, 1998. The re-designation became final upon action by the California Office of administrative Law on August 26, 1999.

Source: California Air Resources Board 2001, SJVAPCD 2001

Despite the noteworthy air quality improvements over the past decade, the San Joaquin Valley failed to meet the previous federal ozone standard deadline and thus the Valley was downgraded from serious/ nonattainment to severe/nonattainment designation by the U.S. EPA. The SJVAPCD is now required to submit a plan to CARB that demonstrates that the Valley will meet the ozone standards by 2005, which would involve reducing the total emissions inventory by an additional 30% or 300 tons/day. To avoid being faced with sanctions, the SJVAPCD is considering a bold step to voluntarily seek the federal government's worst air quality designation for ground-level ozone, which is the designation of extreme/nonattainment. With this designation, the new attainment date for the Valley would be 2010. An extreme/nonattainment designation is not a delay in implementing air pollution controls, but allows the Valley 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. On the down side, the Valley would face the stigma of being the only region other than the Los Angeles area to be classified as extreme. This could negatively affect economic development, specifically businesses, because of a lower threshold for businesses that will be required to participate in a federal permitting program, stricter offset requirements, and installation of advanced emission control devices (SJVAPCD 2001).

4.6.3 IMPACTS AND MITIGATION

ANALYSIS METHODOLOGY

In accordance with the SJVAPCD Air Quality Guidelines (1994), short-term construction emissions associated with the proposed project were analyzed in a qualitative manner and all feasible control measures were incorporated as mitigation.

As recommended in the SJVAPCD Air Quality Guidelines (1994), long-term regional (operational) emissions due to area and mobile sources were analyzed using the urban emission computer model, URBEMIS7G Version 5.1.0. Area source emissions associated with landscape maintenance, natural gas, and consumer products were estimated based on default model settings for the San Joaquin Valley Air Basin under 2005 and 2010 conditions. Mobile source emissions were estimated based on default model settings for the SJVAB, trip generation rates as presented in the traffic analysis (Section 4.5 of this EIR), a correction for pass-by trips, and effectiveness factors that reflect the proposed transit, pedestrian, and bicycle enhancing infrastructure under 2005 and 2010 conditions.

As recommended in the SJVAPCD Air Quality Guidelines (1994), local mobile source carbon monoxide (CO) emissions were analyzed using the CALINE4 computer model in accordance with the California Department of Transportation Project-Level Carbon Monoxide Protocol (1997). CO concentrations were estimated for Existing and Existing Plus Project conditions at the Louise Avenue/I-5 northbound and southbound ramp intersections, which are projected to operate at an unacceptable Level of Service (LOS) E or F. The 1-hour and 8-hour CO concentrations were estimated based on mobile source emission factors obtained from using CT-EMFAC, PM peak hour traffic volumes as presented in the traffic analysis, 1-hour and 8-hour CO background concentrations of 7 ppm and 3.6 ppm, a persistence factor of .7, interpolated from 2000 and 2001 Stockton-Hazelton air quality monitoring station data, and worst-case meteorological conditions.

For the analysis of short-term construction impacts, the potential for the project to generate air emissions during the eight year construction period are discussed. For the analysis of long-term local mobile source (CO) impacts, existing (2002) traffic conditions with project traffic added (i.e., Existing Plus Project conditions) are evaluated to determine if traffic volumes of existing plus project traffic would exceed applicable thresholds. For the analysis of long-term regional impacts, project buildout is evaluated to determine the regional emissions (mobile plus station source emissions) to be generated by the proposed project. For an analysis of cumulative long-term mobile source and regional impacts (included in Chapter 5, Cumulative Impacts), Existing and Future Baseline (2010) Plus Project conditions are evaluated to determine what the air quality impacts would be in 2010 with the proposed project and cumulative development. The evaluation of the above set of conditions permit identification of both the project's air quality impacts (Existing Plus Project) and the air quality impacts of the project plus cumulative development (Future Baseline Plus Project).

PROJECT PROPOSALS

The proposed project includes extensive pedestrian and bicycle systems, along with other attributes of the project such as greenbelts, sidewalks on all roadways with street trees and grasses, pedestrian parks, neotraditional street layout allowing for many more vehicle and pedestrian access points, and more park acreage than required. Also, home builders under the proposed project will provide information regarding how to reduce household air pollution (through, for instance, the use of electric land movers, non-aerosol products, ridesharing, etc.) as part of the disclosure statement accompanying the sale of each project residence. These project features have been designed to reduce reliance on the automobile and to reduce air pollutant emissions..

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 (SJVUAPCD 1998), shall be used to determine if the proposed project would result in a significant air quality impact.

- **Construction Impacts.** Construction impacts would be considered significant if the feasible control measures for construction, in compliance with Regulation VIII as listed in the SJVUAPCD Guidelines, are not incorporated or implemented.

- **Local Mobile Source Impacts**. Local mobile source impacts would be considered significant if the project contributes to CO concentrations that exceed the State Ambient Air Quality Standard of 9.0 parts per million (ppm) for 8 hours or 20 ppm for 1 hour.

- **Regional (Operational) Impacts**. Regional (Operational) impacts would be considered significant if the project generates emissions of ROG and NO_X that exceed 10 tons per year.

IMPACT ANALYSIS

Impact **4.6-a**

Air Quality - Short-term Construction Impacts. *The construction and development associated with the proposed project would result in the temporary generation of NO_X, ROG, and PM_{10} emissions in addition to the potential airborne entrainment of asbestos due to demolition. Therefore, project construction activities would result in a* ***significant*** *short-term air quality impact without the incorporation and implementation of the required SJVAPCD control measures.*

Construction generated emissions are "short-term", temporary in duration, and posses the potential to represent a significant air quality impact, particularly PM_{10} emissions. Construction emissions may potentially result in substantial increases in localized PM_{10} 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, village commercial, service commercial, and public uses on the 477.3 acre project site would result in the temporary generation of NO_X, ROG, and PM_{10} emissions due 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 small number of residential units and farm buildings located on the project site could potentially result in the airborne entrainment of asbestos due to the disturbance of asbestos-containing materials (if such materials are indeed present in the existing on-site structures). Asbestos is listed as a Toxic Air Contaminant (TAC) by CARB and as a Hazardous Air Pollutant (HAP) by the U.S. EPA. The risk of disease is dependent upon 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 (CARB 2001).

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, which are dependent on the size of the construction area and the nature of the construction operations involved, shall be incorporated and implemented. Furthermore, the construction and development associated with the proposed project would result in the temporary generation of NO_X, ROG, and PM_{10} emissions in addition to the potential airborne entrainment of asbestos due to demolition. Thus, project construction activities could result in potentially significant temporary short-term air quality impacts without the incorporation and implementation of the required control measures.

[redacted]

Air Quality - Long-term Local Mobile Source Impacts. *The proposed project would result in the generation of carbon monoxide (CO) at nearby intersections due to increased vehicular traffic on the local transportation network. However, the proposed project would not contribute to CO concentrations at these intersections that exceed the State Ambient Air Quality Standard of 9.0 parts per million (ppm) for 8 hours or 20 ppm for 1 hour. Therefore, project mobile sources would result in a* ***less-than-significant*** *long-term air quality impact.*

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 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 a 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.

CO concentrations were estimated for Existing and Existing Plus Project conditions at the Louise Ave/I-5 northbound and southbound ramp intersections, which are projected to operate at an unacceptable LOS. 1-hour and 8-hour CO concentrations were estimated based on worst-case meteorological conditions, PM peak hour traffic volumes as presented in the traffic analysis (Section 4.5 of this EIR), and composite emission factors modeled using the CT-EMFAC Computer Model. As indicated in Table 4.6-4, the estimated maximum 1-hour and 8-hour CO concentrations for Existing Plus Project conditions would be 13.7 ppm and 7.59 ppm at Louise Avenue/1-5 Northbound Ramp intersection and 14.03 ppm and 7.87 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 and would, therefore, be considered a less-than-significant impact.

Table 4.6-4
Localized Mobile Source Carbon Monoxide Concentrations

Intersection	Time Period	Maximum CO Concentration (ppm)[1]	
		Existing (2001)	Baseline Plus Proposed Project
Louise Avenue/I-5 Northbound Ramp	1-hr 8-hr	11.2 6.05	13.7 7.59
Louise Avenue/I-5 Southbound Ramp	1-hr 8-hr	9.7 5.21	14.3 7.87
Significance Thresholds	**1-hr** **8-hr**	**20** **9**	**20** **9**

[1] 1-hour and 8-hour CO concentrations were estimated using the CALINE4 model based on the assumptions outlined above and 1-hour and 8-hour CO background concentrations of 7.0 ppm and 3.6 ppm and a persistence factor of 0.7, interpolated from the 2000 and 2001 Stockton-Hazelton air quality monitoring station data.

Source: EDAW 2001

Air Quality - Long-term Regional Impact. *The proposed project would result in long-term regional emissions, primarily associated with mobile sources, that would exceed the SJVAPCD's recommended significant threshold of 10 tons/year for ROG and NOx. Therefore, project stationary and mobile sources would result in a* ***significant*** *long-term regional air quality impact.*

Regional area and mobile source emissions of ROG, NO_X, and PM_{10} 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.

Table 4.6-5
Regional Emissions Associated with the Proposed Project [1]

Sources	Emissions Generated (tons/yr)		
	ROG	NO_x	PM_{10}
Long Term Horizon 2010 [1]			
Area Source	15.88	6.71	.01
Mobile Source	58.29	110.31	4.24
Total	74.17	117.02	4.25
SJVAPCD Thresholds (tons/yr)	**10**	**10**	**-**

[1] Area source emissions associated with landscaping, natural gas, and consumer products were estimated based on default model settings. Mobile source emissions were estimated based on default model settings, trip generation rates of 9.57/dwelling unit for single family residential, 6.63/dwelling unit for apartment residential, 1.12/student for elementary school, 48.01/1,000 sq. ft. for retail, 13.60/1000 sq. ft. for office, correction for pass-by trips, double counting reduction for internal trips, pedestrian, transit, and bike effectiveness factors of 0.5, 0.2, and 0.5, and % trip reductions due proposed transit, pedestrian, and bicycle enhancing infrastructure for 2010.

Source: EDAW 2001

Regional area and mobile source emissions were estimated based on trip generation rates presented in the transportation analysis, proposed transit, pedestrian, and bicycle enhancing infrastructure, and default model settings for project buildout. Based on the modeling conducted, the proposed project would potentially result in long-term regional emissions of approximately 74.17 tons/yr of ROG and 117.02 tons/yr of NO_X, as summarized in Table 4.6-5. The long-term regional emissions that would exceed the SJVAPCD's recommended significant threshold of 10 tons/year for ROG and NOx. Thus, the proposed project would result in a significant air quality impact, with respect to long-term regional emissions.

4.6.3 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" will occur, no mitigation is identified below (this is the reason why some of the mitigation measures may skip numbers).

4.6-a **Air Quality - Short-Term Construction Impacts.** In accordance with SJVAPCD Guidelines (SJVAPCD 1998), the following mitigation, which includes SJVAPCD Basic, Enhanced, and Additional Control Measures, shall be incorporated and implemented during construction.

- 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 roads and offsite unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.

- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by pre-soaking.

- With the demolition of buildings, all exterior surfaces of the building shall be wetted during demolition.

- When materials are transported offsite, all material shall be covered, effectively wetted to limit visible dust emissions, or at least six inches of freeboard space from the top of the container shall be maintained.

- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at 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 %.

- 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.

- Areas 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.

In addition to the measures identified above, construction of the proposed project is required to comply with applicable SJVAPCD rules and regulations including the requirement of a CAL-OSHA qualified asbestos survey prior to demolition.

4.6-c **Air Quality - Long-term Regional Impact.** In accordance with SJVAPCD Guidelines (SJVAPCD 1998), the following mitigation shall be incorporated and implemented during operation.

- Transit Infrastructure: Provide transit enhancing infrastructure that includes transit shelters, benches, street lighting, route signs and displays, and/or bus turnouts/bulbs.

- VMT Infrastructure: Provide park-and-ride lots and/or satellite telecommuting centers.

- Pedestrian Infrastructure: 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 lighting, and/or pedestrian signalization and signs.

- Bicycle Infrastructure: Provide bicycle enhancing infrastructure that includes bikeways/paths connecting to a bikeway system, secure bicycle parking, and/or employee lockers and showers.

- Rideshare Operational: Implement carpool/vanpool program such as carpool ride matching for employees, assistance with vanpool formation, provisions of vanpool vehicles, etc.

- Services Operational: Provide on-site shops and services for employees such as cafeteria, bank/ATM, dry cleaners, convenience market, etc. Provide on-site childcare, or contribute to off-site child care services within walking distance.

- Parking Operational: Provide preferential parking for carpool and vanpool vehicles.

- Transit Operational: Provide transit incentives.

- Other Operational: Implement compressed work schedule and home-based telecommuting program.

- Area Source: Provide electric maintenance equipment, use solar, low-emissions, or central water heaters (residential and commercial), increase wall and attic insulation beyond Title 24 requirements (residential and commercial), and orient buildings to take advantage of solar heating and natural cooling and use passive solar designs (residential, commercial, and industrial).

In addition to the SJVAPCD Guideline requirements identified above, each on-site commercial business to employ 20 persons or more shall prepare and implement a trip reduction program to reduce motor vehicle trips to the greatest extent feasible. Each program shall be reviewed and approved by the City of Lathrop prior to issuance of business permits, and shall encourage carpooling, vanpooling, use of transit, and use of alternative modes of transportation (bicycles, electric vehicles, etc.).

4.6.4 RESIDUAL SIGNIFICANT IMPACTS

With incorporation and implementation of the requirements of Mitigation Measure 4.6-a during project construction, the proposed project would result in a less-than-significant impact with respect to emissions associated with construction and development.

With implementation of Mitigation Measure 4.6-c during operation, where applicable and feasible, the proposed project would still result in long-term regional emissions that would exceed the SJVAPCD's recommended significant threshold of 10 tons/year for ROG and NOx. Thus, the proposed project would result in a significant unavoidable impact with respect to long-term regional emissions.

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4.7 NOISE

The following section, prepared by Charles M. Salter Associates, Inc., evaluates the construction- and operations-related noise impacts of the proposed project.

Three dimensions of environmental noise are important in determining subjective response. These are:

- The intensity or level of the sound;
- The frequency spectrum of the sound; and
- The time-varying character of the sound.

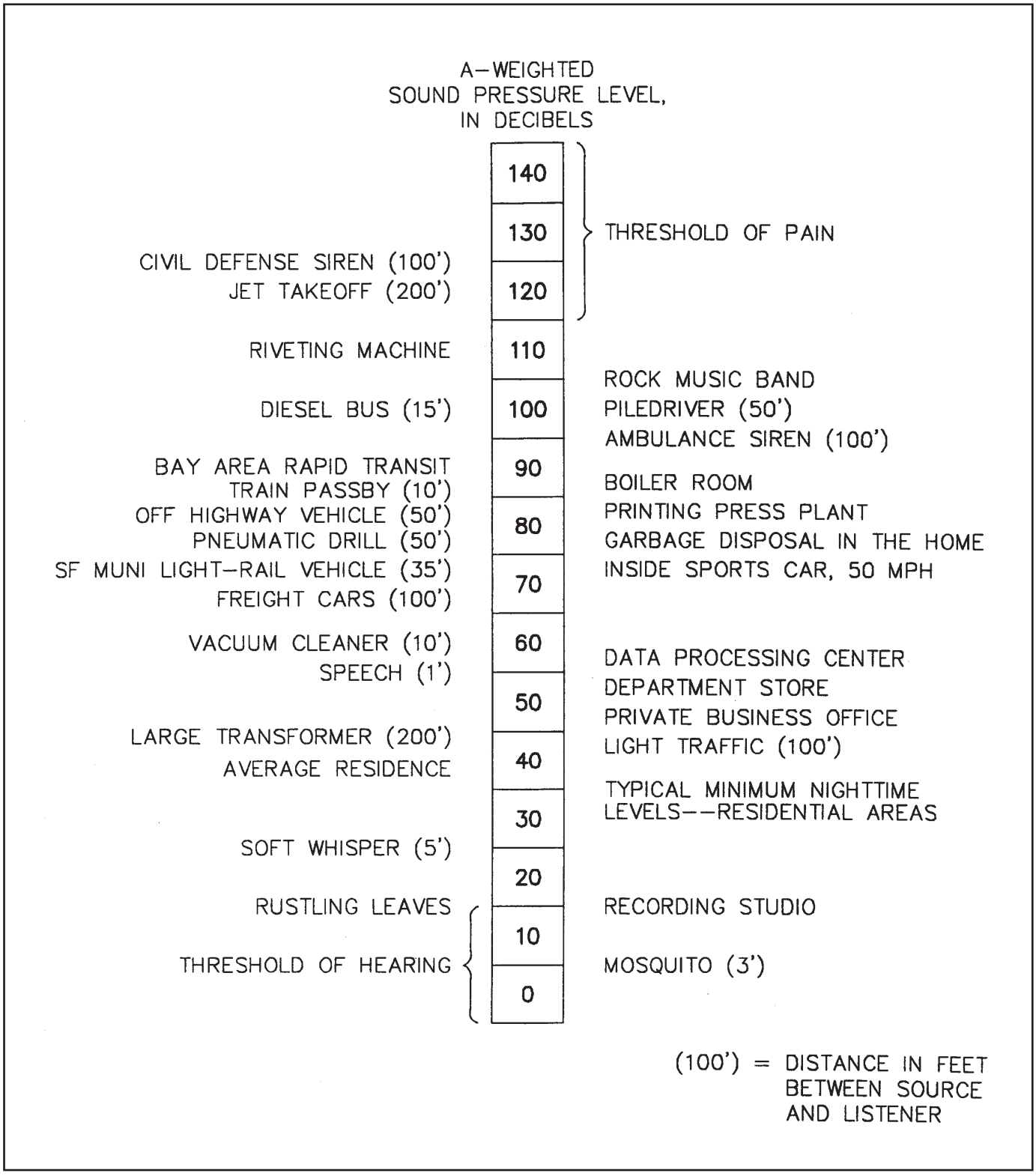
Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB), with 0 dB corresponding roughly to the threshold of hearing.

The frequency of a sound refers to the number of complete pressure fluctuations per second in the sound. The unit of measurement is the cycle per second (cps) or hertz (Hz). Most of the sounds that we hear in the environment do not consist of a single frequency, but of a broad band of frequencies differing in level. The name of the frequency and level content of a sound is its sound spectrum. A sound spectrum for engineering purposes is typically described in terms of octave bands that separate the audible frequency range (for human beings, from about 20 to 20,000 Hz) into ten segments.

Many rating methods have been devised to permit comparisons of sounds having quite different spectra. Surprisingly, the simplest method correlates with human response practically as well as the more complex methods. This simple method consists of evaluating all of the frequencies of a sound in accordance with a weighting that progressively de-emphasizes the importance of frequency components below 1000 Hz and above 5000 Hz. This frequency weighting reflects the fact that human hearing is less sensitive at low frequencies and at extremely high frequencies relative to the mid-range.

The weighting system described above is called A-weighting, and the level so measured is called the A-weighted sound level or A-weighted noise level. The unit of A-weighted sound level is abbreviated dBA. In practice, the sound level is conveniently measured using a sound-level meter that includes an electrical filter corresponding to the A-weighting characteristic. All U.S. and international standard sound level meters include such a filter. Typical sound levels found in the environment and in industry are shown in Exhibit 4.7-1.

Although a single sound-level value may adequately describe environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise is a conglomeration of distant noise sources that results in a relatively steady background noise having no identifiable source. These distant sources may include traffic, wind in trees, industrial activities, etc. and are relatively constant from moment to moment. As natural forces change or as human activity follows its daily cycle, the sound level may vary slowly from hour to hour. Superimposed on this slowly varying background is a succession of identifiable noisy events of brief duration. These may include nearby activities such as single vehicle passbys, aircraft flyovers, etc. which cause the environmental noise level to vary from instant to instant.



Source: Charles M. Salter Associates, Inc. 2001

Typical Sound Levels Measured in the Environment and Industry

EXHIBIT 4.7-1

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 3/02

EDAW

To describe the time-varying character of environmental noise, statistical noise descriptors were developed. L_{10} is the A-weighted sound level equaled or exceeded during 10 percent of a stated time period. The L_{10} is considered a good measure of the maximum sound levels caused by discrete noise events. L_{50} is the A-weighted sound level that is equaled or exceeded 50 percent of a stated time period; it represents the median sound level. The L_{90} is the A-weighted sound level equaled or exceeded during 90 percent of a stated time period and is used to describe the background noise.

As it is often cumbersome to quantify the noise environment with a set of statistical descriptors, a single number called the average sound level or L_{eq} is now widely used. The term L_{eq} originated from the concept of a so-called equivalent sound level which contains the same acoustical energy as a varying sound level during the same time period. In simple but accurate technical language, the L_{eq} is the average A-weighted sound level in a stated time period. The L_{eq} is particularly useful in describing the subjective change in an environment where the source of noise remains the same but there is change in the level of activity. Widening roads and/or increasing traffic are examples of this kind of situation.

In determining the daily measure of environmental noise, it is important to account for the different response of people to daytime and nighttime noise. During the nighttime, exterior background noise levels are generally lower than in the daytime; however, most household noise also decreases at night, thus exterior noise intrusions again become noticeable. Further, most people trying to sleep at night are more sensitive to noise. To account for human sensitivity to nighttime noise levels, a special descriptor was developed. The descriptor is called the Day/Night Average Sound Level (abbreviated DNL or L_{dn}) that represents the 24-hour average sound level with a penalty for noise occurring at night.

The DNL computation divides the 24-hour day into two periods: daytime (7:00 am to 10:00 pm); and nighttime (10:00 pm to 7:00 am). The nighttime sound levels are assigned a 10 dB penalty prior to averaging with daytime hourly sound levels. For highway noise environments, the average noise level during the peak hour traffic volume is approximately equal to the DNL.

The effects of noise on people can be listed in three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction;
- Interference with activities such as speech, sleep, and learning; and
- Physiological effects such as startle, hearing loss.

The sound levels associated with environmental noise usually produce effects only in the first two categories. Unfortunately, there has never been a completely predictable measure for the subjective effects of noise nor 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 time.

Thus, an important factor in assessing a person's subjective reaction is to compare the new noise environment to the existing noise environment. In general, the more a new noise exceeds the existing, the less acceptable the new noise will be judged.

With regard to increases in noise level, knowledge of the following relationships will be helpful in understanding the quantitative analysis in this section:

- Except in carefully controlled laboratory experiments, a change of only 1 dB in sound level cannot be perceived.
- Outside of the laboratory, a 3-dB change is considered a just-noticeable 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 community response.
- Standard building construction typically results in a reduction of exterior sound levels of approximately 15 dBA within the interior of residential buildings (with windows open).

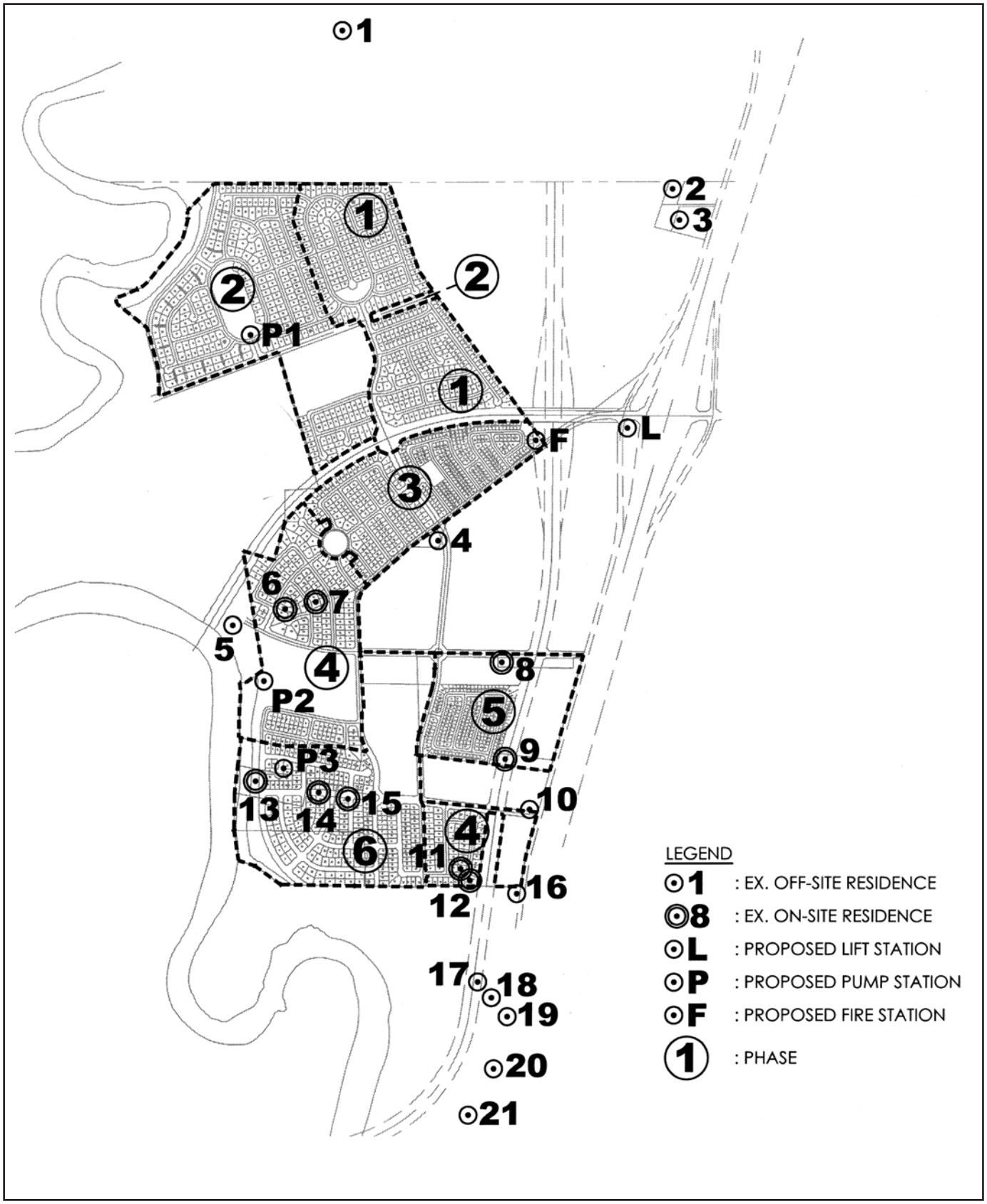
4.7.1 EXISTING CONDITIONS

PHYSICAL SETTING

The project site currently contains active farmland (alfalfa and row crops), farm residences, and farm-related structures (barns, sheds, etc.). As indicated in Exhibit 4.7-2, there are nine existing residences on the project site and 12 existing off-site residences within approximately 2,600 feet of the project site. These on- and off-site residences represent the sensitive noise receptors within the vicinity of the project site.

To quantify the existing noise environment on the project site, one continuous 24-hour measurement and one short-term 15-minute measurement was made on the project site (noise measurement locations A and B in Exhibit 4.7-3). The short-term measurement was correlated with the 24-hour measurement to determine the L_{dn}. Table 4.7-1 summarizes the results of the noise measurements. The dominant noise source at the project site is vehicular traffic along I-5 which is elevated in the vicinity of the project site. Other noise sources include Louise Avenue, Manthey Road, and tractors/combines on the existing agricultural fields. The measurements identified in Table 4.7-1, indicate that existing noise levels at the project site range from L_{dn} 52 dBA to 69 dBA. Several portions of the project site along Manthey Road lie closer to the I-5 than Noise Measurement Location A. The Ldn at the closest project location to the I-5 is calculated to be 75 dBA.

Existing noise levels at the on- and off-site residences discussed above are identified in Table 4.7-2. As indicated, existing noise levels at the on-site residences range from L_{dn} 55 to 69 dBA, while existing noise levels at the off-site residences range from L_{dn} 53 to 78 dBA.



Source: Charles M. Salter Associates, Inc., June 2002

Existing Noise-Sensitive Receptors and Proposed Stationary Noise Sources

EXHIBIT 4.7-2

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 08/02

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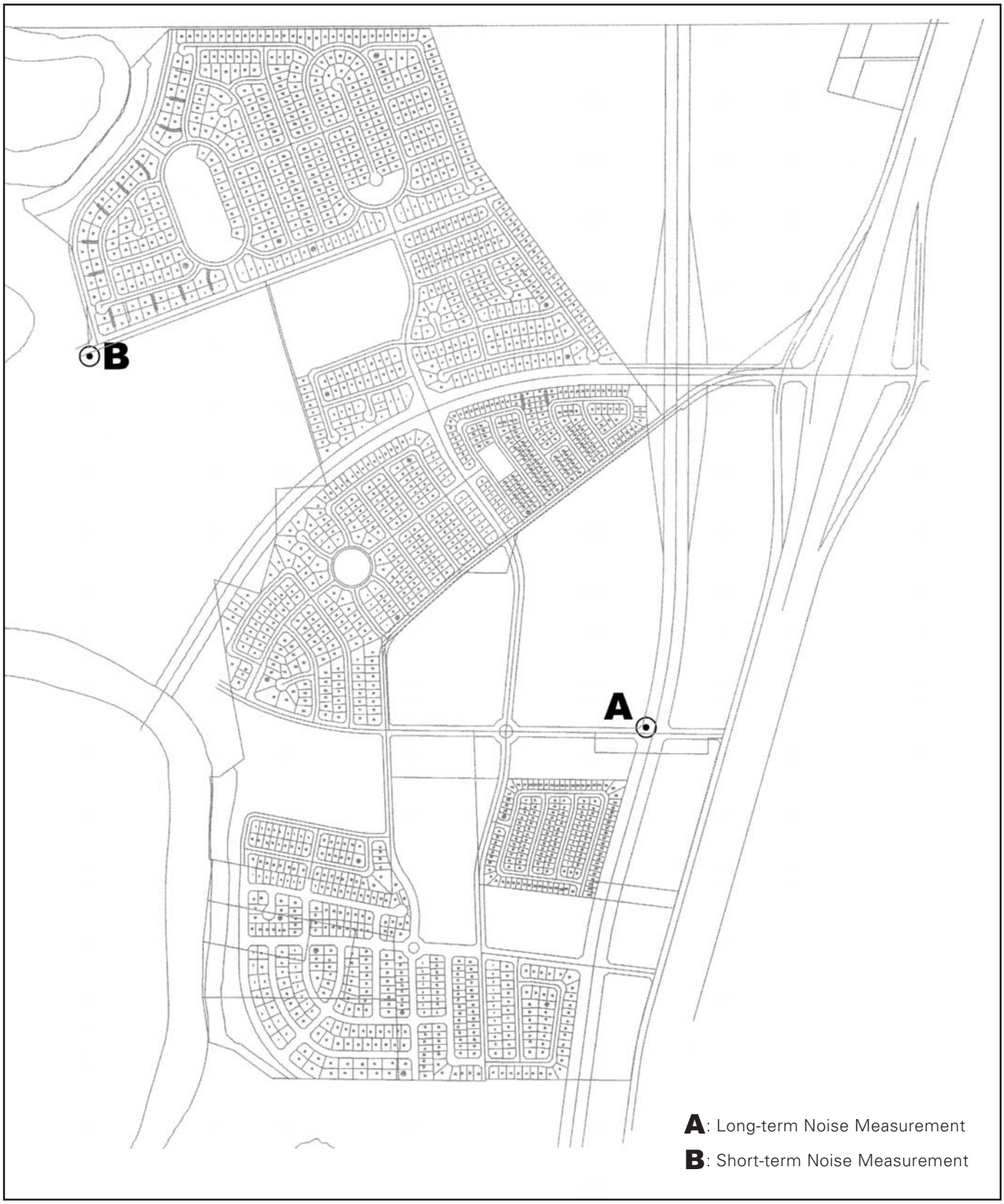

Source: Charles M. Salter Associates, Inc., 2002

Mossdale Landing Noise Measurement Locations

EXHIBIT 4.7-3

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

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Table 4.7-1
Existing On-site Noise Conditions

On-Site Noise Measurement Locations	Date/Time	A-Weighted Sound Level (dBA)				
		L_{eq}	L_{10}	L_{50}	L_{90}	L_{dn}
A. Near (Osborn) residence along Manthey Road 600 feet west of Manthey Road centerline	24 hours 28-29 June 2001	–	–	–	–	69
B. Westernmost portion of project site, near San Joaquin River	2:30-2:45 pm 29 June 2001	38	42	37	34	52*

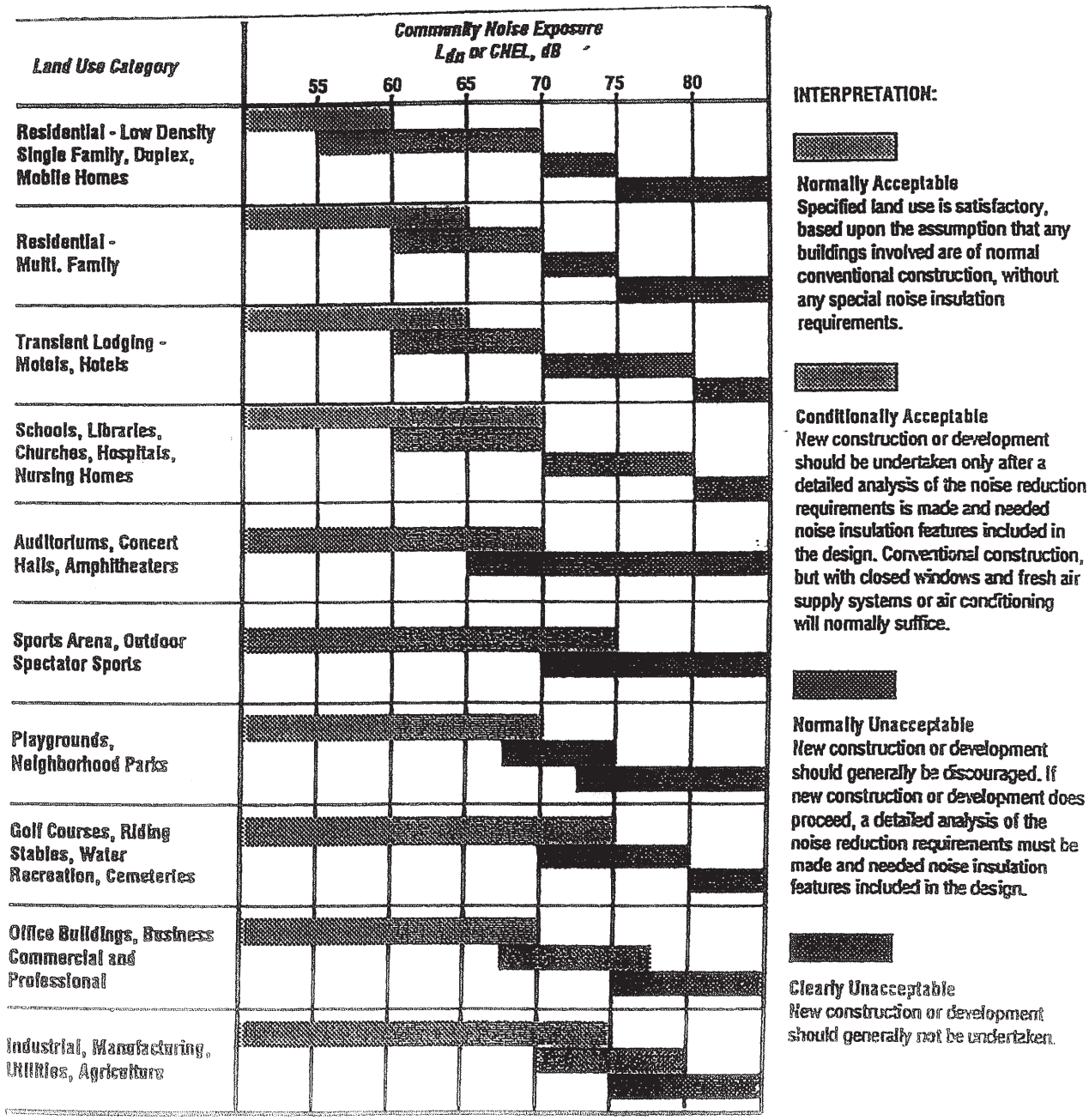
* The L_{dn} is estimated based on simultaneous measurements at the long-term noise monitoring position.

Source: Charles M. Salter Associates, February 28, 2002.

Table 4.7-2
Existing and Future Roadway Noise Levels at On-site and Off-site Noise Sensitive Receivers

Receiver (correspond to #s in Exhibit 4.7-2)	L_{dn} in dBA		
	Existing	Existing (with project)	Increase Due to Project
Off-site			
1	53	53	0
2	70	70	0
3	74	74	0
4	60	64	4
5	54	56	2
10	74	75	1
16	75	75	0
17	71	72	1
18	73	73	0
19	78	78	0
20	76	76	0
21	73	73	0
On-site			
6	55	57	2
7	56	57	1
8	67	69	2
9	69	70	1
11	68	69	1
12	69	69	0
13	56	57	1
14	58	65	7
15	59	66	7

Source: Charles M. Salter Associates, June 2002.



Source: Charles M. Salter Associates, Inc. 2001

Land Use Compatibility for Community Noise Environments

EXHIBIT 4.7-4

REGULATORY SETTING

Community Ambient Noise Degradation

Under CEQA, a determination must be made whether a proposed project will substantially increase the ambient noise levels. If so, the project is considered to generate a "significant environmental effect" and either mitigation must be provided or "Findings of Overriding Considerations" must be made.

In community noise assessments, it is "generally not significant" if there are no noise-sensitive sites located on or adjacent to the project site, if existing community noise levels at sensitive receptors increase by less than 3 dBA (i.e., less than perceptible), and/or if the proposed project will not result in violations of local noise ordinances or standards. Noise-sensitive uses include residences, schools, churches, hospitals, parks, and other areas where quiet is essential.

If the increase in noise exposure level is greater than 3 dBA, the significance of the impact will depend on the ambient noise level and the presence of noise-sensitive receptors. Noise impacts are "possibly significant" if increases in noise exposure levels are expected to be greater than 5 dBA with implementation of the project. Noise impacts are "generally significant" if the proposed project will cause noise standards or ordinances to be exceeded, or if the project increases the community noise levels by 6 to 10 dBA in built-up areas, or increases by 10 dBA or more in rural areas (EDAW 2001).

City of Lathrop

The City has adopted a Noise Element as part of its General Plan. The Noise Element identifies “normally acceptable,” “conditionally acceptable,” “normally unacceptable,” and “clearly unacceptable” nosie levels for different land use categories (Exhibit 4.7-4) The Noise Element lists policies that reflect the City’s commitment to noise goals outlined in the Element. These are listed below:

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 standard prescribed in Table VI-1 (Exhibit 4.7-5 in this EIR).

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:

    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 (Exhibit 4.7-5 of this EIR).

3. New development of industrial, commercial, or other noise generating land uses will not be permitted if resulting 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 (Exhibit 4.7-5 in this EIR) in areas containing residential or other noise-sensitive land uses.

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.

5. New equipment and vehicles purchased by the City shall comply with noise level performance standards consistent with the best available noise reduction technology.

In summary, if an area is identified as being noise impacted, then mitigation is required to meet the goals for preempted traffic and stationary noise sources.

The City's Noise Ordinance restricts the hours that construction activity may occur to weekdays between 7 a.m. and 10 p.m., and weekends between 9 a.m. and 11 p.m.

According to the City of Lathrop Planning Department, the existing project area is considered "urban" (see "U" column in Exhibit 4.7-5) (Walsh, 2001). Single-family residential areas within an urban environment must not be exposed to nighttime exterior noise levels above 50 dBA, or daytime exterior noise levels above 60 dBA for stationary noise sources (i.e., pumps mechanical equipment, air conditioners, etc.).

Railroad and highway traffic, are exempt from the City's noise control. Where it is not possible to achieve reductions of adjacent exterior noise to 60 L_{dn} or less by using the best available and practical noise reduction technology, a traffic-related exterior noise level of up to an L_{dn} of 65 dBA is allowed by the City (Grunwald, 1991). Additionally, the interior noise levels from traffic must not exceed 45 dBA with windows and doors closed. The project site is within the vicinity of I-5 and is dominated by freeway noise. For this reason, the City has determined that the above thresholds (identified in tabular form in Exhibit 4.7-5 are applicable (Walsh 2001).

NOISE LEVEL PERFORMANCE STANDARDS
For Non-Preempted Noise Sources

Exterior Noise Level Standards*

Receiving Land Use	Nighttime 10pm - 7am			Daytime 7am - 10pm		
	RS	S	U	RS	S	U
One and Two Family Residential	40	45	50	50	55	60
Multiple Family 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	

RS-Rural Suburban, S-Suburban, U-Urban

Nighttime 10:00pm - 7:00am	Noise Category	Cumulative No. of Minutes in any 1-Hour Period	Daytime 7:00am - 10:00pm
45	1	30	55
50	2	15	60
55	3	5	65
60	4	1	70
65	5	0	75

* **Each of the noise level standards specified in Table VI-1 (Exhibit 4.7-5 in this EIR) shall be reduced by five (5) dB for pure tone noises, noise consistently primarily of speech or music, or for recurring impulsive noises. The standards should be applied at a residential or other noise-sensitive land use and not on the property of a noise generating land use. Nighttime and Daytime standards are measured by dB.**

Source: City of Lathrop Noise Element, 1991

Noise Level Performance Standards

EXHIBIT 4.7-5

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 07/02

EDAW

4.7.2 IMPACTS AND MITIGATION

ANALYSIS METHODOLOGY

The traffic noise estimates in this section are based on field measurements, traffic volumes provided by Crane Transportation Group on October 6, 2001, and traffic noise modeling using the Federal Highway Administration's Traffic Noise Prediction Model (FHWA-RD-77-108). It was assumed that all of the existing and proposed roadways are at grade with the surrounding homes, except the west edge of Gold Rush Boulevard, which ramps up to cross the San Joaquin River, and I-5, which is elevated adjacent to the project site.

The noise from construction, stationary sources (pumps) and activities is based on published data or measurements that have been made for other projects. Normal sound propagation and attenuation were assumed for these sources. Specific assumptions are identified in the following sections.

THRESHOLDS OF SIGNIFICANCE

The Mossdale Landing project would result in a significant noise impact if one or more of the following would occur:

- Short-term construction noise that occurs outside the hours permitted by the City of Lathrop Noise Ordinance (i.e., outside the hours of 7 a.m. and 10 p.m. Sunday through Thursday, and 9 a.m. and 11 p.m. Friday, Saturday and legal holidays).

- Long-term operational stationary source noise in excess of the City's non-traffic noise standards, as presented in Exhibit 4.7-5, at noise-sensitive land use.

- Long-term traffic noise in excess of an L_{dn} of 60 dB outdoors and 45 dB indoors for noise-sensitive uses (residential, schools), or in excess of the City's land use compatibility guidelines as presented in Exhibit 4.7-4 for all other uses.

- Long-term operational traffic noise that results in an increase of 3 dBA or greater along roadways located in the vicinity of noise-sensitive receptors. For comparison, a 3 dBA change in sound level represents the minimum level noticeable to the human ear.

IMPACT ANALYSIS

[redacted]

Noise - Project Construction Noise. *Project construction noise could potentially exceed City of Lathrop noise performance standards as set forth in Exhibit 4.7-5. While these standards do not specifically apply to construction, and while project construction activities would be required to comply with City Noise Ordinance requirements restricting construction activities to daytime hours, some annoyance could be experienced by residents within the vicinity of the construction sites during the construction period. This would represent a significant impact.*

The proposed project would include the construction of residential, commercial, school, street, and fire station uses, as well as storm drain, pump station, and other infrastructure improvements on the project site; the development of off-site water, wastewater and recycled water pipelines from the project site to WRP #1; the development of an off-site wastewater lift station near the Manthey Road/Louise Avenue intersection; and the extension of a water pipeline along Louise Avenue from the project site to just east of I-5. In addition, the project would include approval of the Gold Rush Boulevard PPL within which a major arterial would later be constructed, and would include the development of several off-site roadway improvements required by traffic mitigation in Section 4.5 of this EIR (i.e., move Manthey Avenue 300 feet and add lane, provide additional lanes at the I-5/Louise Avenue interchange, and provide lane and/or traffic control improvements at the Manthey Road/Louise Avenue and Manthey Road/Main Street intersections). Construction of the project would occur in approximately six phases between 2003 and 2010. Maximum noise levels from typical construction range from 80 to 90 dBA at 50 feet.

Project construction activities at the project site could occur within 50 feet of all of the nine existing on-site residences, three of the existing off-site residences (#4, 10 and 16 as identified in Exhibit 4.7-2), and an indeterminate number of proposed residences. Hence, project construction noise would exceed the City's 60 dBA standard at these residences. In addition, depending on noise attenuation, several of the remaining nine existing off-site residences in the vicinity could experience project construction noise above 60 dBA.
Project construction activities associated with the proposed off-site sewer line from the project site to WRP #1 (Exhibit 3-8) would not occur within 50 feet of any existing on-site residence, but come within 50 feet of one existing off-site residence (#10 as identified in exhibit 4.7-2) and a small number of proposed on-site residences near the eastern boundary of the project site along Gold Rush Boulevard and Louis Avenue. Hence, project construction noise would exceed the City's 60 dBA standard at these residences.

Project construction activities associated with the proposed off-site water line in Louise Avenue from the project site to just east of I-5 (Exhibit 3-8) would not occur within 50 feet of any existing on-site residence or any of the 12 existing off-site residences in the vicinity, but would occur within 50 feet of a small number of proposed on-site residences near the eastern boundary of the project site along Gold Rush Boulevard. Hence, project construction noise would exceed the City's 60 dBA standard at these residences. In addition, depending on noise attenuation, several residences at the northwest corner of Louise Avenue and Harlan Road could experience project construction noise above 60 dBA.

Project construction activities associated with the proposed off-site pump station at Louise Avenue and Manthey Road would not occur within several hundred feet of any noise-sensitive receptor. Hence, no noise-sensitive receptor would be affected by construction noise associated with this facility.

Future construction of a major arterial within the proposed off-site segments of the Gold Rush Boulevard PPL would not occur within 50 feet of any existing on-site residences, but would occur within 50 feet of one existing off-site residence (#5) and approximately 20 proposed on-site residences along the proposed PPL. Hence, construction within the PPL would exceed the City's 60 dBA standard at these residences. In addition, depending on noise attenuation factors, one existing on-site residence (#6) and an indeterminate number of proposed residences could experience project construction noise above 60 dBA.

Construction activities associated with the off-site roadway improvements required by traffic mitigation in this EIR (i.e., Manthey Road realignment and lane addition, addition of lanes at I-5/Louise Avenue

interchange, lane and traffic control improvements at the Manthey Road/Louise Avenue and Manthey Road/Main Street intersections) would not occur within 50 feet of any existing on-site residence, any of the 12 existing off-site residences within the vicinity, or any of the proposed residences.

Based on the above, project construction activities would result in accedence of the City's 60 dBA standard at multiple existing and proposed sensitive noise receptors. Although City of Lathrop noise performance standards (Exhibit 4.7-5) do not specifically apply to construction, and while project construction activities would be required to comply with City Noise Ordinance requirements restricting construction activities to daytime hours, some annoyance could be experienced by residents within the vicinity of the construction sites during the construction period. This would represent a significant impact.

Impact **4.7-b**

Noise - Project Pump and Lift Station (Stationary) Noise*. The proposed project would include the operation of one new wastewater lift station and three new storwmater pump stations. The operation of these facilities would not result in exterior noise levels in excess of applicable standards (60 dBA) at existing off-site residences. However, the operation of one or more of these would result in exterior noise in excess of applicable standards at proposed on-site residences. This would represent a* ***significant*** *impact.*

The proposed project would include the development of one new wastewater lift station and three new stormwater pump stations (Exhibit 4.7-2). The lift station would be located near the intersection of Louise Avenue and Manthey Road; 2,300 feet west of the nearest existing residence and 1,000 feet from the nearest proposed on-site residence. Stormwater Pump Station #1 would be located in the proposed Crescent Park (West), 3,000 feet from the closest existing off-site residence (#5) and no less than 100 feet from the nearest proposed residence. Stormwater Pump Station #2 would be located in the proposed Community Park, 600 feet from the nearest existing off-site residence (#5) and no less than 200 feet from the nearest proposed residence. Stormwater Pump Station #3 would be located 1,200 feet from the nearest existing off-site residence (#5) and 150 feet from the nearest proposed on-site residence.

Noise levels associated with the operation of the lift and pump stations would range from 79 to 83 dBA at a distance of 50 feet with no noise attenuating features (EDAW, 2001). Table 4.7-3 shows the estimated exterior noise levels generated by operation of the lift and pump stations at the nearest existing and proposed residences. These estimates are based on a 6 dB noise level drop off per doubling of distance.

According to the City's stationary source noise standards (Exhibit 4.7-5), average exterior noise levels at an adjacent residential boundary may not exceed 60 dBA during the daytime and 50 dBA at night. As indicated in Table 4.7-3, operation of the proposed lift station and pump stations would result in noise levels at the existing and proposed residences above these standards. This would represent a significant impact.

Table 4.7-3
Estimated Noise Levels Generated by Project Pump and List Stations Without Noise Attenuation Features

Source	Average Noise Level (L_{eq} in dBA)

	Existing Residence	Proposed Residence
Wastewater Lift Station	50	57
Stormwater Pump Station #1	43	69
StormwaterPump Station #2	58	69
Stormwater Pump Station #3	51	69
Source: Charles M. Salter Associates, February 28, 2002.		

Impact **4.7-c**

Noise - Project Traffic Noise. *The project would generate traffic noise at on- and off-site streets that would result in traffic noise in excess of the City's exterior noise standard for residential uses of L_{dn} 60 dBA , or cause an increase in noise levels of 3 dBA or greater, at existing and proposed residences. This would represent a* ***significant*** *impact.*

Impacts to Existing Land Uses

The proposed project would include the development of 52.2 acres of on-site roadways, including an on-site arterial (Gold Rush Boulevard). The project would also include the development of several off-site roadway improvements required by mitigation in Section 4.5 of this EIR (i.e., Manthey Road realignment, addition of lanes at I-5/Louise Avenue interchange, lane and traffic control improvements at the Manthey Road/Louise Avenue and Manthey Road/Main Street intersections). Finally, the project would generate traffic associated with its proposed 1,690 residential units, 653,399 square feet of commercial uses, two elementary schools, and fire station. The development of the additional roadways and the generation of traffic under the proposed project would increase traffic noise at existing on- and off-site residences within the project area.

Based on existing with project traffic volumes in the traffic analysis (Section 4.5 and Appendix G of this EIR), traffic noise along the proposed major streets was calculated, and then attenuated by distance calculations, to come up with existing with project traffic noise levels at each of the on- and off-site residences evaluated in this section (Exhibit 4.7-2 and Table 4.7-2).

As indicated in Table 4.7-2, existing traffic noise levels exceed the 60 dB at the majority of the existing on-site and off-site residences analyzed. As indicated in Table 4.7-2, traffic associated with the proposed project would result in no or only minor (less than 3 dB) increases in traffic noise levels at the majority of the existing on- and off-site residences in the project area. The only exceptions would be at existing on-site residences #14 and 15 where traffic noise levels would increase by 7 dB, and at existing off-site residence #4 where traffic noise levels would increase by 4 dB. The high existing traffic noise in the area, and only minor increases in traffic noise under existing with project conditions, is indicative of situations where the noise environment is dominated by highway noise. In this case, traffic noise from the adjacent I-5 is dominating the noise environment in the vicinity of the project site.

Traffic noise impacts to the existing on- and off-site residences would be considered significant under two circumstances: (1) traffic noise is increased at the residences by 3 dB or greater; and/or (2) traffic noise results in exceedence of the 60 dB standard at the residences. As indicated in Table 4.7-2, the proposed project would increase traffic noise at two existing on-site residences (#14 and 15) and one existing off-site residence

(#4) by 3 dB or greater. As indicated in Table 4.7-2, the proposed project would also result in the accedence of the 60 dB standard at two on-site residences (#14 and 15). Hence, the proposed project would result in a significant traffic noise impact at a total of three existing residences (#4, 14 and 15).

Impacts to Proposed Land Uses

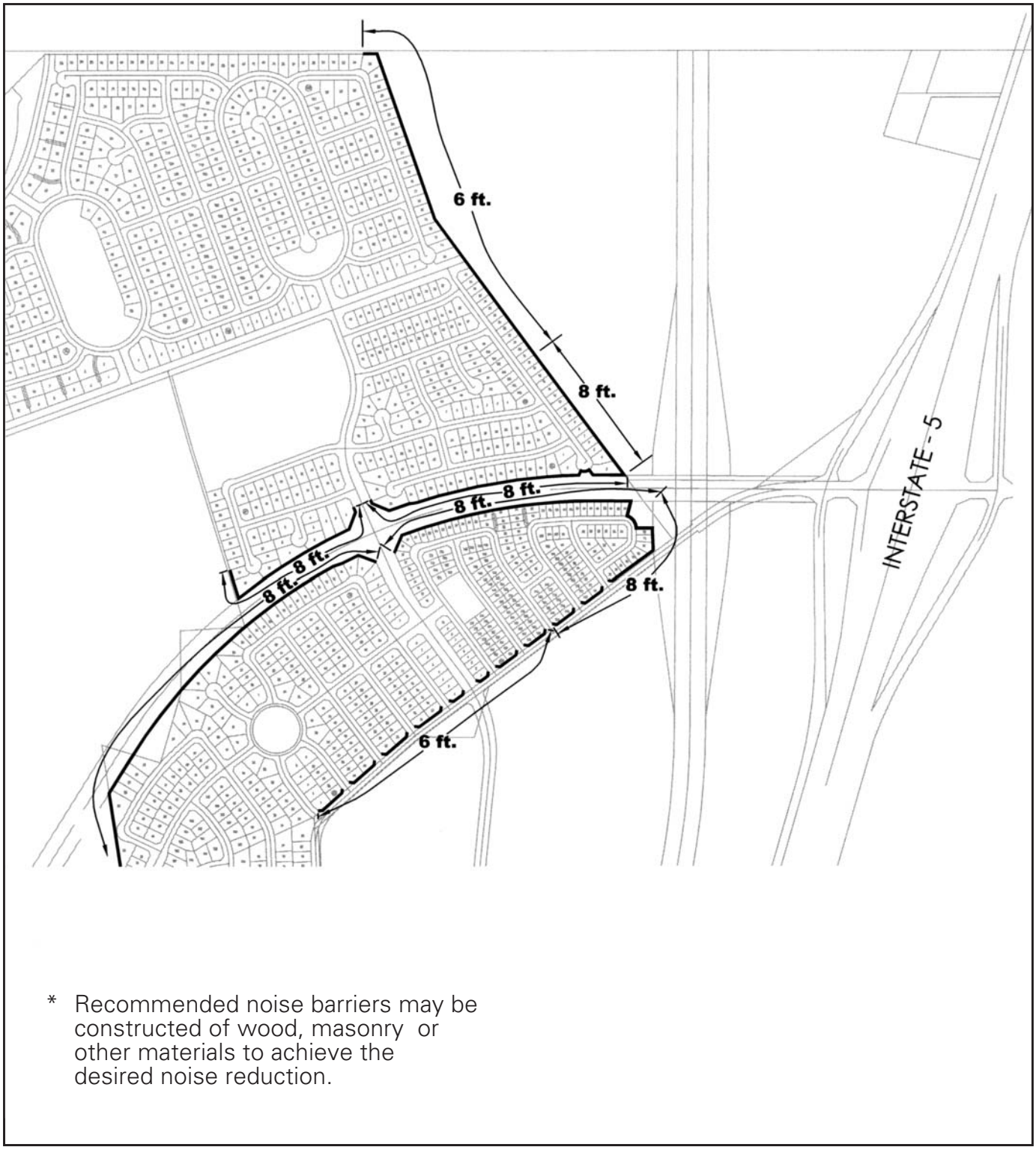
The dominant sources of traffic noise would be I-5, Gold Rush Boulevard, and Manthey Road . The entire project site is exposed to an existing L_{dn} of between 52 and 75 dBA due to I-5 noise. With the project, noise levels from I-5 would increase by less than 1 dB and remain at an L_{dn} of 75 dBA. This would expose future homes at the project site to a noise level in excess of the City's exterior noise limit of an L_{dn} of 60 dBA and would represent a significant impact to proposed on-site residential development.

Most project roadways would be within 50 feet of the nearest project residence (Exhibit 3-5). These homes, especially along Gold Rush Boulevard, would be exposed to noise levels in excess of an L_{dn} of 60 dBA. The plan does include some six-foot "community walls" (Exhibit 3-10). These are intended to separate land uses from roadways or other noise sources, and in many cases, these walls would suffice in reducing noise to an L_{dn} of 65 dBA or less. The plan also makes provision for taller community walls (six-foot walls built on berms) if required for sound attenuation purposes. The exact noise exposure at project residences would depend on the amount of acoustical shielding provided by these barriers and other buildings. Because additional information is not available to refine this analysis, this impact is considered significant. See Mitigation Measure 4.7-c (including exhibits 4.7-6 and 4.7-7), which identifies wall heights required to avoid significant traffic noise impacts on proposed land uses. Some of these require wall plus berm heights of up to 9 feet.

The proposed project development includes seven parks and two K-8 schools. All of the project parks and schools are located more than 1,500 feet from I-5. Due to acoustical shielding from surrounding homes and buildings, as well as their distance from I-5, these public spaces would be exposed to exterior noise levels below an L_{dn} of 60 dBA from existing and future highway traffic. This noise level would be considered "normally acceptable" by City noise standards and thus less than significant.

Impact **4.7-d**

Noise - Project Activity Noise. *The proposed project would generate activity noise (traffic, car horns, outdoor activities, amplified sound, field maintenance, etc.) associated with proposed on-site schools and parks, mechanical (air conditioner, etc.) and single event noise (car horns, delivery vehicles, etc.) associated with proposed commercial uses, and siren and operational noise associated with the proposed on-site fire station . The project's schools, parks, and fire station are not proposed within the proximity of existing noise sensitive uses, and thus would have less than significant noise impacts on such uses.*



* Recommended noise barriers may be constructed of wood, masonry or other materials to achieve the desired noise reduction.

Source: Charles M. Salter Associates, Inc., 2002

Mossdale Landing Noise Barrier Recommendations to Meet L_{dn} of 65 dBA or Less

EXHIBIT 4.7-6

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 08/02

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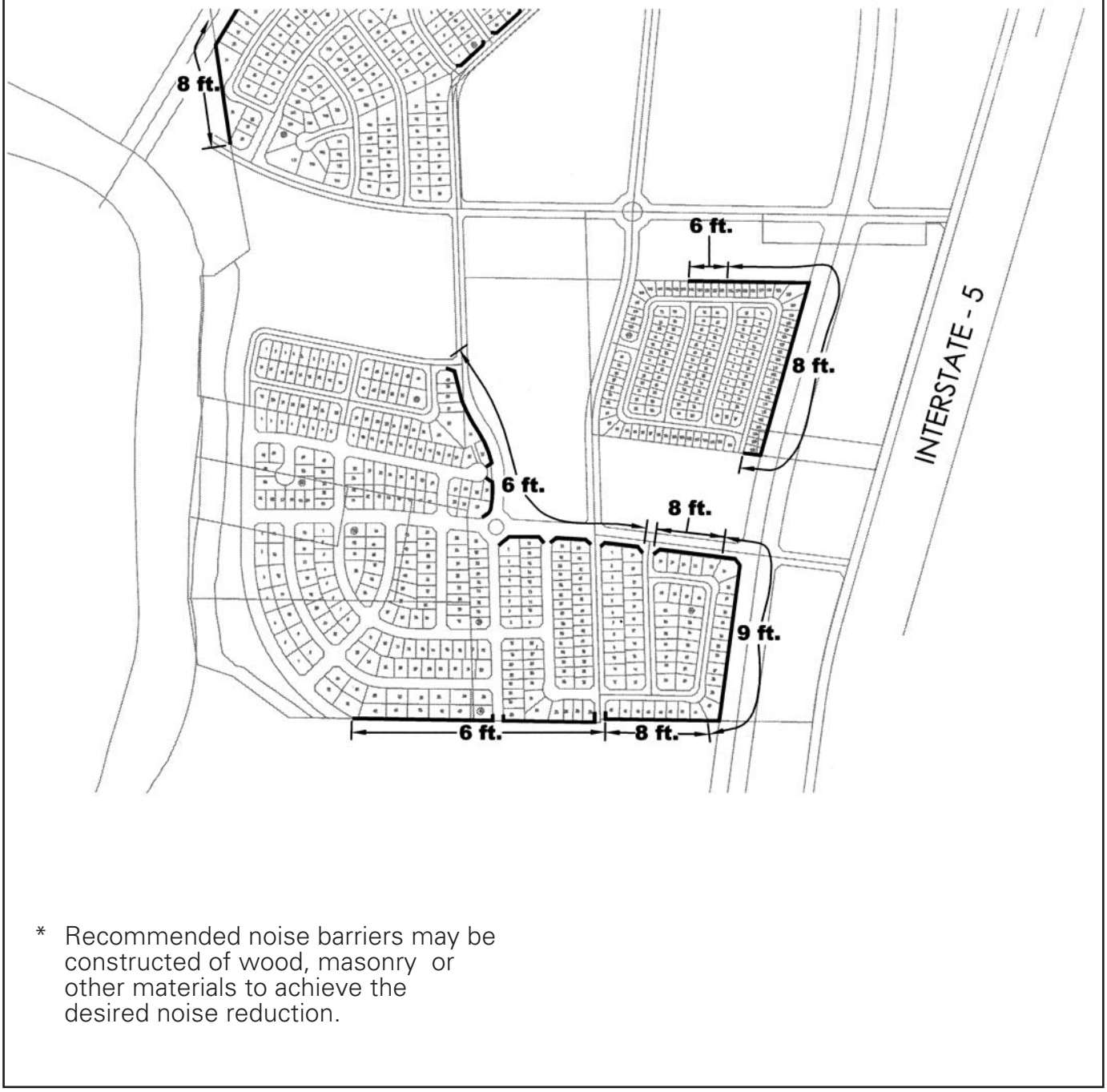

* Recommended noise barriers may be constructed of wood, masonry or other materials to achieve the desired noise reduction.

Source: Charles M. Salter Associates, Inc., 2002

Mossdale Landing Noise Barrier Recommendations to Meet L_{dn} of 65 dBA or Less

EXHIBIT 4.7-7

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 08/02

0 500 1000 FEET

NORTH

EDAW

However, the proposed schools, parks, commercial uses, and fire station would be developed adjacent to proposed on-site residential uses, and could generate noise in excess of City exterior noise standards for residential uses near said uses. Also, the proposed commercial uses would be developed within close proximity of existing on- and off-site residential uses, and could generate noise in excess of City exterior noise standards for residential uses near these commercial uses. Each of these would represent a ***significant*** *impact.*

Noise from Proposed Neighborhood Parks and Schools

The proposed project includes seven parks and two new K-8 schools. These proposed uses would be located near existing and proposed residences. Primary noise sources from schools include increased vehicular traffic and outdoor activities such as lunch, recess, gym class, amplified sound from sporting events and maintenance of fields. Parks have similar noise sources from ball games and field maintenance.

Based on a previous study, it is estimated that an L_{dn} of 61 dBA would result at 75 feet for school noise activity (Alameda County, 1999). In the previous study most of the noise came from car horns and engines as students arrived and departed from school. For noise associated with parks, it is estimated that an L_{dn} of 52 dBA at 150 feet would occur (Swinerton 2000). The noise level calculations for park activity are based upon noise generated by 80 to 100 children at lunchtime.

The nearest existing residence is more than 500 feet south of the nearest proposed park, The Green, and more than 1,500 feet north of the nearest proposed school, Mossdale School. It is estimated that the park noise would be less than an L_{dn} of 47 dBA, while the school noise would be below an L_{dn} of 60 dBA at the existing residence along Louise Avenue. These noise level estimates include some acoustical shielding that the surrounding homes and commercial development would provide. An L_{dn} of 47 dBA is below the City's goal of 60 dBA. Therefore, a less-than-significant impact would occur on existing residences.

The two proposed schools and many of the proposed parks have roadways separating them from residences. This would help minimize potential noise impacts due to the added distance. However, some public spaces such as the Terry School and Crescent Park would have homes immediately adjacent to them (common property line). These homes would have the potential to be exposed to levels in excess of the City's L_{dn} of 60 dBA goal. Therefore, a significant impact could occur.

Noise from Proposed Commercial Development

The plan includes the development of proposed commercial uses near the southeastern limits of the project along Manthey Road and near the proposed Mossdale School. The operation of these commercial uses would have the potential to impact both existing and project residences. Primary noise sources include mechanical equipment and noise generated by facility operations and parking lot activity.

Commercial development is also proposed along Manthey Road, on proposed Parcels V and W. These may be less than 200 feet from the nearest project residence. Parcel U, containing proposed Village Commercial development, shares a common property line with the nearest residential development. The other proposed Village Commercial development is located immediately adjacent to the proposed Mossdale School and near the proposed Community Park.

Mechanical noise and single-event noise from deliveries, car horns, and car engine noise may cause annoyance and have the potential to exceed City Performance Standards. This would represent a significant impact.

Noise from the Interim Fire Station

Under the proposed project an interim fire station would be developed on three on-site lots located near the southwest corner of the future Gold Rush Boulevard and future Golden Valley Parkway right-of-way. This interim fire station would not be located within the vicinity of any existing on- or off-site residences, but would be located adjacent and within the vicinity of multiple proposed on-site residences. Noise from this station could include sirens, mechanical equipment and daily operational noise that could result in exceedences of applicable City noise standards at the proposed residences in the vicinity. Such exceedences would represent a significant impact.

Impact **4.7-e**

Noise - Existing Adjacent Agricultural Noise. *The proposed project would not create new agricultural areas, and thus would not generate new agricultural-related noise (i.e., tractors, field hands, etc.). However, the proposed project would include the development of new on-site residential, school and park uses adjacent to existing agricultural activities, (activities that would be permitted to continue under the City's Right to Farm Ordinance) and thus could expose proposed noise-sensitive uses to agricultural-related noise levels in excess of City exterior noise standards. This would represent a* ***significant*** *impact.*

The proposed project would include operation of on-site agricultural fields on a temporary basis until buildout. The fields would be used as spray fields for project-generated recycled water disposal. Agricultural activities on these fields, as well as on off-site adjacent agricultural lands (which would be permitted to continue under the City's Right to Farm Ordinance), would be expected to continue the use of tractors, which would generate a maximum noise level of approximately 80 dBA at 50 feet. According to the Lathrop Noise Element (Noise level Performance Standards for non-pre-empted noise sources), the daytime and nighttime noise limit is a maximum of 75 dBA and 65 dBA, respectively, at a residential property line. Hence, tractors closer than 50 feet to the nearest property line could exceed City noise standards at the proposed residential uses (and potentially as the proposed school and park uses). Such exceedances would occur infrequently and intermittently, only occurring when tractors are used within 50 feet of proposed residential uses, and would eventually be eliminated altogether as the adjacent agricultural land is replaced with urban development as planned for under the adopted WLSP. Still, this potential for exceedance of applicable City noise standards at proposed residences at the agricultural/urban interface would represent a significant impact.

The WLSP EIR (page V-2) identifies the following as a mitigation measure to address the urban/agricultural interface that would result from development within the WLSP area (including development of the Mossdale Landing project):

> To reduce the potential for adverse impacts from agricultural operations upon residential areas, a buffer zone of 50-100 yards shall be provided between the line of residential or commercial development and the nearest line of farmland, with fencing of each line to discourage trespass. This buffer should be assured as a condition of development approval, with removal of the buffer not to occur until the next phase of urban expansion is approved.

According to the WLSP EIR, implementation of the above mitigation measure would mitigate agricultural/urban interface-related noise impacts associated with development under the WLSP (including Mossdale Landing) to less than significant levels.

The applicant for the Mossdale Landing project has indicated that provision of the buffer in the Mossdale Landing project would be economically infeasible given current market conditions. Furthermore, it has been determined that development of a block wall would both not avoid a significant agricultural noise impact by its self, and would be impractical given that existing agricultural operations would eventually be replaced with urban (primarily residential) uses under the WLSP, thus making the noise walls unneeded and an impediment to vehicular, pedestrian and bicycle circulation between neighborhoods in the future.

4.7.3 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" will occur, no mitigation is identified below (this is the reason why some of the mitigation measures may skip numbers).

4.7-a **Noise - Project Construction Noise.** The project shall comply with the City's Zoning Ordinance that prohibits construction operations between the hours of 10 p.m. and 7 a.m. on weekdays and 11 p.m. and 9 a.m. for all other days, without a permit. In addition, as required by the Ordinance, noisy stationary construction equipment shall be located at least 500 feet from nearby homes.

When project construction activities occur within 1,000 feet of existing or proposed residences, such activities shall further be restricted to the following hours:

- 7 a.m. to 7 p.m. weekdays
- 8 a.m. to 6 p.m. Saturdays
- None on Sundays or holidays.

All construction equipment shall be in good working order and mufflers shall be inspected for proper functioning. Construction equipment and truck routes shall be arranged to minimize travel adjacent to nearby residences. Similarly, construction staging areas shall be located away from existing residences.

The implementation of this mitigation measure would reduce Impact 4.7-a to-less-than significant levels.

4.7-b **Noise - Project Pump and Lift Station (Stationary) Noise.** Due to the proximity of pump stations to project land uses, the City's noise level standard for residential and public space land use may be exceeded. The City requires that the exterior noise level must not exceed 60 dBA during the daytime and 50 dBA at night for residences; the noise level may not exceed 60 dBA at any time for Public Space. In order to meet City standards, the pump station noise would need to be reduced by up to up to 23 dBA and the lift station noise would need to be reduced by 17 dBA. Therefore, the proposed wastewater lift station and stormwater pump stations shall each be fully enclosed by a structure that would attenuate noise from the pumps by at least 7 dBA and 23 dBA, respectively. The

plans for each of these structures shall be reviewed by an acoustical consultant to ensure they would meet the attenuation requirement.

The implementation of this mitigation measure would reduce Impact 4.7-b to less than significant levels.

4.7-c **Noise - Project Traffic Noise.** Many of the proposed residences near I-5 and the proposed arterials would require a noise barrier to achieve the City standard of an L_{dn} of 60 dBA. In some cases, noise barriers of up to 12 feet tall would be required to meet the L_{dn} of 60 dBA standard for exterior noise. Because a 12-foot wall can be visually obtrusive, the City allows the consideration of an L_{dn} 65 dBA goal, which would allow shorter barrier heights (Walsh 2001; also, see Noise Element Policy #2 identified in the "Regulatory Setting" subsection). With this approach, noise barriers would not need to exceed 9 feet in height (6-foot wall plus 3-foot berm) to achieve the City's alternate standard of an L_{dn} of 65 dBA for exterior noise. The project shall include the additional noise barriers identified in Exhibits 4.7-6 and 4.7-7 prior to occupancy of the proposed adjacent residential units.

The noise barriers may be constructed of wood, masonry or other material depending the desired noise reduction. The barriers shall have sufficient mass and shall not have discernible gaps. In cases where homes have driveways, the barrier shall be designed to protect main outdoor use areas such as backyards. If the applicant wishes to construct the noise barriers out of something other than masonry block, then a noise study shall be required to accompany the plans demonstrating that the alternative construction materials will be adequate to reduce the noise level to acceptable levels.

Buildings shall be oriented, where possible, to provide some acoustical shielding for outdoor use areas. The goal would be to block sound from major roadways. In some cases, future development may block roadway noise from reaching the outdoor use areas (i.e., homes along Louise). If the applicant can demonstrate, through analysis by an acoustical engineer, that the future design will meet the City's goal, then mitigation (barriers) may not be needed.

The highway traffic noise exposure may decrease for many project land uses if any portion of the remaining agricultural fields is eliminated. This would apply especially for any homes or buildings developed between project residences and I-5. If the applicant can prove compliance with the City noise standards, through analysis by an acoustical engineer, mitigation may not be needed in some areas.

Sound-rated windows and exterior walls may be needed for second floor units to lower the indoor noise level. The goal shall be to meet an indoor L_{dn} of 45 dBA. Indoor noise analysis by an acoustical engineer shall be undertaken, as part of the building approval process, to demonstrate compliance with the 45 dBA interior noise standard.

The implementation of this mitigation measure would reduce Impact 4.7-c to less than significant levels for proposed residences.

For the three existing residences (two on-site (#14 and 15), one off-site (#4)) that would be significantly affected by project traffic noise, no feasible mitigation measures are available to avoid these impacts. A

significant unavoidable adverse impact would occur. This impact would be temporary for the two on-site residences as these would eventually be replaced by project development.

4.7-d **Noise - Project Activity Noise (Schools and Parks).**

Schools and Parks

Noise barriers of at least 6 feet in height shall be included in the design for all project residences located immediately adjacent to a school or any commercial development.

Any public address systems proposed as part of the proposed schools or parks shall first be evaluated by an acoustical engineer for their compliance with City noise regulations. Such systems shall not be permitted if they would result in exceedance of applicable noise standards at adjacent noise sensitive uses.

Commercial Development and Fire Station

An acoustical consultant shall review the specific details and design of the commercial development, and the fire station to ensure the associated noises comply with the City's noise performance standards. Typical measures for mitigating these noises include sound rated enclosures for generators and silencers or sound barriers for ventilation equipment and loading dock activity. In addition, future residents within 500 feet of the proposed fire station shall be notified of the potential fire station noise in the disclosure statement for the project.

The implementation of this mitigation measure would reduce Impact 4.7-d to less than significant levels.

4.7-e **Noise - Existing Adjacent Agricultural Noise.** The project applicant shall develop six-foot wooden fencing between existing agricultural uses and proposed residential, school and park development. This fencing shall be accompanied by vegetative screening treatments to include trees and shrubs. In addition, future residents to occupy proposed project residences located along the agricultural/urban interface shall be notified of the potential for agricultural noise in the disclosure statement for the project.

The implementation of this mitigation measure would reduce Impact 4.7-e, but not to less than significant levels. A significant unavoidable adverse impact would occur.

4.7.4 RESIDUAL SIGNIFICANT IMPACTS

The Mossdale Landing project would result in significant noise impacts after mitigation from traffic noise (Impact 4.7-c) and agricultural noise (Impact 4.7-e). The residual significant traffic noise impact would involve two existing on-site residences (#14 and 15) (which would ultimately be replaced and one existing off-site residence (#4). The residual significant agricultural noise impact would be intermittent, infrequent, and potentially temporary (lasting only as long as the adjacent agricultural operations last), and would involve proposed residential, school and park uses at the agricultural/urban interface.

4.8 UTILITY SYSTEMS

This section analyzes the impacts of the proposed project on utility systems, including water, wastewater, recycled water, wastewater, electricity, natural gas, and solid waste.

4.8.1 EXISTING CONDITIONS

PHYSICAL SETTING

Water

The City's existing municipal water system consists of three water storage tank/booster pump stations that store and pump water from the City's four active wells, through the City's municipal water pipeline network to residential, commercial and other users within the City's service area. A fire booster pump and a potable water booster pump are included at the pump stations associated with each of the existing storage tanks. The pipelines include 47 miles of underground 2-inch to 16-inch diameter pipes used to distribute water to the City's approximately 2,600 water service connections. The wells are located on the east side of the City between Lathrop Road and Yosemite Avenue. The total capacity of the four wells is approximately 5,000 gallons per minute (gpm). The six-month high demand period for water in the City occurs from May to October (approximately 65% of annual demand). The highest water demand experienced by the City's municipal water system occurred in July 1996 when a peak rate of 1,823 gpm was produced by the wells.

Planned Municipal Water

The City has recently adopted the Lathrop Water, Wastewater and Recycled Water Master Plan (Master Plan). The Master Plan outlines the current condition of the water, wastewater and recycled water systems in the City and proposes improvements in the infrastructure to accommodate City growth through the year 2030 (including development of the Mossdale Landing site). The City's current water use is estimated at 2,100 AFY. Water demand within the City is projected to increase by 2030 to a maximum of approximately 18,800 AFY. The future water supply for the City is planned to be a combination of groundwater from the City's existing well system and four proposed new wells, along with surface water deliveries from the recently approved South San Joaquin Irrigation District's (SSJID) South County Surface Water Supply Project (SCSWSP). New wells would be installed near the southwest corner of the McKinley Avenue and Yosemite Avenue intersection in an expanded City well field. In addition, Well #5 would be replaced by the new Well #10, to be installed east of McKinley Avenue. By 2030 the City would obtain approximately 7,000 AFY of water from its groundwater well system, and 11,800 AFY from the SCSWSP, for a total of 18,800 AFY (EDAW 2001).

Consistent with the Master Plan, the City is preparing project-level plans and a project-level EIR for three of the new wells (Wells #21 through 23) that have been planned for in the adopted Master Plan and evaluated (at a programmatic level) in the certified Master Plan EIR. As planned for in the Master Plan, Wells #21 through 23 would serve near-term development in the City (Mossdale Landing, the first phases of River Islands, Lathrop Station, etc.). Upon the commencement of deliveries of surface water to the City from the SCSWSP (discussed more below), water from the three new wells would be used primarily to ensure adequate fire flows and would supplement water supplies during peak demand periods. As discussed in Chapter 3 and

under Impact 4.8-C, the Mossdale Landing project would be served by one of these three new wells (Well #21). The potential environmental affects associated with the development of Well #21 are summarized from the Master Plan EIR under Impact 4.8-c.

The SCSWSP is a joint project of SSJID and the cities of Manteca, Escalon, Lathrop, and Tracy (Participating Cities) to supply treated potable water to these participating cities. The primary objective of the SCSWSP is to provide a safe, reliable drinking water supply to the SSJID service area and the greater south county area. The project involves construction and operation of a new water treatment plant at Woodward Reservoir in Stanislaus County, and a 36.5 mile 20- to 54-inch water transmission pipeline with pumping facilities to deliver treated water to turnouts for each city. The SSJID's source of water is the Stanislaus River, based on pre-1914 rights and post-1914 appropriative rights for direct diversion and diversion to storage. SSJID proposes to develop the project in two phases: Phase I (2003-2011) would supply approximately 31,000 AFY; Phase II (2011-2025) would increase the total supply to approximately 44,000 AFY. The City of Lathrop's requested capacity allocation from the SCSWSP is 14.6 mgd (maximum day demand) under Phase I and an additional 6.5 mgd under Phase II, for a total capacity allocation of 21.1 mgd supplied by the SCSWSP to the City of Lathrop. Two points of connection (POCs) to the City of Lathrop's municipal water system are proposed as part of the SCSWSP: one west of the UPRR tracks between the San Joaquin River and Paradise Cut, and the other along Lathrop Road east of the UPRR tracks. A third potential point of connection is proposed along Yosemite Avenue east of the UPRR tracks. The SCSWSP has been approved and adopted, and the EIR for the project has been certified. The SCSWSP is anticipated to be constructed and in operation by 2005 (EDAW 2001).

The project site is not currently served by the City's municipal water system (Breitenburcher 2001). At present, water required for the existing agricultural operations and residential uses at the project site is supplied by private on-site wells and from pumping from the SJR (under existing agricultural water rights). It is estimated that existing water consumption at the project site amounts to 1,909 acre feet per year (AFY) which is supplied from riparian water rights (San Joaquin River water) and private wells. The nearest municipal water pipeline is located in Louise Avenue just east of Interstate 5 (I-5), approximately 2,000 feet to the east of the project site (east of I-5) (EDAW 2001). The project site does not currently receive any water from the City's municipal water system.

SB 610 Water Supply Analysis

As discussed in the following "Regulatory Setting" subsection, recent California legislation (Senate Bill 610, §10910 of the Water Code) requires that a Water Supply Assessment be prepared that demonstrates the availability of adequate existing and future water supplies to serve the proposed project. Such an Assessment has been prepared for the proposed project and is included as Appendix L of this EIR. One of the content requirements of the assessment is to identify the existing water suppliers that would supply water to a proposed project, and their existing water supplies and demands. Provided below is a summary of this discussion from the assessment.

The City of Lathrop will serve as the water supplier for the proposed project. At present, the City relies exclusively on groundwater as a municipal potable water supply. The City maintains five municipal wells, four of which are currently active (Nos. 6, 7, 8 and 9) located at the City's existing well field in East Lathrop (near the Yosemite Avenue/McKinley Avenue intersection). Based on 2001 data, the City has an existing

demand of approximately 2,700 AFY and an existing mechanical pumping capacity of over 8,000 AFY. City groundwater comes from the Central Valley aquifer system that occupies most of a large basin in central California between the Sierra Nevada and the Coastal Range Mountains. This groundwater basin, which is not adjudicated, has an average safe yield of approximately one acre-foot per acre per year. For Lathrop, this is equivalent to 7,200 AFY. Most of the fresh groundwater is encountered at depths of less than 2,500 feet. Several hydrologic formations underlie the Lathrop area; however, only the top two, the Victor and Laguna formations, are currently used as a source of fresh water. The Victor formation is the uppermost formation, extending from the ground surface to approximately 150 feet. The underlying Laguna formation extends to approximately 1,000 feet. Most municipal and industrial wells in Lathrop penetrate through the Victor formation into the Laguna Formation. The basin is currently in overdraft. To alleviate overdraft conditions, surface water will be utilized to augment current municipal supplies (see below).

In the future, the City's water supply will originate primarily with surface water from the South San Joaquin Irrigation District (SSJID) South County Surface Water Supply Project (SCSWSP). The SCSWSP is a joint effort of SSJID and the cities of Lathrop, Escalon, Manteca and Tracy to supply treated potable water to these participating cities from Woodward Reservoir via pipeline. The SCSWSP has been approved but not yet constructed. It is anticipated that water deliveries from the SCSWSP to the City of Lathrop will commence in 2005, with deliveries amounting to 8,000 AFY in 2010 (the buildout year for Mossdale Landing) and 11,791 AFY by 2025.

Wastewater

Wastewater generated in the City is currently treated and disposed of at Wastewater Recycling Plant (WRP) #1, a City-owned treatment plant located in the Crossroads Commerce Center, and at the Manteca Water Quality Control Facility (WQCF) in the City of Manteca. The City presently generates approximately 0.76 million gallons per day (mgd) of wastewater and is projected to generate 11.5 mgd by 2030 (EDAW 2001). Approximately 95% of the currently generated wastewater (0.73 mgd) is conveyed to the Manteca WQCF, with the remainder (0.03) going to WRP #1.

WRP #1 is located in the south end of the Crossroads development. It was designed to accommodate an average daily flow of 0.6 mgd of low strength effluent. Effluent disposal is to land through on-site evaporation/percolation ponds. The three existing percolation ponds located at this site have a design capacity of 0.2 mgd, but investigation and hydraulic analysis determined that the underlying soils have a lower transmissivity rate than expected, and the existing ponds have a maximum disposal capacity of approximately 100,000 gallons per day (gpd) (EDAW 2001). This severely limits the plant's capacity. Sludge produced by sewage treatment processes at the treatment plant is currently disposed of on-site. The current sludge generation rate is approximately 15-20 cubic yards per year (Bennett, pers. comm., 2000). A remedial project has been approved by the City to accommodate disposal of the full 0.6 mgd affected wastewater in a number of phases.

The City has a contractual relationship with Manteca whereby 14.7% of the Manteca WQCF capacity is allotted for Lathrop flows. Flows from the City to the Manteca WQCF currently average approximately 0.76 mgd, or 0.25 mgd less than the allocated capacity. Treated wastewater (secondary effluent) from the Manteca WQCF is disinfected and then the majority of the water is discharged into the San Joaquin River (SJR). A portion of the secondary effluent is used to irrigate crops.

To accommodate projected City wastewater generation through year 2030, new facilities are planned to be built in Lathrop under the Master Plan. Three WRPs are planned WRP #1, the City's existing WRP, would serve a mainly residential portion of East Lathrop, and would be expanded from its existing capacity of 0.6 mgd to first treat 3 and 6.1 mgd at buildout. WRP #2 would serve areas in sub-plan area #2 between I-5 and the SJR (i.e., Mossdale Village), treating 2.8 and 3.2 mgd at buildout. WRP #3 would serve Stewart Tract and would treat 0.0 and 4.5 mgd at buildout. Provisions are included in the Master Plan for WRP #1 to treat wastewater generated within Mossdale Village and Stewart Tract if development occurs there prior to the development of WRPs #2 or #3. The existing Manteca WQCF would serve mainly those industrial portions of East Lathrop not served by private industrial treatment plants. Each of the planned WRPs would meet all applicable regulations for Title 22 tertiary treatment and disposal. Effluent produced by the City's three treatment plants would be disposed of through a combination of recycling through land applications, conveyance to the Manteca WQCF, and eventually surface water discharge.

WRP #1 is currently proposed to be expanded in a series of phases, in addition to the remedial program identified above. Phase 1 would include conversion of the plant to tertiary treatment and expansion from 0.6 mgd to 3.6 mgd). An EIR is being prepared for the WRP #1 Phase 1 Expansion Project and it is currently planned to be expanded beginning in 2003. It is planned to serve some or all of the proposed Califia/River Island, Mossdale Village and Stonebridge projects as well as provide additional capacity for the existing Crossroads Commerce Center and other uses.

The project site is not currently served by the City's municipal sewer system. At present, wastewater generated by the existing agricultural operations and residential uses at the project site is disposed of via private septic systems. The nearest municipal sewer pipeline is located at the Louise Avenue and Harlan Road intersection, approximately 2,100 feet to the east of the project site (east of I-5) (EDAW 2001).

Recycled Water

Currently, the City does not maintain a citywide recycled water system. The Master Plan identifies the need to provide recycled water services to the City, and forecasts that recycled water demand in the City would be approximately 1,900 AFY under near-term conditions (2000-2004), increasing to approximately 4,700 AFY by build out (2030). Under the Master Plan, wastewater generated within the City would be treated to Title 22 disinfected tertiary levels by the three proposed WRPs discussed under the Wastewater subsection. The treated wastewater would then be delivered to public areas, agriculture and open space within the City for use as irrigation water via a new municipal recycled water distribution pipeline system (purple pipe) (EDAW 2001). Under the Master Plan, all recycled water use would occur in accordance with applicable Regional Board and California Department of Health Services water quality requirements. Although tertiary treated wastewater under the Master Plan would be discharged to the SJR during the non-irrigation season (November through February), operational storage would be provided at the treatment plants to balance production and delivery requirements.

The project site is not currently served by a recycled water system. At present, no recycled water use occurs at the project site, and no recycled water pipelines exist between the project site and WRP #1 (the treatment plant proposed under the Mossdale Landing project to receive project-generated wastewater) (EDAW 2001).

Electricity

Pacific Gas and Electric (PG&E) is responsible for the provision of electricity to the Lathrop area. PG&E delivers approximately 81,923 million kilowatt hours (kWh) of electricity to its 13 million customers throughout their 70,000 square mile service area in Northern and Central California (Palermo, pers. comm., 2001). The large service area is divided into 7 distribution areas, with Lathrop located in the Stockton Division of PG&E's Operations, Maintenance and Construction Area 5.

The project site is currently served by PG&E's electricity system, which delivers electricity via a number of existing transmission lines in the vicinity. These include transmission lines in Louise Avenue west of I-5 and in Manthey Road northwest of the project site (EDAW 2001). Additional smaller electrical lines exist along Louise Avenue and Harlan Road, east of I-5 (MacKay & Somps 2001).

Natural Gas

PG&E is responsible for the provision of natural gas to the Lathrop area. In 2000, PG&E delivered 281 million cubic feet (Mcf) of gas to customers with bundled gas sales and transportation services, and an additional 606 Mcf to customers with transportation service only (Palermo, pers. comm., 2001). The gas is delivered to the area from portions of the company's 43,000 miles of natural gas pipelines.

It is unknown whether the project site is currently served by PG&E's natural gas transmission system. The nearest known major natural gas transmission lines are located in Louise Avenue and Harlan Road, east of I-5 (MacKay & Somps 2001).

Solid Waste

The City manages solid waste in accordance with policies of the San Joaquin County (County) Solid Waste Management Plan (SWMP). The County is responsible for providing all facilities necessary to meet requirements of the SWMP and State Law, including resource recovery plants, transfer stations, and landfills (EDAW 2001).

Solid waste removal in the City is accomplished under a seven-year franchise agreement between the City and Lathrop Environmental Services, a private disposal company. The franchise agreement includes both residential and commercial sources of waste. Solid waste is either transported to the County's Lovelace Transfer Station, located one mile northeast of the City, or directly to the County's Class III Foothill Sanitary Landfill, located about 35 miles northeast of the City. The Contractor has the sole discretion in selecting the solid waste facility to which waste is transported. Industrial waste is collected by four different waste collection companies that operate under a permit issued by the City (EDAW 2001).

The Foothill Sanitary Landfill is located at 6484 Waverly Road, Linden, California. The existing used capacity is 3,076,198 tons and the unused capacity is 45,000,000 tons. With an average addition of 739 tons of solid waste per day in 2001, the total capacity of the landfill is estimated to be reached in 2054. Currently, there are no plans for new landfills nor for the expansion of the County's existing landfills (Hudson, pers. comm., 2001).

The City is preparing a Source Reduction and Recycling Element of the SWMP that sets forth a plan and program to meet State mandated (AB 939) reductions in solid waste generation and disposal. AB 939 requires that all California counties and incorporated cities achieve a 25% reduction in the solid waste stream to sanitary landfills by the year 1995 and a 50 % reduction by the year 2000. The 1999 Annual Report shows the unincorporated areas of the County met their goal with a diversion rate of 53%. The City has subsequently implemented and is expanding a diversion policy where by recyclable and reusable materials are separated from the disposable waste. Large industrial operators within the City manage their own recycling programs (EDAW 2001).

REGULATORY SETTING

The City's General Plan and the WLSP EIR provide goals, policies and mitigation measures for providing water, wastewater, recycled water, electricity, natural gas, and solid waste services to new developments. In addition, new state legislation has been enacted which ties proposed development to the availability of adequate water supplies to serve that project. These City and state requirements are summarized below.

Water, Wastewater, and Recycled Water

It is a goal of the General Plan to provide for a secure source of fresh water for existing and future residents, and for the reuse of wastewater and surface water so that there is no net increase in water pollution, including point and nonpoint sources (Lathrop General Plan, Goal 10: Water Supply, Wastewater and Surface Water Management).

The WLSP EIR requires that development within Stewart Tract and Mossdale Village shall be withheld until the extent of development to be approved is supported by assurance that a firm supply of potable water will be obtained and available for use commensurate with the amount of urbanization to be served (WLSP EIR, Water Supply, Mitigation Measure 1).

In addition to the City water, wastewater and recycled water goals/policies identified above, the State of California has enacted new water legislation applicable to projects of the size proposed. Senate Bill (SB) 610 (§10910 of the Water Code) ties approval of large developments (e.g., more than 500 dwelling units) such as the Mossdale Landing project to the availability of water supplies adequate to serve the proposed subdivision as well as other anticipated growth in the water supplier's service area. Under SB 610, a Water Supply Assessment must be prepared by the lead agency that demonstrates the availability of adequate existing and future water supplies to serve the project. The content requirements for the assessment include, but are not limited to, identification of the existing and future water suppliers, and quantification of water demand and supply by source in 5-year increments over a 20-year projection. This information must be provided for average normal, single-dry and multi-dry years.

An SB 610 Water Supply Assessment has been prepared for the proposed Mossdale Landing project. The assessment is included in its entirety as Appendix L of this EIR. The conclusions of the assessment are summarized under Impact 4.8-b.

Electricity and Natural Gas

All electrical distribution lines are to be placed underground. If overhead transmission line rights-of-way are required, they should be incorporated within open space corridors so as to minimize their visual impacts on the urban environment (Lathrop General Plan, Energy Utilities; Solid Waste Management, Mitigation Measure 1).

The City should adopt an energy conservation ordinance, with provision for energy conservation features as part of all construction intended for human use (Lathrop General Plan, Energy Utilities; Solid Waste Management, Mitigation Measure 4).

Solid Waste

A highly efficient system of solid waste pickup, hauling and disposal will be required because of the significant solid waste generation expected from large-scale commercial and industrial use (Lathrop General Plan, Energy Utilities; Solid Waste Management, Mitigation Measure 3).

4.8.2 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

The Mossdale Landing project would result in a significant utilities impact if one or more of the following would occur:

- Insufficient water supplies or wastewater treatment/disposal capacity were available to serve the project.
- Disposal capacity was not available to dispose of all the recycled water generated by the proposed project.
- Demand for electrical or natural gas service were generated that is substantial in relation to the existing demands.
- Insufficient landfill capacity was available to accommodate solid waste from the project.
- The project did not comply with federal, state, and local statutes and regulations related to solid waste.

IMPACT ANALYSIS

Utilities - Demand for Water During Construction. *The increased demand for water associated with project construction activities would result in* ***less-than-significant*** *impacts to water supplies.*

Project construction activities would create a temporary short-term demand for water. This demand would occur associated primarily with dust suppression and construction-vehicle wash-down. The potential sources of this water could include well water from the existing on-site wells, water pumped from the SJR (under existing water rights belonging to the existing on-site agricultural uses), water from any project dewatering activities, and municipal water from fire hydrants within the vicinity. Because this water use would be temporary and short-term, and because it would make up a very small proportion of the total potable water use within the City, it is not anticipated that surface and groundwater supplies would be measurably affected. Therefore, a less-than-significant impact would occur.

Impact **4.8-b**

Utilities - Demand for Potable Water at Buildout. *The proposed project would create a demand for potable water that could be met by future planned City water production facilities, but that could not be met by existing City water production facilities The latter would be a* ***significant*** *impact.*

The proposed project would result in the development of 1,690 dwelling units (du), 653,399 square feet of commercial uses, 164,000 square feet of school uses, a fire station on 0.4 acres, and 39 acres of parks, all of which would create a demand for potable water. Estimated potable water demand (from the SB 610 water supply assessment) for Mossdale Landing is shown in Table 4.8-1. As indicated, the proposed project would consume an estimated 765,496 gal/day (858 AFY) of potable water at buildout before factoring in proposed recycled water use at the project site, and 617,701 gpd (692 AFY) after factoring in proposed recycled water use. The latter would represent 36% of the current 1,909 AFY of water currently consumed at the project site by the existing on-site residential and agricultural uses from riparian water rights (San Joaquin River water) and private wells, 33% of the City's current municipally-provided potable water consumption, and 4% of the City's projected 2030 potable water consumption.

The potable water required to serve the proposed project would be provided by the City's municipal water system. A new well, Well #21, has been planned under the adopted Master Plan, evaluated in the Master Plan EIR, and is currently undergoing project-level CEQA review as part of a larger City-initiated well project. It would provide the water for the project initially. Well #21 would be developed near the southwestern corner of Yosemite Avenue and McKinley Avenue in an expanded City well field planned for under the Master Plan. This well would have a capacity of 1,250 gallons per minute (gpm), or 1,800,000 gpd, and would connect to the City's existing municipal water system to provide potable water for forecasted City growth, including Mossdale Landing. The proposed project would consume an estimated 34% of the capacity of the new well. Although some remaining unused capacity may exist in the City's municipal water system, the City has determined that development of Well #21 is required to meet the near-term incremental increase in demand for water associated with Mossdale Landing and other currently proposed projects (Walsh 2001).

Table 4.8-1
Project Potable Water Demand at Buildout (2010)

Land Use Type	Buildout Condition (2010)		Consumption Factor (gal/ac/day)[3]	Consumption (gpd)
	Gross Acres[1]	Unit/Sq Ft[1]		
Low Density Residential	268.1	1,238 du	1,760	471,865

Medium Density Residential	39.1	330 du	3,000	117,300
Village Commercial	6.7	175,111 sq ft	1,500	10,050
High Density Residential	6.0	122 du	4,200	25,200
Service Commercial	18.3	478.288 sq ft	1,500	27,450
Parks	39.0	--	300	11,700
Schools	33.7	164,000 sq ft [2]	3,000	101,100
Fire Station	0.4	--	2,100	840
Levee/Open Space	13.8	--	--	
Major Streets	52.2	--	--	
Recycled Water Storage Ponds and Spray Fields (interim)	--	--	--	--
Total **w/o Recycled Water:** **with Recycled Water:**	**477.3**	 **1,690 units** **817,339 sq ft**		 **765,496** **617,701**

[1] MacKay & Somps, June 2002.
[2] Personal communication between EDAW and the Manteca Unified School District, July 2001.
[3] Lathrop Water, Wastewater and Recycled Water Master Plan, March 2001.

Source: Nolte Associates 2002

Upon commencement of deliveries of surface water to the City from the SSJID's SCSWSP, water for the project would be provided through conjunctive use of both groundwater from Well #21 and surface water from the SCSWSP. Once SCSWSP water becomes available, it is the City's intentions that SCSWSP water be utilized as the primary water source for the project, with Well #21 providing supplemental water during peak demand and needed water pressure for fire flows.

If Well #21 is not developed prior to project development, the proposed project would create a near-term demand for potable water that could not be met by existing City water production facilities. This would represent a significant impact.

As indicated in Chapter 3, Project Description, the project applicant it reserves the right to exercise its riparian water rights as an option to obtaining potable water from the City's municipal water system. However, this is not currently proposed.

As indicated in Exhibit 3-8, new water pipelines would be developed both along Louise Avenue and Manthey Road, with the Louise Avenue pipeline connecting to an existing City water pipeline at Louise Avenue/Manthey Road, and the Manthey Road pipeline extending under I-5 through a jack and bore to an existing City water pipeline at Nestle Way. These proposed pipelines would be consistent with the pipeline improvements proposed in the Master Plan, except that the Manthey Road pipeline would be constructed in the near-term rather than at buildout as called for by the Master Plan. See Chapter 3 of this EIR, Project Description, for further description. See other subsections of Chapter 4 (Section 4.10, Terrestrial Biology, Section 4.12, Cultural Resources) for discussions of the potential environmental impacts associated with development of these pipelines.

The SB 610 Water Supply Assessment prepared for the Mossdale Landing project evaluates the adequacy of existing and future water supplies to meet the water demand created by Mossdale Landing in conjunction with existing and future cumulative development in the City over the next 20 years. The Assessment accomplishes this by identifying water demand and supply in five year increments over a 20-year time horizon, taking into account not only existing water supplies, but also planned and/or approved water supplies not yet constructed (such as new municipal wells planned for under the adopted Lathrop Water, Wastewater and Recycled Water Master Plan, and new surface water supplies under the approved SSJID SCSWSP). As indicated, future water supply for the City will consist of groundwater from the City's existing and planned municipal wells and surface water deliveries from the SCSWSP. Groundwater pumping during normal years will range from 2,520 AFY in 2005 to 4,100 AFY in 2025. Deliveries from the SCSWSP will begin in 2005, and during normal years will range from 5,200 AFY in 2005 to 11,800 AFY in 2025. Combined normal year future supply will range from 7,720 AFY in 2005 to 15,900 in 2025. At the same time, it is projected that future water demand (i.e., proposed project plus existing/future cumulative development) will range from 4,514 AFY in 2005 to 15,868 AFY in 2025. Future water supply during normal years will thus be adequate to meet future with project water demand.

Future water supply during drought years (i.e., single-dry and multi-dry years) will also be adequate to meet future with project water demand. Groundwater pumping during single-dry years will range from 2,520 AFY in 2005 to 4,100 AFY in 2025, while deliveries from the SCSWSP during single-dry years will range from 5,164 AFY in 2005 to 11,791 AFY in 2025. Combined water supply (groundwater plus surface water) during single-dry years will range from 7,684 AFY in 2005 to 15,891 AFY in 2025. Groundwater pumping during multi-dry years will range from 2,520 AFY in 2005 to 5,800 AFY in 2025, while deliveries from the SCSWSP during multi-dry years will range from 4,524 AFY in 2005 to10,140 AFY in 2025. Combined water supply (groundwater plus surface water) during multi-dry years will range from 7,044 AFY in 2005 to 15,940[1] AFY in 2025. Future water supply during single-dry and multi-dry years will thus be adequate to meet future with project demand during each of these drought scenarios (i.e., demand = 4,514 AFY in 2005 and 15,868 AFY in 2025).

See the SB 610 Water Supply Assessment for further discussion.

Impact **4.8-c**

Utilities - Environmental Impacts Associated with the Development of Well #21. *According to the Master Plan EIR, the construction and operation of Well #21 could contribute to significant geotechnical, groundwater, flooding, noise, farmland, aesthetics/views, terrestrial biology, and cultural resources impacts. These impacts would be reduced to* ***less-than-significant*** *levels with implementation of the mitigation measures identified in the Master Plan EIR.*

According to the Master Plan EIR, Well #21 would be one of seven new wells proposed within the City under the Master Plan. Each well would consist of a well head and pump rated at 1,250 gpm, would be a maximum

[1] In 2025, slightly more water would be available during multi-dry years than single-dry years because substantially more groundwater would be pumped during multi-dry years during this period to make up for the larger reduction in surface water deliveries. The pumping of this greater amount of groundwater during multi-dry years would not exceed the safe yield of the applicable groundwater basin.

of 10 feet in height, and would have a footprint and fenced area ranging from 1.0 to 1.3 acres in size. According to the Master Plan EIR, the construction and operation of Well #21, along with the five other wells to be developed in the immediate vicinity (Wells #22, #23, and #24, and Emergency Wells #1 and #2), would result in the following potentially significant environmental effects:

- Exposure of soils to erosion and loss of topsoil during construction.
- Facility damage or disruption of water service as a result of seismic events and/or shrink-swell of underlying soils.
- Advancement eastward of the 500 mg/l TDS groundwater concentration front.
- Localized flooding.
- Construction noise.
- Stationary source noise.
- Conversion of State-designated farmland to urban use.
- Aesthetic degradation and view blockage.
- Loss of burrowing owls or active nests.
- Destruction of undiscovered/unrecorded cultural resource sites.
- Exposure to pre-existing listed and unknown hazardous materials contamination.

As indicated in the Master Plan EIR, each of the above impacts, with the exception of farmland conversion, would be reduced to less-than-significant levels with the implementation of the mitigation measures recommended in the Master Plan EIR (EDAW 2001). In addition, it is not anticipated that the construction and operation of Well #21 in and of itself would generate the majority of the significant environmental effects identified above before mitigation given its small size, small scale, and lack of sensitive adjacent land uses. Therefore, a less-than-significant impact would occur associated with the construction and operation of Well #21.

Impact **4.8-d**

Utilities - Demand for Wastewater Treatment Capacity During Interim Conditions. *Inadequate wastewater treatment capacity currently exists to serve interim conditions under the proposed project. This represents a* ***significant*** *impact. Expansion of WRP # 1 would be required to provide Mossdale Landing with adequate treatment capacity during interim conditions.*

Table 4.8-2 identifies the wastewater that would be generated by interim development under the Mossdale Landing project. As indicated, the proposed project would generate an estimated 431,335gpd (0.431 mgd) of wastewater during the interim condition. This would represent approximately 56.7% of the 0.76 mgd of wastewater currently treated by the City's municipal wastewater treatment system (i.e., WRP #1 and the Manteca WQCF), and would greatly exceed the 100,000 gpd of wastewater capacity at WRP #1.[2]

[2] While the project's wastewater generation would represent a sizeable proportion of the total City wastewater currently treated by the City's municipal wastewater treatment system (i.e., WRP #1 and the Manteca WQCF), it should be clarified that a proportion of the wastewater currently generated within the City is not treated at the above treatment plants, but rather is treated at private pocket treatment plants associated with several industrial uses or is disposed of by private septic systems.

Table 4.8-2
Project Wastewater Generation During Interim Conditions (2007)

Land Use Type	Interim Condition (late 2007)		Generation Factor (gpd/acre)	Generation Factor (gpd/unit)[1]	Total Generation (gpd)
	Gross Acres	Units/Sq Ft			
Low Density Residential	235.3	1,071	--	288	308,448
Medium Density Residential	26.1	215 du	--	234	50,310
Village Commercial	68.7	175,111 sq ft	1,200	--	8,040
High Density Residential	6.0	122 du	--	189	23,058
Service Commercial	12.4	324,086 sq ft	1,200	--	14,880
Parks	39.0	--	100	--	3,900
Schools	33.7	164,000 sq ft [1]	670	--	22,579
Fire Station	0.4	--	300	--	120
Levee/Open Space	13.8	--	--	--	--
Major Streets	52.2	--	--	--	--
Recycled Water Storage Ponds and Spray Fields (interim)	51.7	--	--	--	--
Total:	**477.3**	**1,408 du 663,187 sq ft**	**--**	**--**	**431,335**

[1] Lathrop Water, Wastewater, and Recycled Water Master Plan, March 2001.

Source: Mackay & Somps, August 30, 2001. EDAW, October 2001.

It is proposed that wastewater generated by the proposed project would be treated at the expanded WRP #1. At present, WRP #1 has inadequate treatment capacity to serve interim development under the proposed project. In addition, WRP #1 currently treats wastewater to secondary standards. The on-site land disposal of treated wastewater proposed under the Mossdale Landing project requires that project wastewater be tertiary treated and disinfected to Title 22 standards for unrestricted use. Therefore, a significant impact would occur.

The expansion of WRP #1 has been planned for under the adopted Lathrop Water, Wastewater and Recycled Water Master Plan (Master Plan), and was programmatically evaluated in the certified Master Plan EIR. The expansion would increase the 0.6 mgd capacity of WRP #1 initially to 3.0 mgd, and eventually to 6.1 mgd. The initial expansion would serve the near-term development in the City, including Mossdale Landing, the first phases of River Islands, Lathrop Station, Stonebridge, and the Crossroads Commerce Center. A summary of the potential environmental impacts identified in the Master Plan EIR associated with the expansion of WRP #1 is provided under Impact 4.8-f. At present, project-level plans for expansion and improvement of WRP #1 are currently being prepared by the City and are undergoing project-level CEQA review as the WRP #1 Phase 1 Expansion Project. It is not currently known how much of the expanded capacity at WRP #1 would be available to the project; given the project applicant would be required to fund the projection's share of capacity for construction of the plant, it is reasonable to assume that the project's interim treatment needs would be provided at WRP #1. If WRP #1 were expanded and operational prior to occupation of the first phase of Mossdale Landing development, the aforementioned significant impact would be avoided.

Impact **4.8-e**

Utilities - Demand for Wastewater Treatment Capacity at Buildout. *Inadequate wastewater treatment capacity currently exists to serve buildout conditions under the proposed project. This represents a* ***significant*** *impact. Expansion of WRP # 1 would be required to provide Mossdale Landing with adequate treatment capacity at buildout.*

Table 4.8-3 identifies the wastewater that would be generated associated with buildout of the Mossdale Landing project. As indicated, the proposed project would generate an estimated 513,421 gpd (0.51 mgd) of wastewater at buildout.

Table 4.8-3
Project Wastewater Generation at Buildout (2010)

Land Use Type	Buildout Condition (2010)		Generation Factor (gpd/acre)	Generation Factor (gpd/unit)[1]	Total Generation (gpd)
	Gross Acres[1]	Unit/Sq Ft[1]			
Low Density Residential	268.1	1,238 du	--	288	356,544
Medium Density Residential	39.1	330 du	--	234	77,220
Village Commercial	6.7	175,111 sq ft	1,200	--	8,040
High Density Residential	6.0	122 du	--	189	23,058
Service Commercial	18.3	478,288 sq ft	1,200	--	21,960
Parks	39.0	--	100	--	3,900
Schools	33.7	164,000 sq ft[2]	670	--	22,579
Fire Station	0.4	--	300	--	120
Levee/Open Space	13.8	--	--	--	--
Major Streets	52.2	--	--	--	--
Recycled Water Storage Ponds and Spray Fields (interim)	--	--	--	--	--
Total:	**477.3**	**1,690 du 817,339 sq ft**	**--**	**--**	**513,421**

[1] Lathrop Water, Wastewater, and Recycled Water Master Plan, March 2001.

Source: Mackay & Somps, August 30, 2001. EDAW, October 2001.

As indicated under Impact 4.8-d, the expansion of WRP #1 has been planned under the Master Plan, with the initial planned expansion to 3.0 mgd intended to serve near-term development in the City, including Mossdale Village. Hence, adequate treatment capacity would be available to serve the proposed project if the initial expansion of the plant were completed and operational prior to buildout of the Mossdale Landing project. Failure to expand the plant in time to accommodate project buildout would represent a significant impact.

[redacted]

Utilities - Environmental Impacts Associated with the Expansion of WRP #1. *According to the Master Plan EIR, the expansion of WRP # 1 and commencement of associated discharges of treated wastewater to the SJR could contribute to significant geotechnical, groundwater, flooding, air, odor, noise, land use, aesthetics/views, terrestrial biology, cultural resources, and emergency impacts. 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, which would be significant and unavoidable.

The City's adopted Master Plan provides for expansion of WRP #1 over the next 30 years to serve forecasted growth of the City, including Mossdale Landing, with disposal of the treated wastewater accomplished through discharges to the SJR. The EIR prepared for the Master Plan, and certified by the City in 2001, evaluated the impacts of the Master Plan at a programmatic level, including expansion and improvement of WRP #1. According to the Master Plan EIR, the expansion and improvement of WRP #1would result in the following potentially significant environmental effects:

- Exposure of soils to erosion and loss of topsoil during construction.
- Facility damage or disruption of wastewater treatment service as a result of seismic events and/or shrink-swell of underlying soils.
- Localized flooding.
- Surface water quality (Cumulative Impacts)
- Construction air emissions.
- Odor impacts
- Construction noise.
- Stationary source noise.
- Land use incompatibility
- Aesthetic degradation and view blockage.
- Loss of burrowing owls or active nests.
- Loss of Valley Elderberries and the associated Valley Elderberry Longhorn Beetle.
- Loss of Swainson's hawk nests and other protected raptor nests.
- Loss of jurisdictional Waters of the U.S.
- Fisheries (Cumulative Impacts)
- Destruction of undiscovered/unrecorded cultural resource sites.
- Exposure to pre-existing listed and unknown hazardous materials contamination.
- Disruption of WRP operation during an emergency (power failure).

As indicated in the Master Plan EIR, the majority of the above impacts would be reduced to less-than-significant levels with the implementation of the mitigation measures identified in the Master Plan EIR. The three exceptions would be odor impacts, cumulative surface water quality impacts, and cumulative fisheries impacts, which would be significant and unavoidable (EDAW 2001).

Utilities - Demand for Recycled Water Disposal Capacity During Interim Conditions. *The proposed project would increase the demand for recycled water discharge areas. Because adequate discharge areas are proposed at the project site to accommodate the quantity of treated wastewater to be generated by the project during interim conditions, this would be considered a* ***less-than-significant*** *impact.*

All of the wastewater generated by the proposed project during interim conditions would be conveyed to WRP#1 via wastewater pipelines, treated at WRP #1, and then returned to the project for disposal via recycled water pipelines that follow the same alignment as the sewer pipelines. Recycled water systems proposed under the Mossdale Landing project would be designed in accordance with the Master Plan. Two connections

are proposed to the City's future recycled water system: one at the Louise Avenue/Manthey Road intersection, and one approximately 1.1 miles south of the Louise Avenue and I-5 intersection (Exhibit 3-8). This connection would require a jack and bore under I-5. Final pipeline sizes would be determined at the design stage of the project.

As shown in Table 4.8-2, the proposed project at the interim period would generate 0.431 mgd of wastewater requiring disposal. Under the proposed project, 100% of the treated wastewater generated by the proposed project during interim conditions would be land disposed at the project site. On-site land disposal would occur via use as irrigation for on-site public areas (i.e., parks, play fields, parkway strips, medians, etc.), and via temporary dedicated spray fields. The recycled water would be applied at the agronomic rates so as to minimize percolation below the root zone and avoid ponding at the surface.

A Water Budget Model for the Mossdale Landing project was prepared by Dixon Agronomics and is included as Appendix E of this EIR. The model defines the acreage needed for pond storage and application areas for the disposal of recycled water to be generated by the proposed project. For interim conditions, the model concludes that the Mossdale Landing project would require 14.5 acres of pond storage and 83 acres of application area to dispose of the 0.431 mgd of recycled water to be generated.

Over 83 acres of net on-site disposal area would be available during interim conditions, providing 0.457 mgd of disposal capacity. Under the proposed project, 19.7 acres of storage ponds and 83 acres of disposal area (29.3 acres of spray fields, and 53.7 acres of public landscaping) would be provided on-site during interim conditions to provide the above required 0.431 mgd of disposal capacity. During the winter months (approximately November through February), insufficient demand for irrigation water at the project site would require that a portion of this treated wastewater be stored in on-site storage ponds proposed on the Neighborhood 16 and Service Commercial parcels (Exhibit 3-9). The storage ponds would be 16 feet deep, have a storage capacity of 166 acre-feet, and would be lined with clay or a synthetic material. Because sufficient treated wastewater disposal capacity would be provided on the project site to dispose of the treated wastewater generated by the project during interim conditions, this would be considered a less-than-significant impact.

Impact **4.8-h**

Utilities - Demand for Recycled Water Disposal Capacity at Buildout. *Project buildout would result in an incremental increase in project wastewater requiring disposal. However, insufficient area would exist at the project site to dispose of this additional wastewater, and no off-site land disposal sites or river discharges have been identified. Therefore, a* ***significant*** *impact would occur.*

Adequate disposal capacity would be provided at the project site to dispose of 100% of the treated wastewater generated by the proposed project during interim conditions (Impact 4.8-g). However, at buildout, wastewater generation would increase while the on-site storage and disposal area would be decreased. As indicated in Table 4.8-3, the proposed project would generate 0.51 mgd of treated wastewater at buildout (an increase of 0.068 mgd over interim conditions). At the same time, the storage ponds and spray fields would be replaced with commercial and residential development, respectively, thus reducing on-site disposal area from 83 acres to 52.1 acres.

The Water Budget Model prepared for the project (Appendix E of this EIR) concludes that project buildout would result in an incremental increase in the demand for storage capacity of 0.141 mgd. This would include 0.082 mgd associated with the incremental increase in on-site development, 0.029 mgd associated with the loss of the on-site storage ponds, and 0.030 mgd associated with the loss of the on-site spray fields. Because no additional acreage would be available at the project site for the on-site land disposal of recycled water, off-site land or river disposal would be required. The amount of land required for off-site land disposal would include approximately 20 acres of storage ponds and 34 acres of application area. The project does not currently include proposals to provide the additional land or river disposal capacity required for buildout of the project. Therefore, a significant impact would occur.

Impact **4.8-i**

Utilities - Demand for Electricity and Natural Gas at Buildout. *The proposed project would generate an increase in the demand for electricity and natural gas. Because PG&E has the capability 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 within 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, a* ***less-than-significant*** *impact would occur.*

As indicated in Tables 4.8-4 and 4.8-5, the proposed project would increase electricity and natural gas demand within the City by 63,228 kilowatt hours per day (kWh/day) and 443,314 cf per day (cu ft/day), respectively. PG&E has acknowledged that it has adequate electricity and natural gas supplies to support the proposed project without affecting service to current users (due in part to long-term supply contracts executed on PG&E's behalf by the California Department of Water and Power) (Palermo 2001). Also, multiple new power plants have come on-line, and multiple other power plants are in the planning and construction stages, since the State's energy crises of early summer 2001. Finally, the energy demands to be created by the proposed project cannot be considered "substantial" in relation to the total amount of energy supplied by PG&E within its Northern and Central California service area (estimated in year 2000 to be 81,923 million kWh of electricity and 887 Mcf of natural gas (Palermo 2001). Therefore, while PG&E has acknowledged that Mossdale Landing would experience the same possibility of electric service interruption due to a lack of statewide electric supply availability as any other development within the California Independent System Operator's jurisdiction, the project's potential impacts on existing electricity and natural gas supplies are considered less than significant.

Table 4.8-4
Project Electricity Demand at Buildout (2010)

Land Use Type	Buildout Condition		Consumption Factor (kW-h/day)[4]	Consumption (kW-h/day)
	Acres[1]	Unit/Sq Ft[1]		
Low Density Residential	268.1	1,238 du	15.41 per du	19,078
Medium Density Residential	39.1	330 du	15.41 per du	5,085
Village Commercial	6.7	175,111 sq ft	0.037 per sf	6,479
High Density Residential	6.0	122 du	15.41 per du	1,880
Service Commercial	18.3	478,288 sq ft	0.037 per sf	17,697
Parks	39.0	--	--	--
Schools	33.7	164,000 sf[2]	0.016 per sf	2,624
Fire Station	0.4	--	92.46 per station	92

Levee/Open Space	13.8	--	--	--
Major Streets	52,2	--	--	--
Recycled Water Storage Ponds and Spray Fields (interim)	--	--	--	--
Water Storage Tank/Booster Pump Station	--	--	--	3,625 [3]
Stormwater Pump Stations (3)	--	--	--	5,001 [3]
Wastewater Lift Station	--	--	--	1,667 [3]
Total	**477.3**	**1,690 du 817,339 sq ft**	**--**	**63,228**

[1] MacKay & Somps, April 29, 2002.
[2] Personal communication between EDAW and the Manteca Unified School District, July 2001.
[3] Lathrop Water, Wastewater and Recycled Water Master Plan EIR, March 2001.
[4] *CEQA Air Quality Handbook, South Coast Air Quality Management District, April 1993.*

Source: EDAW 2002

Electricity and natural gas would be provided to the project site via one or two connections to existing electricity and natural gas transmission lines located east of I-5 in Louise Avenue, Manthey Road, and Nestle Way. A dry utility trench (joint trench) would be provided to the Mossdale Landing project via Louise Avenue. The joint trench would be constructed within the Louise Avenue right-of-way or along a public utility easement. A potential location for a second connection may be provided along the proposed utility sewer/water/recycled water crossing approximately 4,800 feet south of Louise Avenue. PG&E will determine precise locations and types of connections at the design stage of the proposed project. Because the proposed electrical and natural gas utility improvements would be required to comply with all existing City, PG&E, and applicable Building Code requirements, it is anticipated that the proposed electricity and natural gas utility improvements would be sufficient to serve the proposed project. No impact would occur.

Table 4.8-5 Project Natural Gas Demand at Buildout (2010)				
Land Use Type	Buildout Condition		Consumption Factor (cubic feet/day) [3]	Consumption (cubic feet/day)
	Acres [1]	Unit/Sq Ft [a]		
Low Density Residential	268.1	1,238 du	221 per du	273,598
Medium Density Residential	39.1	330 du	221 per du	72,930
Village Commercial	6.7	175,111	0.097 per sf	16,985
High Density Residential	6.0	122 du	138 per du	16,836
Service Commercial	18.3	478,288 sq ft	0.097 per sf	46,394
Parks	39.0	--	--	--
Schools	33.7	164,000 sf [2]	0.097 per sf	15,908
Fire Station	0.4	--	663 per station	663
Levee/Open Space	13.8	--	--	--
Major Streets	52.2	--	--	--
Recycled Water Storage Ponds and Spray Fields (interim)	--	--	--	--
Total	**477.3**	**1,690 du 817,399 sf**	**--**	**443,314**

[1] MacKay & Somps, April 29, 2002.
[2] Personal communication between EDAW and the Manteca Unified School District, July 2001.
[3] *CEQA Air Quality Handbook, South Coast Air Quality Management District, April 1993*

Source: EDAW 2002

PG&E has indicated that the proposed project in combination with cumulative development in the City, may necessitate the need to upgrade existing electrical substation and transmission lines; expand existing electrical substations to their ultimate buildout capacity; build new electrical substations and transmission lines; and build new natural gas regulator stations, valve lots, and distribution/transmission lines. See Chapter 5, Cumulative Impacts, for further discussion.

Impact **4.8-j**

Utilities - Increased Generation of Solid Waste at Buildout. *The proposed project would substantially increase solid waste generation. However, due to existing long term available capacity at the Foothill Sanitary Landfill, the proposed project would have* ***less-than-significant*** *impacts on local solid waste facilities.*

As indicated in Table 4.8-6, project implementation would result in an increase in solid waste generation of an estimated 28,919 pounds per day (lbs/day). The Foothill Sanitary Landfill has sufficient permitted capacity to accommodate the project's solid waste disposal needs since its capacity is not expected to be reached until the middle to latter part of the next century. In addition, the proposed project would comply with all federal, state, and local statutes and regulations related to solid waste reduction/recycling. Therefore, this would be considered a less-than-significant impact.

Table 4.8-6
Project Solid Waste Generation at Buildout (2010)

Land Use Type	Buildout Condition		Generation Rate (lbs/day)[3]	Generation (lbs/day)
	Acres[1]	Unit or Sq Ft[2]		
Low Density Residential	268.1	1,238 du	12 per du	14,856
Medium Density Residential	39.1	330 du	10 per du	3,300
Village Commercial	6.7	175,111	13 per 1,000 sf	2,276
High Density Residential	6.0	122 du	8.6 per du	1,049
Service Commercial	18.3	478,288 sq ft	13 per 1,000 sf	6,218
Parks	39.0	--	--	--
Schools	33.7	164,000 sf[2]	7 per 1,000 sf	1,148
Fire Station	0.4	--	72 per station	72
Levee/Open Space	13.8	--	--	--
Major Streets	--	--	--	--
Recycled Water Storage Ponds and Spray Fields (interim)	--	--	--	--
Total	**477.3**	**1,690 du 817,399 sf**	**--**	**28,919**[4]

[1] MacKay & Somps, April 29, 2002.
[2] Personal communication between EDAW and the Manteca Unified School District, July 2001.
[3] California Integrated Waste Management Board Website (**http://www.ciwmb.ca.gov/wastechar/),** October 11, 2001.
[4] Does not include green waste from parks

Source: EDAW 2002

4.8.3 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" will occur, no mitigation is identified below (this is the reason why some of the mitigation measures may skip numbers).

4.8-b **Utilities - Demand for Potable Water at Buildout.** No occupancy of the proposed project shall take place until Well #21 is constructed, water infrastructure (pipelines, etc.) to the project site is completed, and said well and water infrastructure are capable of making potable water deliveries to the project site.

Implementation of this mitigation measure would reduce Impact 4.8-b to a less-than-significant level.

4.8-d **Utilities - Demand for Wastewater Treatment Capacity During Interim Conditions.** Interim development under the Mossdale Landing project shall not commence until both adequate wastewater treatment capacity and tertiary treatment to Title 22 standards for unrestricted use are available at WRP #1 to serve this interim development.

Implementation of this mitigation measure would reduce Impact 4.8-d to a less-than-significant level.

4.8-e **Utilities - Demand for Wastewater Treatment Capacity at Buildout.** Buildout development under the Mossdale Landing project shall not commence until both adequate wastewater treatment capacity and tertiary treatment to Title 22 standards for unrestricted use are available at WRP #1 to serve this buildout development.

Implementation of this mitigation measure would reduce Impact 4.8-e to a less-than-significant level.

4.8-h **Utilities - Demand for Recycled Water Disposal Capacity at Buildout.** Buildout of the proposed project shall not commence until and unless additional disposal capacity is provided to dispose of the incremental increase in treated wastewater to be generated by the proposed project between interim conditions and buildout. The additional disposal capacity may be provided either to land or to the SJR. For land disposal, buildout shall not commence until:

- 20 acres of off-site storage pond area and 34 acres of off-site spray fields are found for the disposal of the additional 0.141 MGD of treated wastewater to require disposal under project buildout;
- infrastructure is developed to convey this additional treated wastewater to the off-site storage and disposal areas;
- the off-site storage ponds are lined;
- the application occurs at agronomic rates; and
- the off-site disposal system is operational.

For river disposal, buildout shall not commence until river discharges are permitted in the context of WRP expansions and/or new WRPs under the Lathrop Water, Wastewater and Recycled Water Master Plan.

Implementation of this mitigation measure would reduce Impact 4.8-h to a less-than-significant level.

4.8-j **Utilities - Generation of Solid Waste at Buildout.** While no mitigation is required for Impact 4.8-j, which is identified as less than significant, the WLSP identifies solid waste mitigation for all development within the WLSP area, including the proposed project. This mitigation is listed below:

1a. The City will monitor development to ensure compliance with the City's Integrated Solid Waste Management Plan (as prepared under the provisions of AB 939).

1b. Since development will be phased, substantial acreage will remain in agricultural use. Resulting solid waste from agricultural operations will require traditional approaches to management, using livestock and crop waters for soil fertilization.

1c. Mandatory pickup will be required for residential areas, along with containerized sorting of wastes capable of recycling and reuse.

1d. The significant amounts of wood wastes generated during construction activities are to be segregated and processed as wood chips and mulch for use in landscaping, animal husbandry and farming.

1e. Grass clippings will generate large amounts of organic waste and are to be mixed with other organic wastes and recycled as compost. Lawn mowing should be accomplished with mulch-forming blades to reduce the amount of clippings requiring composting.

4.8.4 RESIDUAL SIGNIFICANT IMPACTS

No residual significant public services impacts would occur with implementation of the recommended mitigation measures.

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4.9 PUBLIC SERVICES

This section analyzes the impacts of the proposed project on public services, including police protection, fire protection, and schools.

4.9.1 EXISTING CONDITIONS

PHYSICAL SETTING

Police Protection

Police protection services are provided by the City of Lathrop (City) Police Department through a contract with the San Joaquin County Sheriff's Department. The police department is located at City Hall, 16775 Howland Road approximately one mile from the project site. Officers from the Sheriff's Department are selected for a minimum three-year assignment to Lathrop Police Services. The City determines the number of officers assigned and reimburses San Joaquin County for the costs of providing police services. The department currently employs: 1 Chief; 1 Lieutenant; 1 Detective; 1 Community Resource Officer; 12 Patrol Deputies; 1 Office Manager; and half-time Office Assistant. The department is staffed 24-hours a day in a series of 6 shifts with one officer during the slowest times, 3 a.m. to 8 a.m, and 2 to 4 officers during periods of heavier calls for services. Minimum staffing levels are set at 5 officers per day. Under the contract arrangement with the County, the City has access to all of the Sheriff's Department resources, including the SWAT team, hostage negotiators, additional detective services, specialized equipment, and additional patrol manpower. Monies to fund police services and a $70,949.00 per officer start-up cost comes from the City of Lathrop's General Fund (Moffitt, pers. comm., 2001a).

The Police Chief has indicated a desire for 1.5 police officers per 1,000 residents (Moffitt, pers. comm., 2001a). Currently, the staffing levels are at 1.4 officers per thousand residents (not including administrative personnel). In the year 2000 the department responded to 121 calls via the emergency 911 system (Moffitt, pers. comm., 2001a). This number does not include the 911 calls made by mistake, or where children were playing on the line. However, it also does not include calls that might have been emergencies, but did not come in on the Sheriff's Office 911 lines (i.e., calls where citizens dialed the direct dispatch number, transfers from cellular 911 calls, or officer observed emergencies)

According to the Philosophy of Community Oriented Policing, fast response to non-emergency incidents is not as important as taking time to solve problems; therefore, response time issues are limited to emergency situations. The emergency response time within the City of Lathrop is 2 to 4 minutes. However, the northern areas of the city and the Stewart Tract have longer response times (Moffitt, pers. comm., 2001a).

Animal Control is a division of the City's Police Department and is supported by the City's General Fund. This division is staffed with City employees, including one animal control administrator and one animal control officer, and is equipped with two animal collection vehicles. The City of Lathrop contracts with the City of Manteca for animal shelter services. Presently, Animal Control monitors the number of calls received at the department, and as calls increase, additional patrol units will be required. In 2001, the City of Lathrop Animal Control Division received 2,147 total calls for service. The general trend for total calls for service

has been increasing, with total annual calls more than doubling since 1995 when 7,005 calls were received (Enneking, pers. comm., 2002).

In accordance with the City of Lathrop General Plan, a new Government Center, to include a new police station, will be developed west of I-5 in the City of Lathrop some time in the future. The Police Department is currently out of space at its existing Lathrop City Hall facility, and is in negotiations to move to a larger facility (15597 7th Street), which will allow for growth in the City until such time as the new Government Center is developed (Moffitt, pers. comm., 2002a).

Fire Protection

The Lathrop-Manteca Fire District (LMFD) is responsible for fire protection and suppression services within the City of Lathrop, most of the City's Sphere of Influence, and the rural areas of Manteca. The LMFD currently consists of one fire chief, one deputy chief/fire marshal, two division chiefs, 24 firefighters, and 18 reserve firefighters. In addition, the LMFD also consists of administrative staff that includes a business manager and a part-time permit clerk. The LMFD has a total of three fire stations, serving approximately 25,000 people. The LMFD's fire fighters currently operate three shifts, with eight employees on each shift. All reserve firefighting personnel are on-call by pager (Monty, pers. comm., 2001a).

Fire Station #31, which also serves as the LMFD's headquarters, provides first response service to any fire or emergency occurring on the project site. This station is located at 800 East J Street, Lathrop, approximately 1.5 miles east of the project site, and has a response time of 1-2 minutes to the front edge (i.e., area closest to I-5) of the proposed development (Monty, pers. comm., 2001b). Response times deep within the development would be established once the design and phasing of the proposed project are finalized. Station #31 is currently staffed with a four-person company (one captain and three firefighters) and is equipped with a 65-ft Tele-squirt fire engine (an elevated water stream), two reserve Type I fire engines, a 3,000 gallon water tender, a light rescue, and a heavy rescue. All firefighters within the LMFD are trained as EMT-Ds, or emergency medical technician-defibrillators. Ambulance service from the Manteca District Ambulance is also available at Station #31. All patients within the LMFD service area are transported to one of 6 local hospitals, depending upon proximity and available space (Monty, pers. comm., 2001a).

The first response time goal within the LMFD is three minutes in urban areas and six minutes in rural areas (Lathrop-Manteca Fire District 2000). Currently, the station serves 90% of the population within the 3 minute service for emergency response (Lathrop-Manteca Fire District 2000). The average first response time for Station #31 is 3 to 5 minutes; however, actual response times vary within the District due to a location's approximate distance from the fire station. The LMFD has mutual aid agreements with all fire departments in San Joaquin County, as well as automatic aid agreements with departments in Tracy, Manteca, French Camp, Ripon, and Montezuma.

Fire protection services provided by the LMFD are evaluated and rated by the Insurance Services Offices (ISO). The current ISO rating for urbanized areas with fire hydrants within the LMFD is six based on a scale of one to ten, with one being the best possible rating (Monty, pers. comm., 2001a). The current ISO rating for rural areas within the LMFD is eight. The LMFD will be rated again in the latter part of the year 2001. An important requirement in fire suppression is adequate fire flow, which is the amount of water, expressed in gallons per minutes (gpm), available to control a given fire. The total fire flow needed to extinguish a fire

is a function of building construction, occupancy, area, height, fire loading, and distance between buildings. Fire flow for a given building is dependent on water supply, standards for which are set nationally and by the County. Generally, fire flow requirements for the type of development being proposed is between 1,250 and 2,000 gpm (see Impact 4.9-g for further discussion).

In a letter from the Lathrop-Manteca Fire District (LMFD) to the City of Lathrop dated May 15, 2002 (Sims, 2002), the District and Pacific Union Homes (PUH or project applicant) set forth an agreement for the development of a new fire station within the WLSP area of the City (either on or adjacent to the Mossdale Landing project site). This agreement is discussed further in this section under Impact 4.9-e.

Schools

The Manteca Unified School District (MUSD) provides educational services within the City for grades K-12. MUSD schools currently include 16 elementary schools, three high schools, one adult education campus, and two continuation schools. Elementary school students living in the City attend one of two schools, the Lathrop Annex for grades K-3, located at 721 Thomsen Road, and the Lathrop Elementary School for grades 4-8, located at 15851 South 5th Street. Both schools are approximately 1 mile from the project site. High school students living in the City attend Sierra High School at 700 Thomas Street in Manteca, approximately 4 miles east of the project site (Dwyer, pers. comm., 2001b).

MUSD is considered a rural district serving approximately 19,000 students. On a district level, MUSD is currently operating at or near capacity for its elementary and high schools (Fultz, pers. comm., 2001). The school district has experienced considerable growth in the past few years. For each of the past four years it has added 600 students (Dwyer, pers. comm., 2001b). With the introduction of year-round school, the district can serve 20% more students than a traditionally scheduled school district. Table 4.91 identifies the 2000-2001 school year enrollment for MUSD in September, 2001. The exact capacity levels and enrollment figures change frequently as more portable classrooms are added and additional students enroll in the district (Fultz, pers. comm., 2001). The teacher student ratio is 1:20 for grades K-3 and 1:34 for grades 4-12. In order to accommodate the growth and maintain the teacher-student ratios, three construction projects are currently underway: the construction of 10 additional classrooms for Sierra High School; 5 classrooms, a band room, and a team room for East Union High School; and 20 classrooms for the McParland Annex serving K-3. Additionally, three projects are out to bid: a fourth high school in the Weston Ranch area with 37 classrooms, and 2 new elementary schools with a total of 86 new classrooms.

The district uses a student generation rate to determine the impact of new residential development on school enrollment. The student per household multiplier is currently 0.92 (0.60 for K-8, 0.32 for high school) (Fultz, pers. comm., 2001).

The school district is funded by 50% state and 50% local sources. The district can receive local funding through three avenues: 1) Developer Impact Fees, 2) tax revenue from Mello-Roos districts, and 3) General Obligation Grants (GO). Developer impact fees comprise the major source of funding for the district. Currently, a developer is charged $3.90 per square foot for residential development and $0.34 per square foot for commercial development within the District boundaries. Mello-Roos districts are areas, mainly new residential subdivisions, that have an additional school tax imposed on them. The GO bonds require a general vote and have not been successful in the district.

Table 4.9-1
Manteca Unified School District Enrollment, 2000-2001

School Name	Grade Levels	Current Enrollment [1]	Student Capacity	% of Capacity	Remaining Capacity
Brockman	K-8	682	850	80	168
Cowell	K-8	769	900	85	131
Elliott	K-8	854	900	95	46
French Camp	K-8	527	800	66	273
Golden West	K-8	795	850	94	55
Great Valley	K-8	908	1075	84	167
Hafley	K-8	936	1,000	94	64
Knodt	K-8	1,285	1,300	99	15
Lathrop (Annex and Elementary)	K-8	1,195	1,200	99	5
Lincoln	K-8	752	800	94	48
McParland	K-8	890	900	99	10
New Haven	K-8	695	800	87	105
Nile Garden	K-8	761	800	95	39
Sequoia	K-8	1,026	1,000	103	-26
Shasta	K-8	860	850	101	-10
Widmer	K-8	655	1,075	61	420
Manteca Day Continuation	1-12	110	115	96	5
Calla High Continuation	9-12	194	at capacity [1]	100	0
East Union High	9-12	2021	at capacity [1]	100	0
Manteca High	9-12	1599	at capacity [1]	100	0
Sierra High	9-12	1701	at capacity [1]	100	0
Lindbergh Adult Campus [2]					

[1] Student enrollment in the district changes daily as more students enroll and others leave; therefore, Table 4.9-1 does not reflect the exact current enrollment.

[2] Lindbergh Adult School serves 4,000 high school aged and adult students in an alternative setting.

Sources: Sandy Dwyer, Manteca Unified School District, September 24, 200; John Fultz, Manteca Unified School District, October 8, 2001.

REGULATORY SETTING

The City's adopted Capital Facility Fee program requires payment of impact fees for construction of an animal control shelter and related facilities and equipment under the "City Services" category.

Listed below are applicable goals, policies and objectives from the City's General Plan, West Lathrop Specific Plan EIR (WLSP EIR), and Manteca-Lathrop Fire District Master Plan.

Police Protection

- The City will continue to give high priority to the support of police protection functions of the Police Department. Ultimate expansion of the City's police service is to include additional stations affording adequate response within a maximum of 3-4 minutes to all parts of the urban area (General Plan - Goal #8: Public Safety Hazards).

- Neighborhood watch programs will be encouraged in all residential areas of the City (General Plan - Goal #8: Public Safety Hazards).

Fire Protection

- The City will continue to give high priority to the support of fire suppression and prevention and life safety functions of the Fire Department. Ultimate expansion of the City's fire service is to include additional stations affording adequate response within a maximum of 3-4 minutes to all parts of the urban area (General Plan - Goal #8: Public Safety Hazards).

- The City will work to maintain a fire flow standard of 3,000 gpm for all commercial and industrial areas of the community, and 1,500 gpm for residential areas, to assure the capability to suppress urban fires. In strategic areas, the City should provide above ground water storage with capacities sufficient to supply the City for required durations (General Plan - Goal #8: Public Safety Hazards).

- The City will maintain a street system which is capable of providing access to any fires that may develop within the urban area, and which is capable of providing for the adequate evacuation of residents in the event of an emergency condition of magnitude (General Plan - Goal #8: Public Safety Hazards).

- The City will seek to reduce the risks and potential for hazards to the public through planning and zoning practices and regulations which avoid hazardous land use relationships, and by the continued and timely adoption of new-edition building and fire codes (General Plan - Goal #8: Public Safety Hazards).

Schools

- In addition to the school impact fee structure already in place, the School District could explore other sources of revenue within the authority of local school districts to utilize for financing school facilities (Lathrop General Plan, Schools, Mitigation Measure).

- The WLSP EIR outlines mitigation measures, including adherence to the state mandated school impact fees and addition measures, that will reduce significant project impacts to schools to less-than-significant levels (see the mitigation measures later in this section).

4.9.2 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

The Mossdale Landing project would result in significant fire and police services impacts if it would create a need for the development of new service facilities and/or substantially impede existing service, and would create a school impact if it would cause the need for construction of new school facilities.

IMPACT ANALYSIS

Impact **4.9-a**

Public Services - Obstruction of Roadways During Construction. *The project could obstruct roadways in the vicinity during construction, which could obstruct or slow emergency vehicles attempting to access the area in the event of an emergency and/or school buses serving the area. This would represent a* ***significant*** *impact.*

The project would include construction activities over an eight year period (2002-2010). While the majority of project construction activities would occur on-site, adjacent roadways such as Louise Avenue and Manthey road could be affected. These effects could include closure of one or more lanes, increased truck traffic, crossing of streets by construction equipment, and other activities that could slow or stop emergency vehicles and school buses. Furthermore, certain off-site roadway improvements are required by traffic mitigation in Section 4.5 of this EIR, which could obstruct emergency vehicle traffic and school buses. The obstruction or slowing of emergency vehicles and buses would represent a significant impact.

Impact **4.9-b**

Public Services -Increased Demand for Police Protection Facilities and Services During Construction. *Construction and staging areas associated with the proposed project would be subject to potential construction theft, and therefore would increase the demand for police protection services during the construction period. This would represent a* ***significant*** *impact.*

The City of Lathrop suffers from construction theft incidents that result in property loss (Moffitt, pers. comm., 2001b). This theft is of concern to private companies because of property loss and to the Police Department because it must respond to the incidents. The Lathrop Police Chief has recommended that private companies hire security guards to protect their construction sites from theft (Moffitt, pers. comm., 2001b). Lack of implementation of the above would lead to a significant impact.

Public Services - Increased Demand for Police Protection Facilities and Services During Operation. *The proposed project would substantially increase the demand for police protection facilities and services during operation, and would require additional police staff and equipment to maintain adequate service. This would represent a* ***significant*** *impact.*

Implementation of the proposed project would result in the creation of 1,690 dwelling units. Using an average of 3.2[1] people per unit, the resident population of Lathrop would increase by 5,408 people. This

[1] 3.2 people per unit is the population assumption used by the City of Lathrop Police Department per single-family residence to calculate officer demand.

increase in population would result in a demand for an additional 8 officers if the 1.4:1,000 ratio of officers to residents is maintained (Moffitt, pers. comm., 2001a).[2]

The City Hall police station (the only police station in the city) is currently at capacity (Moffitt, pers. comm., 2001b). The Police Department has indicated that the addition of the 8 new officers required to serve the proposed project would require additional facility space. As indicated previously, the Police Department is currently in negotiations to move to a larger facility which will allow for some growth in the City until such time as the new Government Center is developed west of I-5. The Police Department has indicated that this larger facility would accommodate the additional officer demands of the Mossdale Landing project until such time as the Government Center is developed (Moffitt, pers. comm., 2002a). Therefore, a new police station would not be required at the project site to serve the project.

While the funding of police facilities and services comes out of the General fund of the City of Lathrop, the City would incur start-up costs associated with the hiring and training of each of the 8 new police officers required to serve the proposed project (Moffitt, pers. comm., 2001a). The City would also incur equipment costs for each of the new officers (i.e., gun, bullet proof vest, mobile radio, etc.) and for a fully equipped patrol vehicle for every two officers. Payment of these start-up and equipment costs by new development is a standard City requirement typically included in the Development Agreements for said new development. Lack of payment by Mossdale Landing of these costs would represent a significant impact.

Not all of the 8 officers and four patrol vehicles would be needed at once. They could be added incrementally with one officer and associated equipment added upon the occupancy of every 214 dwelling units. One vehicle would need to be added for every 2 officers or upon the occupancy of every 428 dwelling units.

Impact **4.9-d**

Public Services - Increased Emergency Police Response Times During Operation. *The proposed project could increase traffic congestion on City streets which could potentially lengthen police emergency police response times to the project site. However, future police emergency response times to the project site would continue be remain within the 3-4 minute General Plan goal given the eventual siting of a new police station west of I-5 (i.e., Government Center), the increase in police officers and patrol vehicles under the proposed project, and planned circulation improvements in the vicinity of the project site. A* ***less than significant*** *impact would occur.*

As indicated previously, emergency police response times within the City of Lathrop currently range from 2-4 minutes, except within portions of the Stewart Tract and northernmost Lathrop where response times may exceed four minutes. The Police Department has indicated that emergency response time to the Mossdale Landing project site are currently within the 2-4 minute maximum response time and are thus consistent with the 3-4 minute response time goal of the General Plan (Moffitt, pers. comm., 2002b).

Because police emergency response primarily originates from squad cars on current beats rather than from the police station, the location of the station relative to the project site is not particularly relevant (whether

[2] The current 1.5:1000 officer to population target ratio is currently under review by the City of Lathrop.

it be the existing City Hall station, the larger facility currently under negotiation at 15597 7th Street, or the future Government Center west of I-5). Eventual development of the Government Center west of I-5 would provide almost immediate emergency police response to the project site for those few responses originating from the station.

There is a potential that increased traffic within the City of Lathrop in the future could increase emergency police response times from patrols in the City given existing staffing at the Police Department. However, with increased development in the City would come an increase in the number of police officers, beats, and patrols. With regard specifically to Mossdale Landing, 8 new officers and four new patrol cars would be added to the Police Department associated with project buildout which would serve the police protection needs of the project (see Impact and Mitigation Measure 4.9-c). Hence, it is anticipated that emergency police response times to the project site would continue to be acceptable in the future, especially with future construction of the planned Government Center west of the I-5 and the circulation improvements planned in the vicinity under the WLSP (i.e., Golden Valley Parkway, I-5/Louise Avenue interchange improvements, I-5/Louise Avenue underpass widening, extension of Gold Rush Boulevard over the SJR, etc.). Hence, a less than significant impact would occur.

Impact **4.9-e**

Public Services - Increased Demand for Fire Protection Facilities and Services During Operation. *The proposed project would result in an increase in the demand for fire protection facilities and services during operation. This would represent a* ***significant*** *impact.*

The proposed project would include 1,690 dwelling units, 653,399 square feet of commercial uses, and two K-8 schools totaling 164,000 square feet. Using an average of 3.2 people per unit, the resident population of Lathrop would increase by 5,408 people. According to the Manteca-Lathrop Fire District Master Plan, a 1.2:1,000 firefighter to resident ratio must be maintained (2000). Therefore, in order to maintain the existing level of service in the City, the Fire Department has indicated that the Mossdale Landing project would contribute to the need for a new fire station within the West Lathrop Specific Plan area of the City (Monty, pers. comm., 2001a). Based on the 1.2:1,000 firefighter to resident ratio, the proposed project would generate a need for an additional 6.5 new firefighters.

In a letter from the LMFD to the City of Lathrop dated May 15, 2002 (Sims 2002), the District and Pacific Union Homes (PUH)set forth an agreement for the development of a new fire station within the WLSP area of the City. Under the agreement, an interim fire station site would be dedicated to the District by the Mossdale Landing applicant on the three easternmost Mossdale Landing residential lots (67 through 69) located on the south side of Gold Rush Boulevard near the future Golden Valley Parkway (Exhibit 3-4). If the traffic analysis currently being conducted for the River Islands project determines that a grade-separated intersection is required at Gold Rush Boulevard and Golden Valley Parkway, as planned for in the WLSP, then a fire station would be developed by the District at the interim Mossdale Landing site to serve development in the Mossdale area (including the Mossdale Landing project) as well as the Crossroads Commerce Center. If, however, the traffic analysis for River Islands determines that a grade-separated intersection is not required, then a permanent off-site fire station site in-lieu of the interim fire station site on the Mossdale Landing property would be dedicated by an adjacent property owner (Robinson) at the southwest corner of Gold Rush Boulevard and Golden Valley Parkway. Both locations would free up funds previously set aside for a new fire station associated with the Commerce Center, as well as new funds from

other residential developments within the response area (including Mossdale Landing). With these funds, the District would construct a new fire station and training facility at one of these two locations.

Under the agreement, the Mossdale Landing project would be served by the District's existing Lathrop fire station (Fire Station #31) for the first 170 homes, unless the 3-4 minute response time for the site is exceeded by other factors, such as other development in the area, response route obstructions, or any other item that may increase response times beyond the District's 3-4 minute standard. By the time the 170th home is developed at Mossdale Landing, or the 3-4 minute response time from the existing Lathrop fire station to the project site is exceeded, whichever comes first, the District would have a fire station in place at one of the two locations discussed above and have the fire station operational (Sims 2002).

Under the agreement, Mossdale Landing would not be required to build the entire station, but could be required to build a first phase facility if, at the sole discretion of the District, such a facility is needed and sufficient funding is not available to fund its construction. Final funding for the station and its staffing, either at the interim or permanent site, would come from fees or assessments collected from new development in the Mossdale area (including Mossdale Landing) and the Crossroads Commerce Center (Sims 2002).

With implementation of the aforementioned agreement, a less than significant increase in demand for fire protection facilities and services would occur. However, in order to implement the agreement, the following implementation measures are required: (1) monitoring of emergency fire response times to the project site by Mossdale Landing; and (2) payment of fire service fees or assessments by Mossdale Landing. These implementation measures are required by Mitigation Measure 4.9-e.

Impact **4.9-f**

Public Services - Increased Emergency Fire Response Times During Operation. *The proposed project would add traffic to the local roadway system which could increase emergency fire response times to the project site and the surrounding area. However, the Lathrop-Manteca Fire District and the City of Lathrop have negotiated an agreement whereby a new fire station will be developed on or adjacent to the project site. With implementation of this agreement, project impacts on emergency fire response times would be* ***less than significant****.*

Currently, emergency response times from Fire Station #31 to the eastern edge of the project site are 1-2 minutes (Monty, pers. comm., 2001b). These response times fall within the acceptable 3-4 minute standard for the Lathrop-Manteca Fire District. However, increased traffic associated with future development in the City, including development within the Mossdale Village area and the project site, would impact emergency response times to the project site.

As discussed under Impact 4.9-e, the LMFD and PUH have negotiated an agreement whereby a new fire station will be developed on or adjacent to the project site. Under the agreement, the Mossdale Landing project would be served by the District's existing Lathrop fire station (Fire Station #31) for the first 170 homes, unless the 3-4 minute response time for the site is exceeded by other factors, such as other development in the area, response route obstructions, or any other item that may increase response times beyond the District's 3-4 minute standard (Sims 2002). By the time the 170th home is developed at Mossdale Landing, or the 3-4 minute response time from the existing Lathrop fire station to the project site is exceeded, which ever comes first, the District would have a fire station in place at one of the two locations discussed

above and have the first station operational. With implementation of this agreement, project impacts on emergency fire response times would be less than significant.

Impact **4.9-g**

Public Services - Increased Demand for Fire Flow. *The proposed project would include the development of residential, commercial, school and open space uses that would require adequate fire flow. Lack of adequate fire flow would represent a* ***significant*** *impact.*

The Lathrop-Manteca Fire District maintains oversight authority to ensure adequate water volume and pressure are available within the District's service area for fire flow. LMFD has determined for this project that the minimum fire flow requirement is 1,250 gpm for the proposed low to medium density residential, and 2,000 gpm for the proposed high density residential and neighborhood and community commercial with a minimum residual pressure of 20 pounds per square inch (psi) (Monty, pers. comm., 2001b). Lack of the provision of adequate fire flow would represent a significant impact.

Impact **4.9-h**

Public Services - Increased Demand for School Facilities and Services During Construction. *It is reasonable to assume that most of the project-related construction workers would not relocate their permanent place of residence as a consequence of working on the proposed project, and therefore there would not be any substantial increase in school enrollment associated with construction workers. A* ***less than significant*** *impact would occur.*

Even though approximately 100-300 construction workers would be employed in the development of the project at any one time, it is not anticipated that construction workers' families would place a demand on the school district. This is because the construction industry differs from most other industry sectors in that there is no regular place of work (i.e., construction workers commute to a job site that may change many times during the course of the year; and construction workers do not generally change their place of residence each time they change job sites. Therefore, project construction workers would not generate a substantial increase in school enrollment in the area, and a less-than-significant impact would occur.

Impact **4.9-i**

Public Services - Increased Demand for Elementary School Facilities and Services During Operation. *The proposed project would increase the demand for elementary school (K-8) services and facilities within the Manteca Unified School District (MUSD). The project would pay the State mandated school impact fees and would dedicate two on-site elementary school sites which would reduce the project's long-term impacts on elementary schools to* ***less-than-significant*** *levels. There is a potential that the proposed project would exceed the existing available elementary school capacity of the MUSD prior to the development of the two on-site schools; however, payment of the State mandated school impact fee is legislatively deemed full mitigation by the State. Therefore, the project's short-term impacts on elementary schools would also be* ***less than significant****.*

The proposed project would increase the demand for elementary school facilities within MUSD. The elementary school student generation rate the MUSD uses in its planning is 0.60 elementary school students

per residential unit (Dwyer 2001e). Based on this generation rate, the proposed 1,690 dwelling units would generate 1,014 elementary school students.

As required by State law, the applicant would pay the state mandated school impact fees of $3.80 per square foot of residential development and $0.34 per square foot for commercial development, which, according to the State, is deemed full mitigation for residential development. It is noted that this is typically an insufficient amount to fund new school facility construction, but is legislatively deemed full mitigation. In addition, two 16.8-acre on-site elementary school sites would be sold to MUSD by the project applicant for the development of two 82,000-square-foot elementary schools. This dedication is consistent with the WLSP. With payment of the State mandated school impact fees and dedication of the two elementary school sites, the proposed project would have less-than-significant impacts on elementary school services and facilities in the long term (assuming that the MUSD develops elementary schools at the two on-site school sites to be dedicated).

In the short term, elementary school students from the proposed project would need to be bused across I-5 to Joe Widmer school on a temporary basis until development of at least one of the two on-site schools is complete. The Widmer school currently has an enrollment of approximately 700 students and a capacity of 1,100 students. This school could accommodate 400 additional students, which translates to 666 new residential units (based on MUSD's elementary school student generation rate of 0.6 students per residential unit). Because Mossdale Landing would not be the only source of new residential development in MUSD during the buildout of the project, it can be reasonably assumed that Mossdale Landing would be able to develop something less than 666 new residential units before the existing available capacity of the Widmer School would be exceeded. MUSD has indicated that 600 new residential units could be developed at the project site before the first on-site school would need to be constructed (Dwyer, S. 2001b). However, because payment of the State mandated school impact fee is legislatively deemed full mitigation by the State, the project's short-term impacts on elementary schools would be less than significant.

Impact **4.9-j**

Public Services - Increased Demand for High School Facilities and Services During Operation. *The proposed project would increase the demand for high school services (9-12) within the MUSD. However, because the project would pay the required state mandated school impact fees, and because adequate capacity exists at existing high schools and high schools currently under construction to accommodate the high school students to be generated by the project, a* ***less-than-significant*** *impact would occur.*

Based on MUSD's 0.32 student generation rate, the proposed 1,690 dwelling unit project would generate 541 high school students, or approximately 1/3 of the enrollment of a high school (Fultz, pers. comm., 2001). Currently, Mossdale Landing is located within the Sierra High school district. However, in 2004, the first phase of the new Weston high school will open for enrollment and will accept some students currently attending Sierra and East Union high schools. Depending on school vacancies at the time of project buildout, high school students living in Mossdale Landing would probably attend Weston or East Union high school (Fultz, pers. comm., 2001). Because the project applicant would pay the required State mandated school impact fees, and because adequate capacity would exist at existing high schools and high schools currently under construction to accommodate the high school students to be generated by the proposed project, a less-than-significant impact would occur.

Impact **4.9-k**

Public Services - Increased Demand for Animal Control Facilities and Services During Operation. *The proposed project would substantially increase the demand for animal control services during operation, and would require additional animal control staff, equipment and facilities to maintain adequate service. This would represent a* ***significant*** *impact.*

The City's level of service for animal control services will decrease substantially with development of the Mossdale Landing project if more animal control units and officers are not provided. The Mossdale Landing project would include up to 1, 690 new residential units that would create an estimated 6,800 new pets within the project area (Enneking 2002). The projected number of animals that would need to be picked up as a result of these residential units (using 2001 animals services per occupied dwelling unit) is 406 (Enneking 2002). The Animal Control Division (Division) is currently maintaining acceptable level of service with existing staff east of I-5, but would need additional staffing and equipment to service the proposed project. As a result, the City would need at least one additional animal control officer and one additional patrol unit for the proposed project (Enneking 2002). In addition, the project would generate a demand for additional animal shelter space, and would necessitate payment of the City's adopted Capital Facility Fee. Hence, the project would have a significant impact on animal control facilities and services during operation.

4.9.3 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" will occur, no mitigation is identified below (this is the reason why some of the mitigation measures may skips numbers).

4.9-a **Public Services - Obstruction of Roadways During Construction.** Standard traffic controls (i.e., signage, flagmen, etc.) shall be implemented during project construction. Lane closures shall be advertised in advance, and flagmen shall be utilized to direct traffic flows when needed. Access to existing land uses shall be maintained at all times- detours shall be provided to existing land uses impacted by any construction-related street closures.

Implementation of this mitigation measure would reduce Impact 4.9-a to less-than-significant levels.

4.9-b **Public Services - Public Services -Increased Demand for Police Protection Facilities and Services During Construction.** The project applicant shall provide private security for its construction sites during the eight year construction period. In addition, construction sites shall be illuminated at night to aid in security.

Implementation of this mitigation measure would reduce Impact 4.9-b to less-than-significant levels.

4.9-c **Public Services - Increased Demand for Police Protection Facilities and Services During Operation.** The project applicant shall pay the startup costs incurred in the hiring and training for

each of the eight new police officers required to serve the project (Moffitt, pers. comm., 2001a). In addition, the following equipment costs shall be provided by the applicant:

- Safety equipment for each of the eight officers, including gun, leather equipment, bullet proof vest, mobile radio, etc.
- A fully equipped patrol vehicle for every two officers, including radio, siren, Opticom mobile strobe, Mobile Computer Terminal, and vehicle video recorder.

The project applicant shall also ensure that the following crime prevention measures are incorporated into the proposed project: 3M Addressable Opticom Traffic Control Pre-emption devices and detectors/reflectors in all traffic lights for which the project is responsible; and graffiti proof or graffiti resistant walls.

Payment for the above shall be phased to coincide with the need for the new officers and equipment generated by project development. Also, the need for the above may be adjusted if City policy results in a different officer-to-population ratio.

Implementation of this mitigation measure would reduce Impact 4.9-c to less-than-significant levels.

4.9-e **Public Services - Increased Demand for Fire Protection Facilities and Services During Operation.**

The Mossdale Landing applicant shall comply with the May 15, 2002 agreement negotiated between the LMFD and the PUH entitled "Lathrop-Manteca Fire District Position on Fire Station Location - Mossdale Landing Project. This shall include, but shall not be limited to, the dedication to the District of an interim fire station site on Lots 67 through 69 of the Mossdale Landing project.

The Mossdale Landing applicant shall have emergency fire response times to the project site from its Fire Station #31 monitored on a monthly basis from the occupancy of the first on-site residential unit until the occupancy of the 170th on-site residential unit. This monitoring shall occur consistent with LMFD methodologies. The results of the monitoring shall be reported to the LMFD on a monthly basis through occupancy of the 170th on-site residential unit. Consistent with the aforementioned agreement, the fire department will have a fire station in place (at either the interim site or the permanent site) and make it operational by the time the 170th home is built on the Mossdale project site, or when emergency fire response times to the Mossdale project site exceed 3-4 minutes, whichever comes first.

The Mossdale Landing applicant shall pay all applicable fire service fees and assessments required to pay for its fair share of fire district facilities and services required to serve the Mossdale Landing project.

Implementation of this mitigation measure would reduce Impact 4.9-e to less-than-significant levels.

4.9-g **Public Services - Increased Demand for Fire Flow.** The applicant shall provide fire flows as required by the Lathrop-Manteca Fire District (currently believed to be 1,250 gpm for low to medium density residential, and 2,000 gpm for high density residential and neighborhood and community commercial, with a minimum residual pressure of 20 pounds per square inch).

Implementation of this mitigation measure would reduce Impact 4.9-f to less-than-significant levels.

4.9-i **Public Services - Increased Demand for Elementary School Facilities and Services During Operation.** Although Impact 4.9-h would be less than significant and thus does not require mitigation, the WLSP EIR identifies several school requirements that are applicable to development within the WLSP area, including the Mossdale Landing project. These are listed below:

- The developer shall work with the appropriate school district regarding the sale of land and provision of infrastructure improvements required for the school facility in satisfaction of part or all of the pro rata share of school facility costs occasioned by the residential development project (Elementary and High School Services, Mitigation Measure 1.b).
- Where a residential project is large enough to generate the need for an entire school facility, school construction should be phased to match the phasing of residential construction, with the objective of assuring the availability of adequate facilities as close to the time of housing occupancy as possible (Elementary and High School Services, Mitigation Measure 1.c).

4.9-k **Public Services - Increased Demand for Animal Control Services During Operation.** The project applicant shall provide for the cost of an additional animal control officer and patrol unit as a result of the project. The cost of the animal control officer is $55,000 and the cost of the patrol unit is $40,000 (Enneking 2002). Typically, discretionary revenue to the City is generated from the project in the form of property and other taxes. However, in the early stages of the project, the required funding will not be realized, and the developer shall pay the costs for the additional officer and patrol unit until revenues generated from the project cover the cost. In addition, the project applicant shall pay the Capital Facility Fee - City Services to offset the need for a new animal shelter and related facilities and equipment.

4.9.4 RESIDUAL SIGNIFICANT IMPACTS

No residual significant public services impacts would occur with implementation of the recommended mitigation measures.

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4.10 TERRESTRIAL BIOLOGY

The following section evaluates the potential environmental effects of the Mossdale Landing project on terrestrial biological resources. This evaluation is based on a terrestrial biology study of the proposed project site conducted by Monk & Associates LLC (M&A) from June 2001 through May 2002. The plant and animal species observed on the project site during the field surveys conducted as part of this evaluation are listed in Appendix I (Tables A through E) of this EIR. For an evaluation of the potential environmental effects of the proposed project on aquatic biological resources, see Section 4.11, Fisheries.

4.10.1 EXISTING CONDITIONS

PHYSICAL SETTING

Vegetation and Wildlife

Project Site

The 477.3-acre project site is devoted almost entirely to agricultural production. Nevertheless, it does support several types of vegetation and wildlife habitats. Two of the plant communities located on the project site, agrestal (cropland) and ruderal, are the direct result of human disturbance. The remaining communities (freshwater marsh and valley and foothill riparian) support some native species, and are most often associated with natural habitats. On the project site, however, these habitats are relegated to ditches, canals, and levee margins. In the following sections, the plant communities located on the project site are characterized by the vegetation classifications and community names set forth in the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP), which is the habitat conservation plant applicable to the project site and region. See the Regulatory Setting subsection for further discussion of the SJMSCP.

Agrestal (Cropland) - SJMSCP Vegetation Type C3

The majority of the vegetation on the project site has been disturbed by past and current agricultural practices. The vegetation over most of the site is classified as agrestal (Holland & Keil 1995) and is the result of long-term ground manipulation and cultivation. Agrestal communities are dominated by cultivated crops and associated weedy species. At the time of the initial field surveys, vegetation on the project site consisted of alfalfa and fallow fields, some of which had apparently been treated with herbicides. Between late winter and early summer of 2001 crops were planted on all fields on the site. These crops were harvested in the fall and again replanted early in 2002. Typical crops grown in this area include melons, squash, pumpkins, peppers, tomatoes, onions, sweet corn, alfalfa, and safflower.

Water is delivered to the agricultural fields at the project site through a series of permanent and temporary irrigation ditches. Water is provided from pumps that deliver water to the site from the San Joaquin River (SJR). Excess irrigation water is drained from the fields through temporary ditches, which then drain into one of the permanent drainage ditches on the project site. Irrigation tailwater is currently returned to the SJR also through a pump system. Consequently, the SJMSCP would categorize vegetation types on the project site as C3 (row and field crops, ditched).

Agrestal habitat generally does not provide habitat for many wildlife species. The intense cultivation and manipulation, including pesticide applications, tend to limit the number of species that can occupy or use this habitat. Nevertheless, one crop does provide habitat that is used by a number of species. Because alfalfa fields are not deeply cultivated for extended time periods, they often harbor small mammals, particularly rodents, including California ground squirrel (*Spermophilus beechyi*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), and California meadow vole (*Microtus californicus*). American kestrel (*Falco sparverius*), northern harrier (*Circus cyaneus*), red-tailed hawk (*Buteo jamaicensis*), and the state-listed Swainson's hawk (*Buteo swainsoni*) all forage over alfalfa fields for the small rodents occurring there. In addition, the American crow (*Corvus brachyrhynchos*) often travels in flocks that feed opportunistically on carrion and/or discarded/wasted commodity crops. Finally, the great blue heron (*Ardea herodias*) is a typical visitor of agrestal habitats and is often observed standing in moist fields preying on rodents and amphibians. While this heron is common visitor to the project site, it does not nest on or near the project site.

Plantation (Orchard) - SJMSCP Vegetation Type C2

Plantation habitats include stands of trees consisting of single species. These are often of orchards and vineyards, but can also be stands of eucalyptus grown for wood pulp or other uses. The only onsite plantation habitat is a mature walnut orchard located in the southeastern part of the site.

Most orchards are disked or sprayed to reduce weed infestations. Pesticide applications contribute additional disturbance. Despite periodic disturbance, orchards can still provide some habitat for wildlife, particularly bird species that use orchards for resting or foraging. Typical species can include western scrub jay (*Aphelocoma californica*), house finch (*Carpodacus mexicanus*) and American crow.

Ruderal - SJMSCP Vegetation Type C5

Ruderal habitat consists of species adapted to continuous disturbance (Holland and Keil 1995). Many of the plant species found at the project site (see Appendix I, Table C) are non-native species and are typical of a ruderal flora. On the Mossdale Landing project site, this habitat occurs in fallow fields and areas adjacent to cultivated fields. It also occurs along maintained levees and around buildings and storage areas for agricultural equipment. Common ruderal species include Italian thistle (*Carduus pycnocephalus*), yellow star-thistle (*Centaurea solstitialis*), horseweed (*Conyza canadensis*), milk thistle (*Silybum marianum*), Russian thistle (*Salsola tragus*), knotweed (*Polygonum arenastrum*), ripgut grass (*Bromus diandrus*), and foxtail barley (*Hordeum murinum leporinum*).

In an agricultural setting, ruderal habitats are often physically removed or sprayed with herbicides that kill undesirable plant growth, circumstances that severely limit the occurrence of wildlife species. Where ruderal habitats are left undisturbed, they can provide a varied food source for rodents and birds. Typical mammals include the western harvest mouse and California meadow vole. Black-tailed jackrabbit (*Lepus californicus*) and desert cottontail (*Sylvilagus audubonii*) also feed and shelter in standing ruderal habitats. White crowned (*Zonotrichia leucophrys*) and golden-crowned sparrows (*Zonotrichia atricapilla*), song sparrow (*Melospiza melodia*), mourning dove (*Zenaida macroura*), and goldfinches (*Carduelis spp*.) commonly feed on weed seeds in ruderal habitats.

Freshwater Marsh - SJMSCP Vegetation Type D

Two drainage ditches in the northern and north central area of the project site support freshwater marsh and riparian vegetation (discussed in the next section). Two portions of these ditches are dominated by wetland vegetation (Exhibit 4.10-1), but areas dominated by riparian habitat often have large patches of wetland vegetation as well. Freshwater marsh (Holland and Keil 1995) is a herbaceous community consisting of cattails (*Typha spp*.), bulrushes (*Scirpus spp*.), and other species commonly found in wetlands. Although this vegetation performs a valuable function in natural wetlands, it restricts the flow of water through agricultural ditches so it is typically cut back, physically removed, or treated with herbicides on an annual basis. The primary purpose of these ditches is to remove excess irrigation water (i.e., tailwater) from the project site. Irrigation ditches deliver water to the irrigated fields on the project site. Main irrigation ditches are often lined with concrete and do not support vegetation or wildlife habitat. Other irrigation ditches are temporary, that is, they are reconstructed each year in otherwise dry ground along irrigated fields. Like the concrete-lined ditches, they usually do not support vegetation or wildlife habitat. A few permanent irrigation ditches occur on the site and support ruderal species. When left un-maintained for periods of time, these ditches may develop small amounts of wetland vegetation.

Very little wildlife was noted in ditch habitats during surveys, probably because the adjacent habitat consisted of farm roads and agricultural fields that are usually not conducive to occupation by wildlife. Marsh wrens (*Cistothorus palustris*) and song sparrows were observed during field surveys, and western aquatic garter snakes (*Thamnophis couchii*) may occur in these ditches. The Pacific tree frog (*Hyla regilla*) is expected to occur as well. Other wildlife species may be deterred by high nitrogen contents and pesticides in the water, and/or from the high levels of human disturbance associated with such habitats.

Valley and Foothill Riparian - SJMSCP Vegetation Type D

Woody vegetation has formed in agricultural ditches that are not regularly maintained, (Exhibit 4.10-1). In a natural environment, this habitat would be classified as valley and foothill riparian (Holland and Keil 1995). On the project site this habitat is confined to agricultural drainage ditches and sparse areas along the levee margins. The SJMSCP classifies some areas of the levee and some portions of the agricultural ditches on the project site as Great Valley Riparian Forest; however, with respect to the agricultural ditches this classification is not correct. The SJMSCP classifies Great Valley Riparian Forest as a "Natural Land." The SJMSCP states "natural lands are lands which retain vegetation and which are not irrigated or cultivated agricultural land."

The classification in the SJMSCP of some areas of the agricultural ditches as Great Valley Riparian habitat is based upon aerial photograph interpretation. With respect to the ditches on the project site mapped in the SJMSCP as Great Valley Riparian Forest, some of the mapped areas in fact do support riparian vegetation. Of the approximately 3,775 linear feet of Great Valley Riparian Habitat mapped on the project site over

Source: Monk & Associates, Inc., June 2002.

Wetland and Riparian Vegetation

EXHIBIT 4.10-1

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agricultural ditches in the SJMSCP, approximately 1,096 linear feet actually support woody riparian vegetation. The balance supports mostly herbaceous or shrubby vegetation that is routinely removed on an annual or semi annual basis as part of the agricultural enterprise in operation on the property over the past few decades. Regardless, all riparian vegetation in the ditches on the project site, including the woody vegetation, is entirely supported by agricultural irrigation water. The water is delivered to the ditches via pumps from the San Joaquin River, which delivers water up and over the levee, and into the ditches. Similarly, the water leaves the ditches via a pump system that re-delivers the water over the levee, back into the San Joaquin River. Without the agricultural water the riparian areas in the agricultural ditches on the project site much of this vegetation would not survive.

There are also approximately 789 linear feet of Great Valley Riparian vegetation on the inboard side of the San Joaquin River levee. This vegetation is sparse and grows where levee maintenance has been neglected for a period of several to many years. It is supported by water from the San Joaquin River and would likely thrive except for the necessity of periodic levee maintenance.

Common woody species found in riparian areas on the project site include arroyo willow (*Salix lasiolepis*), Goodding's black willow (*Salix gooddingii*), narrow-leaved willow (*Salix exigua*), Fremont cottonwood (*Populus fremontii*), and valley oak (*Quercus lobata*). The understory consists of Himalayan blackberry (*Rubus discolor*), California blackberry (*Rubus ursinus*), wild rose (*Rosa sp.*), and a variety of herbaceous species.

Valley and foothill riparian habitat also occurs at scattered locations along portions of the San Joaquin River where levees have not been recently maintained. The riverside of the San Joaquin River levees consists of packed dirt or rock or concrete riprap. Over time these areas may come to support riparian vegetation, and willows and cottonwoods are scattered along the levee. The high level of disturbance from levee maintenance causes most of the herbaceous plants to be ruderal species common in agricultural areas. Also, the canopy species are infrequently removed or otherwise cut back.

Although riparian habitat on the project site is restricted to ditches, it forms a structurally complex habitat in the northern two-thirds of the main ditch on the project site (see Exhibit 4.10.1). This ditch is classified by the SJMSCP as Great Valley Riparian Forest (from SJMSCP habitat classifications Map for the Lathrop quadrangle). However, this is a classification is for natural lands. According to the SJMSCP "Natural Lands are lands which retain natural vegetation and which are not irrigated or cultivated agricultural land." Since the riparian vegetation is supported exclusively from irrigation tailwaters, it is misclassified in the SJMSCP as Great Valley Riparian Forest. The mixture of trees, shrubs, brambles, and herbaceous species in this riparian ditch does provide resting, nesting, and foraging habitat for a variety of species. Birds are particularly common, especially migratory songbirds that prefer riparian areas. Many of the birds observed on the project site (Appendix I, Table B) were observed in this habitat.

Valley Oaks

Besides occurring in riparian habitats, valley oaks also grow on the margins of the project site and along some of the field edges, especially on the northwest and southern boundaries (Exhibit 4.10-2). While valley oak trees (*Quercus lobata*) were a large component of the likely historical condition of the project site, they were largely removed during the settlement period of the Sacramento Valley. Regardless, the project site has 120

valley oaks that now occur primarily in ditch riparian habitats, on the margins of the project site, and along some of the field edges, especially on the northwest and southern boundaries (Exhibit 4.10-2). Due to the high levels of continued clearing that occurs as a normal and ongoing agricultural practice, the majority of the oak trees on the project site are less than 14 inches in diameter at breast height (dbh). However, there are also several large oak trees that have been preserved/avoided over the years by farming activities. Ten oak trees on the project site are over 40 inches dbh. Like the smaller oak trees on the site, the larger oak trees are typically confined to field edges, however, a few occur in the middle of fields.

Native oaks and oak communities can profoundly affect the variety and abundance of California wildlife. While the project site does not support a natural oak community, rather only a sparse occurrence of oak trees, these trees still are regarded as having high value to wildlife. In California, there are more 300 species of vertebrates (birds, amphibians, reptiles, and mammals) that are known to utilize oak woodlands. Many of these species are directly dependent on specific habitat requirements provided by oaks. Removal of this habitat parameter can have negative impacts to particular species (Guisti and Tinnin 1993). The 18 oak species in California figure significantly in producing food and shelter for California wildlife on more than 30 million acres (30%) of the state's land. Hundreds of vertebrate species and thousands of invertebrate species are associated with California's oak habitats (Pavlik et al. 1991). Oak trees produce a variety of wildlife food opportunities including acorns, leaves, wood, roots, pollen, and sap, which are sustenance for a myriad of insects, birds, and mammals. These trees form the basis of an elaborate food web, with herbivores eating the oak products and carnivores eating the herbivores. Many of the species that forage directly on oak trees also form a prey base for many raptor species which also nest in these trees.

It is well recognized that natural oak woodlands have high value to wildlife; however, it can also be stated that most of the valley oaks on the project site are relatively small and exist as isolated trees or are in small clusters that are isolated from other trees by agricultural fields. These trees are not part of any existing natural habitat such as an oak savannah (i.e., oaks interspersed within grasslands) or oak woodland. Indeed, there is no intact natural habitat remaining on the project site.

Off-Site Infrastructure Sites

Proposed offsite infrastructure includes a wastewater lift station to be located at the southeast corner of Manthey Road and Louise Avenue, and water, wastewater and recycled water pipelines extending along Louise Avenue, the west side of Manthey Road, and the north side of Nestle Way to the existing Lathrop Water Recycling Plan (WRP) #1 located near Howland Road (see Exhibit 3-8). Vegetation at the proposed lift station site and along the proposed pipeline routes is primarily ruderal, the result of grading for highway construction and industrial and business development. Along parts of Nestle Way, urban landscape planting, consisting of trees, shrubs, and lawns, makes up most of the existing vegetation. These habitats are frequented by wildlife, primarily birds, that are adapted to human environments. No rare plants or animals have been observed during surveys, or are expected to occur on or adjacent to the proposed off-site infrastructure sites.

Source: Monk & Associates, Inc. June 2002.

Valley Oak Locations

EXHIBIT 4.10-2

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Off-Site Roadway Improvements

Several off-site roadway improvements are required by traffic mitigation in Section 4.5 of this EIR. These include: (1) additional lanes at the I-5/Louise Avenue interchange; (2) moving the Manthey Road/Louise Avenue intersection 300 feet to the west; (3) additional southbound lane to Manthey Road between Louise Avenue and Main Street; and (4) a new traffic signal at the Manthey Road/Main Street intersection. An EDAW biologist conducted a site visit of these improvement sites on February 20, 2002 to assess the presence of sensitive species and habitat at the locations.

The site of the proposed interchange improvements, new Manthey Road/Louis Avenue intersection, and new Manthey Road/Main Street traffic signal consist of concrete, asphalt, compacted dirt shoulder, sparsely vegetated shoulder slopes, and/or vacant area (between the freeway and the off-ramps). No sensitive species or their habitats were observed at these locations.

The location of the required southbound lane of Manthey Road and Manthey Road realignment consist of agricultural habitat. Because the site survey was conducted during the winter, it is unknown whether the agricultural field provides foraging habitat for Swainson's hawks, but there is a potential for it to do so in the future. In addition, Northern harriers were observed foraging within the required Manthey Road realignment area. It does not typically nest in actively cultivated fields, but may nest immediately adjacent to such fields. Currently, nesting habitat within the proposed alignment is marginal, and it is unlikely that northern harriers would nest in this area. For both Swainson's hawks and northern harriers, there is a potential that habitat for these species could develop within the agricultural field to be affected if left fallow and undisturbed for any length of time.

Gold Rush Boulevard PPL

The proposed project is seeking approval of the Gold Rush Boulevard Precise Plan Line (PPL) as one of the project entitlements. As described in Chapter 3, a PPL identifies a precise planned alignment for a future planned roadway. The PPL being evaluated in this EIR extends from the I-5/Louise Avenue interchange through the project site and to, but not including, the eastern levee of the SJR (Exhibit 3-12). Although Gold Rush Boulevard would only be constructed within a portion of the PPL by the Mossdale Landing project (from the I-5/Louise Avenue interchange to the main north-south collector within the Mossdale project - Mossdale Landing Dr.), the full PPL is evaluated in this EIR.

For most of its length, the Gold Rush Boulevard PPL crosses through agricultural fields that are also part of the project site. As such, most impacts for Gold Rush Boulevard have been considered herein. The proposed route crosses through two agricultural ditches that do not support riparian vegetation. Rather the two ditches are highly manipulated ditches that mostly support ruderal vegetation and a small amount of wetland vegetation.

One almond tree (*Prunus dulcis*) is in the middle of a clean-farmed field (rowcrop area) and would be affected by the proposed road alignment. Also, there are four English walnut trees (*Juglans regia*) that grow on the outboard side of the SJR levee that would also likely be affected by the alignment. Wildlife that would be affected would be limited to mostly common species including California ground squirrel, house finches, and western kingbirds (*Tyrannus verticalis*). At the time of the survey of the proposed road alignment, the area

was completely disked. As such, there were no natural plant or wildlife habitats that would be affected by the construction of this road. However, there is a pair of nesting Swainson's hawks (located in May 2002) on the inboard (i.e., the river side on the Silveira property) of the levee that potentially could be disturbed by construction within the PPL. These hawks may or may not be nesting at this location when the western portion of the road is finally constructed within the PPL in the future.

Sensitive Biological Resources

The special status plant and animal species that occur or have the potential to occur on the project site are listed in Table 4.10-1. Each of these species is discussed in the following subsections.

Special Status Plant Species

Appendix I, Table A lists 26 special status plant species that are known to occur within 10 miles of the project site or at other locations in San Joaquin County. These plants occur in a variety of settings, including grasslands, woodlands, vernal pools, riparian areas, and other relatively undisturbed habitat. Although some of these habitats may have been present on the site historically, they would have been eliminated by past and present agricultural practices.

Table 4.10-1
Special Status Plant/Animal Species with the Potential to Occur on the Project Site

Special Status Plant Species	Special Status Animal Species
Sanford's arrowhead (*Sagittaria sanfordii*)	Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)
Delta button-celery (*Eryngium racemosum*)	White-tailed kite (*Elanus leucurus*)
Mason's lilaeopsis (*Lilaeopsis masonii*)	Swainson's hawk (*Buteo swainsoni*)
Suisun Marsh aster (*Aster lentus*)	Burrowing owl (*Athene cunicularia*)
Slough Thistle (*Cirsium crassicaule*)	Northern harrier (*Circus cyaneus*)
Wright's trichocoronis (*Trichocoronis wrightii*)	Loggerhead shrike (*Lanius ludovicianus*)
Bearded sedge (*Carex comosa*)	Tricolored blackbird (*Agelaius tricolor*)
Delta tule pea (*Lathyrus jepsonii var. jepsonii*)	Giant garter snake (*Thamnophis couchi gigas*)
Blue skullcap (*Scutellaria lateriflora*)	Sharp-shinned hawk (*Accipiter striatus*)
Rose-mallow (*Hibiscus lasiocarpus*)	Cooper's hawk (*Accipiter cooperii*)
Southern mudwort (*Limosella subulata*)	Black-crowned night heron (*Nycticorax nycticorax*)
	Yellow-breasted chat (*Icteria virens*)

Source: Monk & Associates 2001

On the east side of Interstate (I-5) along the pipeline alignment, natural habitats such as grassland have been eliminated, first by agricultural practices, and more recently by highway construction and commercial development. Special status plant species having potential habitat on the project site are discussed below.

Other special status plant species occurring in habitats no longer present on the project site are summarized in Appendix I, Table A.

Sanford's arrowhead (*Sagittaria sanfordii*) is a perennial member of the water-plantain family. It is a federal species of concern and is on the CNPS List 1B. This species grows in freshwater marshes, and has been found in ponds and ditches. Suitable habitat is found on the project site in open drainage ditches (area labeled wetland and riparian & wetland on Exhibit 4.10-1), however, none were observed during special-status plant surveys conducted for this species. In the SJMSCP, Sanford's arrowhead has restrictions on individual take and conversion of occupied habitat.

Delta button-celery (*Eryngium racemosum*) is a biennial or perennial member of the carrot or parsley family. It occurs in clay depressions in riparian habitats of the San Joaquin Valley. It is a federal species of concern and a state-listed endangered species. Although suitable habitat for this species probably occurred in the vicinity of the project, past and continuing agricultural practices have drastically modified this habitat. Consequently, there is a very low probability of the species being found on the project site. None were found during appropriately timed rare plant surveys. In the SJMSCP, Delta button-celery has restrictions on individual take and conversion of occupied habitat.

Mason's lilaeopsis (*Lilaeopsis masonii*) is a small, perennial member of the carrot or parsley family. It is a federal species of concern and is listed by the State of California as rare. Mason's lilaeopsis is found only in the San Francisco Estuary and Bay Delta of California. It grows in intertidal marshes and along stream banks. Although listed as rare, it can be locally abundant, and has been reported from numerous locations in the Delta. It could occur along the San Joaquin River, but it is unlikely to be on the project site because the drainage ditches are not tidally influenced. During appropriately timed rare plant surveys none were found on the project site.

Suisun marsh aster (*Aster lentus*) is a perennial member of the aster family that can grow to three or four feet tall. It is a federal species of concern and is on the CNPS List 1B. It can be found in fresh to brackish marshes in the San Francisco Estuary. Potential habitat on the project site for this species occurs only in drainage ditches (areas labeled wetland and riparian and wetland on Exhibit 4.10-1), and then it is highly marginal habitat. During appropriately timed rare plant surveys none were found on the project site.

Slough thistle (*Cirsium crassicaule*) is an annual or biennial member of the aster family. It is a federal species of concern and is on the CNPS List 1B. Slough thistle is found in marshes and swamp, riparian scrub, and chenopod scrub in the San Joaquin Valley. Marginal habitat for the species exists in drainage ditches on the project site (areas labeled wetland and riparian & wetland on Exhibit 4.10-1). During appropriately timed rare plant surveys none were found on the project site. In the SJMSCP, slough thistle has restrictions on individual take and conversion of occupied habitat.

Wright's trichocoronis (*Trichocoronis wrightii*) is an annual to perennial member of the aster family. It has no state or federal status and is on the CNPS List 2, although its standing as a native species has been questioned (it is considered non-native in The Jepson Manual: Higher Plants of California). The species grows in a variety of wet habitats, including riparian areas, in the Central Valley. It has a very low probability of being found in drainage ditches with riparian habitat. During appropriately timed rare plant surveys none were found on the project site.

Bearded sedge (*Carex comosa*) is a perennial member of the sedge family. It has no state or federal status, but is on the CNPS List 2. Bearded sedge is found in wet habitats in northern California, including the Central Valley. Marginal habitat for this species occurs in drainage ditches on the site (areas labeled wetland and riparian & wetland on Exhibit 4.10-1). During appropriately timed rare plant surveys none were found on the project site.

Delta tule pea (*Lathyrus jepsonii var. jepsonii*) is a perennial member of the pea family. It is a federal species of concern and is on the CNPS List 1B. Delta tule pea is found in coastal and estuarine marshes (including the Delta) inland to Stockton. It has a very low probability of growing in on-site drainage ditches. During appropriately timed rare plant surveys none were found on the project site.

Blue skullcap (*Scutellaria lateriflora*) is a perennial member of the mint family. It has no state or federal status, but is on the CNPS List 2. It grows in marshes and swamps in the northern San Joaquin Valley. Suitable habitat is found on the project site in open drainage ditches; however, none were observed during special status plant surveys on the project site.

Rose-mallow (*Hibiscus lasiocarpus*) is a perennial member of the mallow family. It has no state or federal status, but is on the CNPS List 1B. It grows on riverbanks and in marshes in the Sacramento Valley and Delta region. Suitable habitat is found on the project site in open drainage ditches; however, none were observed during special status plant surveys conducted on the project site.

Southern mudwort (*Limosella subulata*) is a small, annual member of the figwort family. It has no state or federal status, and it is not considered native according to The Jepson Manual: Higher Plants of California. Suitable habitat is found on the project site in open drainage ditches; however, none were observed during special status plant surveys conducted on the project site.

Special Status Plant Surveys

The SJMSCP does not allow the individual take or take of habitat occupied by several special status species. Consequently, surveys are needed to determine whether potential habitat is occupied by these species. **Sanford's arrowhead**, **delta button-celery**, and **slough thistle** are three species that have some potential for occurring on the project site and that also have take restrictions. M&A biologists undertook surveys for these species. The SJMSCP requires three surveys for these species over the blooming period, which extends from May to August for the three, take-restricted species. Although the species may not be identifiable in a vegetative state, the genus for each species is readily identifiable even though no flowers are present. All other special status plant species with the potential for occurring on the site are covered by the SJMSCP and have no take restrictions.

M&A biologists conducted three special status plant surveys in July and August 2001. These surveys consisted of walking the two drainage ditches on both sides of the ditch, and walking the along the levee in the vicinity of the proposed outfalls. Other plant surveys were conducted during earlier months; however, they differed from the July/August surveys in that the July/August surveys were systematic while the earlier surveys were opportunistic. During plant surveys, all species encountered were noted and identified to the extent necessary to determine whether the plant was a special status species. During surveys, no members of the genera Sagittaria or Eryngium were observed. The only member of the genus *Cirsium* observed was

C. vulgare, a common, non-native, ruderal species. Accordingly, special-status plant species do not likely occur on the project site or offsite locations that would be disturbed by the project.

Special Status Animal Species

Curve footed hygrotis diving beetle (*Hygrotis curvipes*) is not known to occur in San Joaquin County. It is only known from shallow, muddy pools in Oakley in eastern Contra Costa County. This beetle is a federal species of concern without state status. It lives in shallow, seasonally-inundated pools, a habitat that does not occur on the project site.

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is a federally-listed threatened beetle that lives most of its life in and around the blue or valley elderberry (*Sambucus mexicana*). Adults lay eggs in the lower stems of elderberry shrubs, and the larvae hatch and begin eating the pith (the internal spongy part of the stem). Adults emerge in the spring, foraging on elderberry flower and leaves. The adults leave a characteristic hole in the stem, usually no more than 18 to 24 inches above the ground. Elderberries have been observed in riparian habitat along the main drainage ditch (Exhibit 4.10-3). Each elderberry was surveyed for beetle exit holes and all stems over 1 inch in diameter were counted. No beetle holes from any species were found in the few elderberries occurring on the project site.

The **western pond turtle** (*Clemmys marmorata*) occurs in lakes, pond, and sluggish rivers and streams. It is a federal species of concern and a state species of special concern. Pond turtles usually prefer gently sloped banks or logs on which to bask. Drainage ditches on the project site do not provide suitable basking or breeding habitat for this species, and it is not expected to be found there.

The **giant garter snake** (*Thamnophis gigas*) is a federal threatened and state threatened species. It is restricted to the valley floors of the Sacramento and San Joaquin Valleys of California. It inhabits agricultural wetlands and other waterways, such as irrigation and drainage canals, ricelands, marshes, slough, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley. Essential habitat components consist of adequate water during the snake's active season (early spring through mid-fall) to provide adequate permanent water to maintain dense populations of food organisms; emergent, herbaceous wetland vegetation such as cattails and bulrushes for escape cover and foraging habitat during the active season; upland habitat with grassy banks and openings in waterside vegetation for basking; and higher elevation upland habitats for cover and refuge from flood waters during the snake's inactive season in the winter. Giant garter snakes are absent from larger rivers and from wetlands with sand, gravel, or rock substrates. Riparian woodlands do not typically provide suitable habitat because of excessive shade, lack of basking sites, and absence of prey populations (USFWS 1999).

The project site does not provide suitable habitat for the giant garter snake because the irrigation ditches do not have any connectivity to natural waterways. These irrigation ditches were excavated in dry ground for agricultural purposes. They are filled by pumping water from the San Joaquin River over the levee through

Source: Monk & Associates, Inc., June 2002.

Blue Elderberry Shrub Area

EXHIBIT 4.10-3

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extensive piping. Similarly, agricultural tailwater is returned from the agricultural ditches to the San Joaquin River by pumps. Since these ditches were excavated in uplands, receive water only seasonally through pumps, and do not have any connectivity to natural waterways, they do not support fish or other prey species necessary for the giant garter snake's survival. They also contain limited emergent vegetation that is cleared on a regular basis during farming activities. Hence, under these conditions, it is unlikely that the giant garter snake would be found on the project site.

The **Black-crowned night-heron** (*Nycticorax nycticorax*) does not have any Federal status. However, its rookery sites (*i.e.,* colonial nest sites) are protected by the State under California Fish and Game Code. It forages for fish, amphibians, and aquatic invertebrates at the margins of lakes, ponds, canals, marshes, ditches, and sloughs. Its colonial nest sites (rookeries) are in large trees such as eucalyptus, or along waterways in tall willows. No nest sites are known to occur on or near the project site. Black-crowned night herons have been observed flying along side the SJR in the immediately vicinity of the project site. An agricultural ditch on the north end of the site provides suitable habitat for nesting, although would be unlikely to be used for nesting by this heroin since it is a relatively narrow band of vegetation in an otherwise open agricultural field. However, because this habitat it is proximal to the SJR, if the ditch were left in fallow condition, or remained otherwise undisturbed for an extended period of time, black-crowned night herons possibly could establish nest sites at this location.

The **white-tailed kite** (*Elanus leucurus*) is fully protected under the California Fish and Game Code. Fully protected birds may not be "taken" or possessed (that is, kept in captivity) at any time (§3511). It is also protected under the Federal Migratory Bird Treaty Act (50 CFR 10.13). This raptor is also protected under California Fish and Game Code §3503.5, which protects nesting raptors and their eggs/young. It prefers scattered trees for breeding and open grasslands and marshes for foraging. Suitable nesting habitat occurs along the margins of the project site, and individuals have been observed foraging over the project site.

The **Swainson's hawk** is a state-listed threatened species. This raptor is also protected under California Fish and Game Code §3503.5 that protects nesting raptors and their eggs/young. It has no special federal status. It breeds in California, but most birds spend the winter months in South America. For breeding it prefers scattered riparian or woodland trees with open fields for foraging. Swainson's hawks often use cropland and alfalfa for foraging. Nests were identified on the project site by Sycamore Environmental (1995b), and by M&A biological surveys in 2001 and 2002. Individual Swainson's hawks have been observed foraging on the project site as well. Nesting and foraging habitat are shown on Exhibit 4.10-4.

The **burrowing owl** is a Federal species of concern and a California species of special concern. Its nest, eggs, and young are also protected under California Fish and Game Codes (§3503, §3503.5, and §3800). The burrowing owl is also protected from direct take under the Migratory Bird Treaty Act (50 CFR 10.13).

Burrowing owl habitat can be found in annual and perennial grasslands with low-growing vegetation. Typically, the burrowing owl utilizes rodent burrows, often ground squirrel burrows, for nesting and cover. They may also on occasion dig their own burrows, or use man-made objects such as concrete culverts or riprap piles for cover. They exhibit high site fidelity, reusing burrows year after year. Occupancy of suitable burrowing owl habitat can be verified at a site by observation of a pair of burrowing owls during the spring and summer months or, alternatively, by observation of its molted feathers, cast pellets, prey remains,

Source: Monk & Associates, Inc., June 2002.

Swainson's Hawk Habitat

EXHIBIT 4.10-4

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eggshell fragments, or excrement (white wash) at or near a burrow. Burrowing owls typically are not observed in grasslands with tall vegetation or wooded areas because the vegetation obscures their ability to detect avian and terrestrial predators. Since burrowing owls spend the majority of their time sitting at the mouths of their burrows, grazed grasslands seem to be their preferred habitat because it allows them to view the world at 360 degrees without obstructions.

No burrowing owls have been observed on or near the project site during surveys of the project site conducted in 2001. However, since it is a mobile species, there is potential for this species to move onto the project site prior to its development. Exhibit 4.10-5 shows the locations of potential burrowing owl habitat in 2001. In addition, the levee along the San Joaquin River provides potential habitat for this owl species. If fields on the project site fields are allowed to go uncultivated for any length of time, additional areas of potential habitat could be created. This could occur over the entire project area except for the walnut orchard in the southwestern portion of the site.

The **Cooper's hawk** (*Accipiter cooperi*) is a California "species of special concern" (CSC). This title affords this hawk no legally mandated protection; however, CSC species are of concern because, in most cases, their California breeding populations are seriously declining and extirpation from all or a portion

of their range is possible (Remsen 1978). This raptor is also protected under the Migratory Bird Treaty Act (50 CFR 10.13). Its nest, eggs, and young are also protected under California Fish and Game Codes (§3503, §3503.5, and §3800). The Cooper's hawk is a yearlong resident that typically nests in heavily wooded areas along streams, rivers, or in close proximity to springs or seeps. There are also migratory Cooper's hawks that can be found locally in the fall and winter months.

This species prefers to nest in tall canopies with an open understory, usually near openings. Cooper's hawks construct nests near the trunk of large trees. Nests are constructed of sticks, and may be reused in subsequent years. In the region of the project site, Cooper's hawks nest from April through July. Peak nesting months occur from April through July. Prey consists primarily of avian species and to a lesser extent mammalian species. Prey is usually captured in flight. A ditch at the north end of the project site provides relatively poor quality habitat for Cooper's hawk nest sites. While no nests were found during two separate seasons of surveys, it could be used in the future if the site were left fallow or otherwise remained undisturbed. Nesting season surveys should be conducted if agricultural activities cease for any extended period prior to the time the ditch is modified by the development. Areas that could support breeding habitat if undisturbed are identified in Exhibit 4.10-6.

The sharp-shinned hawk (*Accipiter striatus*) is a California "species of special concern." CDFG is primarily concerned with this species' nesting habitat. This raptor is also protected under the Migratory Bird Treaty Act (50 CFR 10.13). Its nest, eggs, and young are also protected under California Fish and Game Codes that protect nesting raptors (§3505, §3503.5, and §3800).

The sharp-shinned hawk typically nests in heavily wooded areas, near open habitats, sometimes near streams, rivers, or in close proximity to spring or seeps. Sharp-shinned hawks are usually found nesting in more densely wooded areas than Cooper's hawks. This species nests in thick tree canopies often with shrubby understories. Nests are built in trees or large shrubs of sticks and up to five eggs are laid. Broods typically

Source: Monk & Associates, Inc., June 2002.

Potential Burrowing Owl Habitat

EXHIBIT 4.10-5

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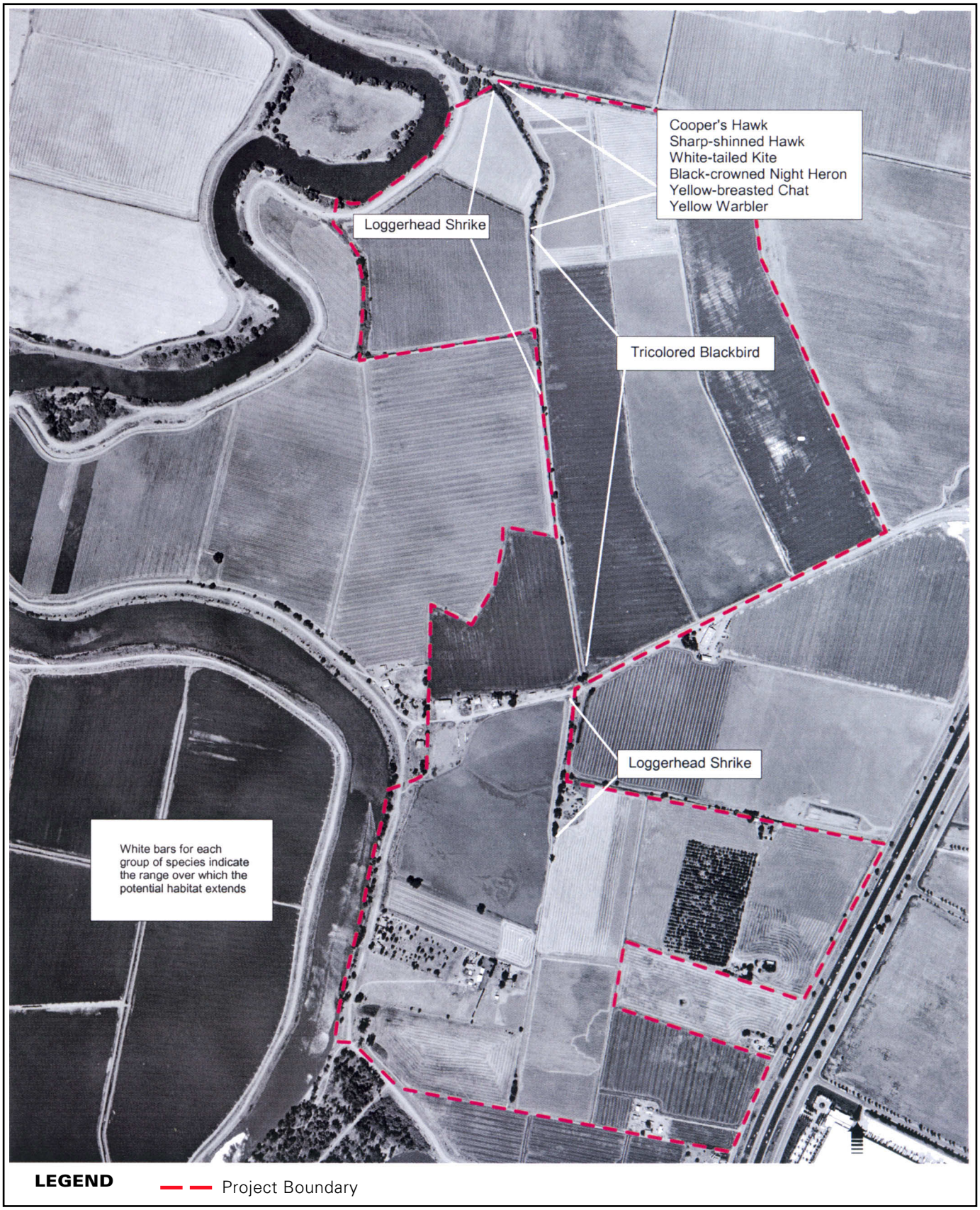

Source: Monk & Associates, Inc., June 2002.

Miscellaneous Potential Special-Status Bird Habitats

EXHIBIT 4.10-6

Mossdale Landing UDC EIR
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number three or four young. Usually, adults will return to the same vicinity each year and build a new nest. Peak nesting months include May through August. Prey consists almost entirely of avian species captured in flight.

A ditch at the north end of the project site provides relatively poor quality habitat for sharp-shinned hawk nest sites. While no nests were found during two separate seasons of surveys, it could be used in the future if the site were left fallow or otherwise remained undisturbed. Nesting season surveys should be conducted if agricultural activities cease for any extended period prior to the time the ditch is modified by the development. Areas that could support breeding habitat if undisturbed are identified in Exhibit 4.10-6.

The **northern harrier** (*Circus cyaneus*) is a state species of special concern. This raptor is also protected under California Fish and Game Code §3503.5 that protects nesting raptors and their eggs/young. It is also protected under the Migratory Bird Treaty Act (50 CFR 10.13). Northern harriers build grass-lined nests on the ground within dense, low-lying vegetation in a variety of habitats, though they are typically found nesting in grassland or marsh habitats. They usually nest on level to near level ground. This species is particularly vulnerable to ground predators while nesting, and is subject to disturbance by agricultural practices.

Northern harriers have been observed foraging over the project site, and suitable nesting habitat is present Potential harrier habitat in 2001 occurred along the levee in short grass/ruderal habitats. Similarly, it occurred anywhere adjacent to crops land that there is ruderal vegetation. Other suitable areas could occur around the dilapidated, abandoned house on the project site. It should be noted that available nesting habitat could change each year with different land use practices. Anywhere fallow fields are allowed to develop, and or edges remain unmaintained, this hawk could nest. Hence, development of the proposed project could potentially result in impacts to nesting northern harriers.

The **loggerhead shrike** (*Lanius ludovicianus*) is a federal species of concern and a state species of special concern. It prefers lowland and foothill habitats with scattered shrubs and trees. It nests in shrubs and trees with a dense canopy, and is often observed perched on poles, fences, or utility lines. Suitable nesting habitat occurs on-site in the dense shrubby vegetation along some irrigation and drainage ditches, and individuals have been observed on the project site (see Exhibit 4.10-6 for areas of potential nesting habitat).

The **yellow warbler** (*Dendroica petechia*) (the *aestiva* group of subspecies) is a California species of special concern. This species is a Neotropical migrants that breeds from Alaska to Newfoundland and southern Labrador south to western South Carolina and northern Georgia, and west sporadically through the Southwest to the Pacific Coast. It winters in Central America and the West Indies south to northern Peru. In the western United States its nesting habitat is restricted to riparian habitats. Yellow warbler populations may be declining due to nest parasitism by brown-headed cowbirds (*Molothrus ater*). In some studies that have been undertaken, as many as 40 percent of yellow warbler nests are parasitized by the brown-headed cowbird. The yellow warbler has developed a strategy to cope with unwanted cowbird eggs that are laid in their nests. When two or more cowbird eggs are laid in a nest, yellow warblers build a "floor" over the unwanted eggs so they are insulated from incubation and begin laying their own eggs again. If a nest already contains two or more yellow warbler eggs, the parents will usually hatch them together with the additional cowbird eggs. Yellow warblers begin their southward migration in the summer. Birds begin departing the breeding areas as soon as their young can fend for themselves typically by September.

The riparian habitat on the site is not extensive enough to provide even moderate quality nesting habitat for the yellow warbler. In addition, what riparian habitat occurs on the project site is subject to high levels of disturbance that would likely discourage nesting in these habitats by this bird. Regardless, since other potentially occurring breeding birds will require preconstruction nesting surveys to ensure that there is no take of nesting special-status birds, surveys for yellow-breasted warbler could be conducted simultaneously. Areas that could support breeding habitat if undisturbed are identified in Exhibit 4.10-6.

The **yellow-breasted chat** (*Icteria virens*) is a state designated species of special concern. This bird is a Neotropical migrant, arriving in California in April and departing by late-September for wintering grounds in Mexico and Guatemala. Accordingly, the California Department of Fish and Game is primarily concerned with riparian habitats that support nesting activities of this bird. While in its northern breeding grounds, this species inhabits dense riparian understory tangles with small trees, such as willows, tall weeds, blackberry thickets, brush, and vines along watercourses. The Yellow-breasted chat is a bird more often heard than seen since it is usually hidden in brushy riparian tangles or hillside thickets. Its loud whistles, chatters and squawks make it easy to identify. It will often sing at night, and the voice is the lowest-pitched of any of the American wood warblers. Besides being much larger than other wood warblers, it also has strikingly unwarbler-like characteristics such as: holding its food with its foot; having a unique song and aerial courtship displays; developing no natal down; and being the only warbler that has a complete post-juvenile molt. This species breeds from early May into early August with peak activity in June.

The riparian habitat on the site is not extensive enough to provide even moderate quality nesting habitat for the yellow-breasted chat. In addition, what riparian habitat occurs on the project site is subject to high levels of disturbance that would likely discourage nesting in these habitats by this bird. Regardless, since other potentially occuring breeding birds will require preconstruction nesting surveys to ensure that there is no take of nesting special-status birds, surveys for yellow-breasted chat could be conducted simultaneously. Areas that could support breeding habitat if undisturbed are identified in Exhibit 4.10-6.

The **tricolored blackbird** (*Agelaius tricolor*) is a federal species of concern and a state species of special concern. It nests in large colonies and prefers dense cattail or tule patches, but will also nest in blackberry patches and other dense vegetation. Marginal habitat may exist along the project site's irrigation and drainage ditches, although much of the preferred vegetation (that is, cattails and tules) is periodically removed from these ditches to permit the free flow of water. Therefore, it is unlikely that tricolored blackbirds would nest on the project site. Areas that could support breeding habitat if undisturbed are identified in Exhibit 4.10-6.

The **riparian brush rabbit** (*Sylvilagus bachmani riparius*) is a Federal listed endangered species and a State listed endangered species. There are only two known populations of this subspecies. One population is in Caswell Memorial State Park in Stanislaus County, and the other in Paradise Cut in San Joaquin County (approximately two miles south of the project site). Habitat for this species consists of riparian forests with an open canopy and a dense understory shrub layer. Brush rabbits frequent small clearings where they bask in the sun and feed on a variety of herbaceous vegetation, including grasses, sedges, clover, forbs, shoots and leaves. Where mats of low growing California wild rose (*Rosa californica*) and California blackberry (*Rubus ursinus*) occur, the brush rabbits live in tunnels that run through the vines and shrubs (USFWS 2000).

Because no take of riparian brush rabbit habitat is allowed under the SJMSCP, M&A conferred with United States Department of Fish and Wildlife Service (USFWS) on addressing potential impacts to this rabbit

subspecies. USFWS required that a habitat assessment be conducted by Dr. Dan Williams of California State University at Stanislaus to determine if the project could impact riparian brush rabbits. Dr. Williams is on contract to the California Department of Fish and Game (CDFG) to identify all potential habitats of the riparian brush rabbit. On July 18, 2001, Mr. Geoff Monk of M&A met on the project site with Dr. Williams to examine all potential areas that could support this rabbit. Based on this survey, Dr. Williams determined that the brushy and riparian plant communities along the project site's irrigation ditches, and along the San Joaquin River adjacent to the project site, are "too narrow to support the riparian forest habitat that the riparian brush rabbit prefers." Dr. Williams concluded that the proposed project would not impact the riparian brush rabbit.

The **San Joaquin Valley (or riparian) woodrat** (*Neotoma fuscipes riparia*) is a federal endangered species and a state species of special concern. This subspecies is currently known from only one small population in Caswell Memorial State Park in Stanislaus County. It prefers riparian forest with a dense, shrubby understory. This subspecies is most numerous where shrub cover is dense, and least abundant in open areas. In riparian areas, the highest densities of woodrats and their houses are often encountered in willow thickets with an oak overstory. Stick nest houses are built in trees or on the ground. Riparian woodrats occasionally build nests in tree cavities and in artificial wood duck nest boxes. As with the riparian brush rabbit, the brushy and riparian plant communities along the project site's irrigation ditches are too narrow to support the riparian forest habitat that this species prefers.

As discussed above, on July 18, 2001, Mr. Geoff Monk of M&A met on the project site with Dr. Williams to examine all potential areas that could support riparian brush rabbit on and adjacent to the project site. Dr. Williams is also an expert on riparian woodrat. Based on this site survey, Dr. Williams determined that the riparian woodrat would not be expected to be found on the project site.

Wildlife Corridors

Wildlife corridors are linear and/or regional habitats that provide connectivity to other natural vegetation communities within a landscape fractured by urbanization and other development. Wildlife corridors have several functions: 1) they provide avenues along which wide-ranging animals can travel, migrate, and breed, allowing genetic interchange to occur; 2) populations can move in response to environmental changes and natural disasters; and 3) individuals can recolonize habitats from which populations have been locally extirpated (Beier and Loe 1992). All three of these functions can be met if both regional and local wildlife corridors are accessible to wildlife. Regional wildlife corridors provide foraging, breeding, and retreat areas for migrating, dispersing, immigrating, and emigrating wildlife populations. Local wildlife corridors also provide access routes to food, cover, and water resources within restricted habitats.

The project site is isolated from regional wildlife corridor functions, other than as a migratory bird resting/feeding temporary use site. It does not provide any known migratory species habitat to special-status species. Regarding the use of the site as a corridor for mammals, because there is a major river on the west side of the project site, Interstate 5 to the east of the project site, and there are otherwise intensively farmed lands on remaining sides of the project site, no significant or major wildlife corridors are known to occur on the project site. No mammalian corridors were identified during surveys of the project site.

Finally, there are no known wildlife nursery sites on the project site or other habitats that provide unique or special use opportunities for wildlife. Similarly, there are no compelling reasons for any group of animals to translocate to the site either seasonally or indiscriminately. While the project site does provide breeding/nesting habitats for common, and certain protected species such as raptors, it does not provide unique features that are critical to the survival of such species. There are no known significant local or regional wildlife corridors and/or wildlife nursery sites of consequence on the project site.

Waters of the State and Waters of the United States

A preliminary wetlands assessment of the project site was prepared by M&A in 2001. The USACE visited the project site to examine M&A's preliminary wetlands map and confirmed that there were no areas within the project site boundaries that would be within USACE's jurisdiction (Corps of Engineers 2001). Hence, there are no waters of the U.S. on the project site. While there are agricultural ditches on the project site that exhibit wetland characteristics (see Exhibit 4.10-1), these ditches circulate pumped irrigation water only and are exclusively limited to circulation within the project site boundaries. These ditches were historically excavated in dry ground, and/or do not otherwise constitute straightened or channelized natural drainageways. Because of the above and as corroborated by the USACE, confirmation of the absence of Waters of the U.S. on the project site, the RWQCB would not have jurisdiction over the project site under Section 401 of the CWA. Hence, there are no waters of the state on the project site.[1]

There are Waters of the State and Waters of the U.S. outside of the project site boundaries that would likely be affected by the proposed project. The San Joaquin River forms part of the western boundary of the project site and this river constitutes both a Water of the State and a Water of the U.S. The project plans include construction of a storm water outfall from the project site to the San Joaquin River (Exhibit 3-8). The armoring associated with the outfall structure would likely extend below the ordinary high water mark of the river, and accordingly, would constitute an impact to Waters of the State and Waters of the U.S.

REGULATORY SETTING

Regulatory Framework for Native Wildlife, Fish and Plans

This section provides a discussion of those laws and regulations that are in place to protect native wildlife, fish, and plants. These laws would have a certain affect on any proposal to develop the project site. Under each law, the pertinence to the proposed project is identified.

Federal Endangered Species Act

The primary focus of the federal Endangered Species Act (FESA) of 1973 is that all federal agencies must seek to conserve threatened and endangered species through their actions. FESA has been amended several times in the past to correct perceived and real shortcomings. FESA contains three key sections. Section 4 (16

[1] Note that the RWQCB has not made a formal determination in this regard. It is the EIR biologist's conclusion that because the RWQCB uses the Corps' definition of wetlands and other water to regulate such areas pursuant to the Clean Water Act, that there are no waters of the state on the project site.

USCA §1533) outlines the procedure for listing endangered plants and wildlife. Section 7 (§1536) imposes limits on the actions of federal agencies that might impact listed species. Section 9 (§1538) prohibits the "taking" of a listed species by anyone, including private individuals, and State and local agencies. In the case of salt-water fish and other marine organisms, the requirements of FESA are enforced by the National Marine Fisheries Service (NMFS). The USFWS enforces all other cases. Below, Sections 7 and 9 of FESA are discussed since they are the two sections most relevant to the proposed project.

Section 9 of FESA as amended, prohibits the "take" of any fish or wildlife species listed under FESA as endangered. Under Federal regulation, "take" of fish or wildlife species listed as threatened is also prohibited unless otherwise specifically authorized by regulation. "Take," as defined by FESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Recent court cases have found "harm" includes not only the direct taking of a species itself, but the destruction or modification of the species' habitat resulting in the potential injury of the species. As such, "harm" is further defined to mean "an act which actually kills or injures wildlife; such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR 17.3). Section 9 applies not only to federal agencies but also to any local or State agency, and to any individual. If "take" of a listed species is necessary to complete an otherwise lawful activity, this triggers the need for consultation under Section 7 of FESA (for Federal agencies), or requires preparation of a Habitat Conservation Plan (HCP) pursuant to Section 10 of FESA (for state and local agencies, or individuals).

Under Section 7 of FESA, all federal agencies must, in consultation with USFWS, ensure that their actions do not jeopardize the continued existence of listed species or destroy or adversely modify critical habitat. Federal actions include permitting, funding, and entitlements for both Federal projects, as well as private projects facilitated by federal actions (for example, a private landowner applying to the Corps for a permit). For example, if a federally listed endangered species is present in "waters of the United States" on a project site, prior to authorizing impacts to waters of the United States, the Corps would be required to initiate formal consultation with USFWS pursuant to Section 7 of FESA. As part of the formal consultation, the USFWS would then be required to prepare a Biological Opinion based on a review and analysis of the project applicant's avoidance and mitigation plan. The Biological Opinion will either state that the project will or will not result in take or threaten the continued existence of the species (not just that population). If an endangered species could be harmed by a proposed project, USFWS has to be in complete concurrence with the proposed avoidance and mitigation plan. If USFWS is not in complete concurrence with the mitigation plan, they will submit a Biological Opinion to the Corps containing a jeopardy decision and stating that a Corps' permit should not be issued for the pending project. The applicant would then have an opportunity to submit a revised mitigation plan that provides greater protection for the species.

In the 1982 amendments to FESA, Congress established a provision in Section 10 that allows for the "incidental take" of endangered and threatened species of wildlife by non-Federal entities (for example, project applicants, state and local agencies). "Incidental take" is defined by FESA as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." Under Section 10 of FESA, the applicant for an "incidental take permit" is required to submit a "conservation plan" to USFWS or NMFS that specifies, among other things, the impacts that are likely to result from the taking, and the measures the permit applicant will undertake to minimize and mitigate such impacts, and the funding that will be available to implement those steps.

Conservation plans under FESA have come to be known as "habitat conservation plans" or "HCPs". The terms incidental take permit, Section 10 permit, and Section 10(a)(1)(B) permit are used interchangeably by USFWS. Section 10(a)(2)(B) of FESA provides statutory criteria that must be satisfied before an incidental take permit can be issued.

A recent (December 2001) decision by the 9th Circuit Court of Appeals (*Arizona Cattle Growers' Association, Jeff Menges, vs. the U.S. Fish and Wildlife Service and Bureau of Land Management, and the Southwest Center for Biological Diversity*) ruled that the USFWS must show that a threatened or endangered species is present on a project site and that it would be taken by the project activities. According to this ruling, the USFWS can no longer require mitigation based on the probability that the species could use the site. Rather they must show that it is actually present.

The project site would be in the region regulated by the USFWS' Sacramento Endangered Species Office. This office believes the above case was narrowly focused on federal grazing leases and the affects of these leases on federal listed species. Due to this narrow focus, the Sacramento office believes that this case has little bearing in northern California. This office claims that probable use of habitat by a federal listed species would still be subject to the provisions of FESA.

FESA gives regulatory authority over terrestrial species and non-anadromous fish to the USFWS. The NMFS has authority over marine mammals and anadromous fish.

No species that are listed pursuant to the federal Endangered Species Acts would be affected on the project site by the proposed project. However, the San Joaquin River forms a portion of the western boundary of the project site and would be affected by installation of and outfall station (see Impacts). As such, there could be impacts to federally listed anadromous and non-anadromous fish species. Therefore, authorization for the outfall project would be required from both the NMFS and the USFWS prior to construction of the outfall station.

State Endangered Species Act

In 1984, the state legislated the California Endangered Species Act (CESA) (Fish and Game Code '2050). The basic policy of CESA is to conserve and enhance endangered species and their habitats. State agencies will not approve private or public projects under their jurisdiction that would jeopardize threatened or endangered species if reasonable and prudent alternatives are available.

CESA requires that all state lead agencies (as defined under CEQA) conduct an endangered species consultation with CDFG if their actions could affect a state listed species. The state lead agency and/or project applicants must provide information to CDFG on the project and its likely impacts. CDFG must then prepare written findings on whether the proposed action would jeopardize a listed species would result in the direct take of a listed species. Because CESA does not have a provision for "harm" (see discussion of FESA, above), CDFG considerations pursuant to CESA are limited to those actions that would result in the direct take of a listed species.

If CDFG determines that a proposed project could impact a State listed threatened or endangered species, CDFG will provide recommendations for "reasonable and prudent" project alternatives. The CEQA lead

agency can only approve a project if these alternatives are implemented, unless it finds that the project's benefits clearly outweigh the costs, reasonable mitigation measures are adopted, there has been no "irreversible or irretrievable" commitment of resources made in the interim, and the resulting project would not result in the extinction of the species. In addition, if there would be threatened or endangered species impacts, the lead agency typically requires project applicants to demonstrate that they have acquired "incidental take" permits from CDFG and/or USFWS (if it is a Federal listed species) prior to allowing/permitting impacts to such species.

If proposed projects would result in impacts to a State listed species, an "incidental take" permit pursuant to §2081 of the Fish and Game Code would be necessary (versus a Federal incidental take permit for Federal listed species). CDFG will issue an incidental take permit only if:

(1) The authorized take is incidental to an otherwise lawful activity;
(2) the impacts of the authorized take are minimized and fully mitigated;
(3) the measures required to minimize and fully mitigate the impacts of the authorized take:
    (a) are roughly proportional in extent to the impact of the taking on the species;
    (b) maintain the project applicant's objectives to the greatest extent possible; and,
    (c) capable of successful implementation; and,
(4) adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with, and the effectiveness of, the measures.

If an applicant is preparing a habitat conservation plan (HCP) as part of the federal 10(a) permit process, the HCP might be incorporated into the §2081 permit if it meets the substantive criteria of §2081(b). To ensure that an HCP meets the mitigation and monitoring standards in Section 2081(b), an applicant should involve CDFG staff in development of the HCP. If a final Biological Opinion (federal action) has been issued for the project pursuant to Section 7 of the federal Endangered Species Act, it might also be incorporated into the §2081 permit if it meets the standards of '2081(b).

No §2081 permit may authorize the take of a species for which the Legislature has imposed strict prohibitions on all forms of take. These species are listed in several statutes that identify fully protected species and specified birds. *See* Fish and Game Code §3505, 3511, 4700, 5050, 5515, and 5517. If a project is planned in an area where a fully protected species or a specified bird occurs, an applicant must design the project to avoid all take.

In September 1997, Assembly Bill 21 (Fish and Game Code §2080.1) was passed. This bill allows an applicant who has obtained a non-jeopardy federal Biological Opinion pursuant to Section 7, or who has received a Federal 10(a) permit (Federal incidental take permit), to submit the federal opinion or permit to CDFG for a determination as to whether the federal document is consistent with the CESA. If after 30 days CDFG determines that the federal incidental take permit is consistent with state law, no further permit or consultation is required under CESA for the project. However, if CDFG determines that the federal opinion or permit is not consistent with CESA, the applicant must apply for a state permit under section 2081(b).

The process provided in Fish and Game Code §2080.1 (Assembly Bill 21) may be of use when the incidental take would occur to species that are listed under both the federal and state endangered species acts. Assembly Bill 21 is of no use if an affected species is state-listed, but not federally listed. Section 2080.1 will

automatically be repealed if and when Congress amends Section 7 or Section 10 of the federal act. Since FESA could be amended at any time, project applicants who are applying for authorization for "incidental take" of a federal and state listed species should enter into a Section 2081 agreement with CDFG in addition to the federal permit so that the project is covered under both FESA and CESA in case AB21 is repealed during the life of a project.

State and federal incidental take permits are issued on a discretionary basis, and are typically only authorized if applicants are able to demonstrate that impacts to the listed species in question are unavoidable, and can be mitigated to an extent that the reviewing agency can conclude that the proposed impacts would not jeopardize the continued existence of the listed species under review. Typically, if there would be impacts to a listed species, mitigation that includes habitat avoidance, preservation, and creation of endangered species habitat is necessary to demonstrate that projects would not threaten the continued existence of a species. In addition, management endowment fees are usually collected as part of the agreement for the incidental take permit(s). The endowment is used to manage any lands set-aside to protect listed species, and for biological mitigation monitoring of these lands over (typically) a five-year period.

No species that are listed pursuant to the state Endangered Species Acts would be affected on the project site by the proposed project. However, the San Joaquin River forms a portion of the western boundary of the project site and would be affected by installation of and outfall station. As such, there could be impacts to state listed anadromous and non-anadromous fish species. Therefore, authorization for the outfall project would be required from CDFG. The process provided in Fish and Game Code §2080.1 (Assembly Bill 21) likely would be of use in obtaining an incidental take permit (i.e., a 2081 management authorization) since state listed fish species are also federally listed.

Applicable CEQA Regulations

Section 15380 of CEQA defines an endangered species as those whose survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors. Rare species are defined by CEQA as those who are in such low numbers that they could become endangered if their environment worsens; or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered. Threatened as that term is used in the Federal Endangered Species Act. The CEQA Guidelines also state that a project will normally have a significant effect on the environment if it will substantially affect a rare or endangered species of animal or plant or the habitat of the species. The significance of impacts to a species under CEQA, therefore, must be based on analyzing actual rarity and threat of extinction to that species despite its legal status or lack thereof.

The significance of impacts to biological resources from the proposed project are analyzed within this document.

Federal Migratory Bird Treaty Act

The Federal Migratory Bird Treaty Act of 1918 makes it unlawful to take (kill, harm, harass, shoot, etc.) any migratory bird listed in the Federal regulations at 50 CFR 10, including their nests, eggs, or young. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, wading birds, seabirds, and passerine birds (such

as warblers, flycatchers, swallows, etc.). It is likely that the project site could be developed without violating the Migratory Bird Species Act. Temporal restrictions could be required if any raptor species was found nesting in a sphere of influence of the project site in order to avoid violating this Act.

M&A has confirmed nesting Swainson's hawks in the immediate vicinity of the protect site and observed this hawk hunting on the project site. The project site could also provide potential foraging habitat for many other species of migratory waterfowl, raptors, and passerines. As such, the project would be required to comply with the protections afforded bird species protected pursuant to the Migratory Bird Treaty Act.

California Fish and Game Code Sections 3503, 3503.5, 3511, 3800

California Fish and Game Code Sections 3503, 3503.5, and 3800 prohibit the take, possession, or destruction of birds, their nests or eggs. Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered a take. Such a take would also violate federal law protecting migratory birds (Migratory Bird Treaty Act).

All raptors (that is, hawks, eagles, owls) their nests, eggs, and young are protected under California Fish and Game Code ('3503.5). Additionally, fully protected birds, such as the white-tailed kite (*Elanus leucurus*) and golden eagle (*Aquila chrysaetos*), are protected under California Fish and Game Code ('3511). Fully protected birds may not be taken or possessed (that is, kept in captivity) at any time.

Specially protected raptors that potentially could be affected by the project include the Swainson's hawk, burrowing owl, white-tailed kite, and northern harrier. Other common raptors that could be affected by the proposed project include the red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), red-shouldered hawk (*Buteo lineatus*), Swainson's hawk, burrowing owl, barn owl (*Tyto alba*), and great horned owl (*Bubo virginianus*). Preconstruction surveys would have to be conducted for these species to ensure that there is no direct take of these birds including their eggs, or young.

Amphibians

Under Title 14 of the California Code of Regulations (14 CCR 41), protected amphibians, such as the California tiger salamander may only be taken under special permit from California Department of Fish and Game issued pursuant to Sections 650 and 670.7 of these regulations.

No special status amphibians would be affected by the proposed project.

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

In July 2000, the San Joaquin Council of Governments adopted the SJMSCP. This Habitat Conservation Plan is dated November 14, 2000 and provides a method for project applicants to offset impacts to biological resources within San Joaquin County. The purpose of the plan is to balance the often-conflicting interests of agriculture, development, and the environment. It was developed as a Habitat Conservation Plan to meet requirements of both the state and federal Endangered Species Acts. The SJMSCP was prepared with the cooperation of regulatory agencies, cities, and other interested parties. The SJMSCP became effective after all participating cities formally adopted the plan which occurred by the end of December 2001.

One of the primary goals of the SJMSCP is to obtain permits from state and federal agencies that would cover a variety of project activities for the next 50 years. This goal was partially achieved when the USFWS and the CDFG issued incidental take permits in conformance with the ESA and the CESA. The SJMSCP has a variety of mechanisms for complying with state and federal endangered species acts. These are too numerous to discuss here, but they are briefly discussed in the impact and mitigation measures subsections where they apply.

Two important federal agencies have not yet issued permits that may be used by proposed development projects. Activities affecting listed anadromous fish species must still be permitted by the National Marine Fisheries Service (NMFS), the Corps must still permit those impacts affecting Waters of the U.S.

When a project proponent chooses to use the SJMSCP, and the Plan Participant, in this case the City of Lathrop (City), accepts this option, mitigation measures and other plans are superceded by the provisions of the SJMSCP. For example, the City has adopted the West Lathrop Specific Plan (WLSP) that has mitigation measures for a number of biological resources. These measures are, on occasion, much different from measures for the same resources given in the SJMSCP. As a result, measures in the SJMSCP take precedence over those in the Specific Plan. The two exceptions are measures involving migratory anadromous fish and Waters of the U.S. In these cases, separate permits must be obtained from NMFS and the Corps as discussed above.

In addition to the coverage of specific species in the mitigation program of the SJMSCP as discussed above, Section 5.5.2.3 of the SJMSCP has, as a requirement, the establishment of a 1,200 foot wide corridor encompassing 600 feet from the mean high water mark of the SJR on both sides of the river, from the Stewart Tract to the Stanislaus /San Joaquin County border (SJMSCP, 2000, p. 5-165). For the area on the east side of the river bordering lands in the Lathrop and Manteca planned land use areas as indicated on the SJMSCP Planned Land Use Map, the final setbacks shall be established after the completion of surveys for the riparian brush rabbit (SJMSCP, 2000, p. 5-165). The intent of Section 5.5.2.3 is primarily to protect the riparian brush rabbit (*Sylvilagus bachmani riparius*) and its habitat. The rabbit is a Federal and State listed endangered species. Specifically, Section 5.5.2.3 was prepared to ensure that a 600-foot setback on either side of the river would be established in the known range of this rabbit species. Section 5.5.2.3 provides for protection of this rabbit if it is determined to be present. Since a riparian brush rabbit survey of the project site was conducted by a qualified biologist (Dr. Dan Williams) in the summer of 2001, and was dismissed as an issue on the Mossdale Landing project site, the 600-foot setback does not apply to the proposed project (Monk, 2002). Hence, this setback requirement is not discussed further in this section.

City of Lathrop

One of the Environmental Checklist questions listed in the CEQA Guidelines (Appendix G) is would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? The City of Lathrop does not have a tree preservation or heritage tree ordinance. The City is, however, a signatory to the SJMSCP. Therefore, this section of the EIR addresses tree preservation (including oak tree preservation) only in the context of the protections afforded trees by the SJMSCP.

The SJMSCP does not specifically call out oak trees as a biotic resource. It calls out oak savannah as a biotic resource, but there is no oak savannah on the project site (rather, there is a collection of isolated oak trees and small oak tree groupings surrounding by agriculture). The SJMSCP does identify valley oaks as one of the tree species that may make up riparian habitats. The SJMSCP requires that fees be paid for disruption of riparian habitats, and that riparian habitats be preserved to the degree practical given specific development proposals. The goal of these requirements is to minimize the take of listed animal species that utilize riparian habitats rather than the preservation of oak trees.

Regulatory Requirements Pertaining to Waters of the United States and State

This section presents an overview of the criteria used by the USACE, RWQCB, SWRCB, and CDFG to determine those areas within a project site that would be subject to their regulation.

Section 404 of the Clean Water Act

Pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344), the U.S. Army Corps of Engineers (Corps) regulates the disposal of dredged or fill material into "waters of the United States" (33 CFR Parts 328 through 330). This requires project applicants to obtain authorization from the Corps prior to discharging dredged or fill materials into any water of the United States. In the Federal Register "waters of the United States" are defined as, "...all interstate waters including interstate wetlands...intrastate lakes, rivers, streams (including intermittent streams), wetlands, [and] natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce..." (33 CFR Section 328.3).

Section 404 jurisdiction in "other waters" such as lakes, ponds, and streams, extends to the upward limit of the ordinary high water mark (OHWM) or the upward extent of any adjacent wetland. The OHWM on a non-tidal water is the "line on shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR Section 328.3[e]). Wetlands are defined as "...those areas that are inundated or saturated by surface or ground water at a frequency and duration to support a prevalence of vegetation adapted for life in saturated soil conditions" (33 CFR Section 328.8 [b]). Wetlands usually must possess hydrophytic vegetation (i.e., plants adapted to inundated or saturated conditions), wetland hydrology (e.g., topographic low areas, exposed water tables, stream channels), and hydric soils (i.e., soils that are periodically or permanently saturated, inundated or flooded) to be regulated by the Corps pursuant to Section 404 of the Clean Water Act.

To remain in compliance with Section 404 of the Clean Water Act, project proponents and property owners (applicants) are required to be permitted by the Corps prior to discharging or otherwise impacting waters of the United States. In many cases, the Corps must visit a proposed project site (to conduct a jurisdictional determination) to confirm the extent of area falling under their jurisdiction prior to authorizing any permit for that project site. Typically, at the time the jurisdictional determination is conducted, applicants (or their representative) will discuss the appropriate permit application that would be filed with the Corps for permitting the proposed impact(s) to waters of the United States.

Pursuant to Section 404 of the Clean Water Act, the Corps normally provides two alternatives for permitting impacts to the type of waters of the United States found on the project site. The first alternative would be to use Nationwide Permit(s) (NWP). The second alternative is to apply to the Corps for an Individual Permit (33 CFR Section 235.5(2)(b)). The application process for Individual Permits is extensive and includes public interest review procedures (i.e., public notice and receipt of public comments) and must contain an alternatives analysis. The alternatives analysis is also typically reviewed by the Federal Environmental Protect Agency (EPA), and thus brings another resource agency into the permitting framework. Both the Corps and EPA take the initial viewpoint that there are practical alternatives to the proposed project if there would be impacts to waters of the U.S., and the proposed permitted action is not a water dependent project (e.g. a pier). Alternative analyses therefore must provide convincing reasons that the proposed permitted impacts are unavoidable. Individual Permits may be available for use in the event that discharges into regulated waters fail to meet conditions of NWP(s).

NWPs are a type of general permit administered by the Corps and issued on a nationwide basis that authorize minor activities that affect Corps regulated waters. Under NWP, if certain conditions are met, the specified activities can take place without the need for an individual or regional permit from the Corps (33 CFR, Section 235.5[c][2]). In order to use NWP(s), a project must meet 13 general nationwide permit conditions, nine Section 404 only conditions, and all specific conditions pertaining to the NWP being used (as presented at 33 CFR Section 330, Appendices A and C). It is also important to note that pursuant to 33 CFR Section 330.4(e), there may be special regional conditions or modifications to NWPs that could have relevance to individual proposed projects. Finally, pursuant to 33 CFR Section 330.6(a), Nationwide permittees may, and in some cases must, request from the Corps confirmation that an activity complies with the terms and conditions of the NWP intended for use (*i.e.,* must receive verification from the Corps).

Prior to finalizing design plans, the applicant needs to be aware that the Corps maintains a policy of no net loss of wetlands (waters of the United States) from project site development. Therefore, it is incumbent upon applicants that propose to impact Corps regulated areas to submit a mitigation plan that demonstrates that affected regulated areas would be recreated (*i.e.,* impacts would be mitigated). Typically, the Corps requires mitigation to be in-kind (i.e., if a stream channel would be filled, mitigation would include replacing it with a new stream channel), and at a minimum of a 1:1 replacement ratio (i.e., one acre or fraction there of recreated for each acre or fraction thereof lost). In some cases, the Corps allows out-of-kind mitigation if the compensation site has greater value than the affected site. Concerning the proposed project site, if project designs call for filling any of the intermittent drainages, mitigation should include recreating the same approximate jurisdictional area (same drainage widths) on at an offsite location or on a set-aside portion of the project site.

There are no Corps regulated areas on the project site. However, any impacts that would occur below the ordinary high water marks of the San Joaquin River would be regulated by the Corps pursuant to Section 404 of the Clean Water Act.

Rivers and Harbors Act

Under Section 10 of the Rivers and Harbors Act, the Corps has jurisdiction over navigable waters of the U.S. to the historic limit of mean high water. Section 10 requires that a permit be obtained from the Corps for all activities in navigable waters that involve excavating, filling, dredging, construction or placement of an

obstruction in or to a navigable water body. Section 10 jurisdiction extends to the entire surface and bed of all water bodies subject to tidal action (33 CFR 329.12[b]).

Any impacts to the historic limit of the mean high water line of the San Joaquin River from the proposed project would be regulated by the Corps pursuant to Section 10 of the Rivers and Harbors Act.

Section 401 of the Clean Water Act

The SWRCB and RWQCB regulate activities in "waters of the United States" (which includes wetlands) through Section 401 of the Clean Water Act. While the Corps administers permitting programs that authorize impacts to waters of the United States, including wetlands, and other waters, any Corps NWP authorized for a proposed project would be invalid unless the NWP being used has been certified for use in California by the SWRCB, or if the RWQCB has issued a project specific certification or waiver of water quality. Certification of NWPs requires a finding by the SWRCB that the activities permitted by the NWP will not violate water quality standards individually or cumulatively over the term of the issued NWP (the term is typically for five years). Certification must be consistent with the requirements of the Federal Clean Water Act, the California Environmental Quality Act, the California Endangered Species Act, and the SWRCB's mandate to protect beneficial uses of waters of the State. Any denied (i.e., not certified) NWPs, and all Individual Corps permits, would require a project specific RWQCB certification or waiver of water quality. Additionally, if a proposed project would impact waters of the United States, including wetlands, and the project applicant cannot demonstrate that the project is unable to avoid these adverse impacts, water quality certification will most likely be denied. Section 401 Certification may also be denied based on significant adverse impacts to waters of the United States, including wetlands. The RWQCB has also adopted the Corps' policy that there shall be no net loss of wetlands. Thus, prior to certifying water quality, the RWQCB will impose avoidance mitigation requirements on project proponents that impact waters of the United States.

There are no waters of the state on the project site. However, any impacts that would occur below the ordinary high water marks of the San Joaquin River would be regulated by the RWQCB pursuant to Section 401 of the Clean Water Act.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, Water Code §13260, requires that any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the State to file a report of discharge with the RWQCB through an application for waste discharge (Water Code §13260(a)(1). The term "waters of the State" is defined as any surface water or groundwater, including saline waters, within the boundaries of the State (Water Code §13050(e)). The RWQCB, one of the Porter-Cologne Authorities, considers clean fill in waters of the State to constitute pollution. Pollution is defined as an alteration of the quality of the waters of the state, which unreasonably affects its beneficial uses (Water Code §13050(1)).

As proposed, the project would impound water and would also discharge storm water into the San Joaquin River, a water of the state. As such, the project would be regulated pursuant to Porter-Cologne Water Quality Control Act.

Sections 1601-1603 of California Fish and Game Code

Under Sections 1601-1603 of the California Fish and Game Code, California Department of Fish and Game (CDFG) regulates activities that divert, obstruct, or alter stream flow, or substantially modify the bed, channel, or bank of a stream or its riparian vegetation. Any proposed activity in a natural stream channel that would substantially adversely affect an existing fish and/or wildlife resource, would require entering into a Streambed Alteration Agreement (SBAA) with CDFG prior to commencing with work in the stream. However, prior to authorizing such permits, CDFG typically reviews an analysis of the expected biological impacts, any proposed mitigation plans that would be implemented to offset biological impacts, and engineering and erosion control plans. CDFG must also be sure that the proposed permitted action has been reviewed pursuant to CEQA. If the proposed permitted action has not been reviewed pursuant to CEQA, CDFG must assume a lead agency role and must determine either that the proposed permitted action is exempt from CEQA, or that a review must be conducted by CDFG. If CDFG becomes the lead agency reviewing a proposed action, they will charge the project applicant an hourly rate for their services conducting the CEQA review.

When reviewing proposed development plans, CDFG examines stream set-back proposals, and typically requires set-backs of 25 feet to 100 feet from the Atop-of-bank. When proposed projects would not result in significant adverse biological impacts, or if such impacts would be adequately mitigated to a level considered less than significant, CDFG will enter into a SBAA with project applicants. The SBAA presents conditions that the applicant must follow to remain in compliance with Fish and Game Code. These conditions often include prohibiting work in as stream channel between October 15 and April 15.

The Lathrop U.S. Geological Survey quadrangle does not indicate any stream channels or blue lines on project site. Our field examination corroborates that there are no stream channels or natural drainages on the project site. Accordingly, it is likely a streambed alteration agreement would not be required from CDFG for development of the project site. To be safe in this assumption, it would be prudent to ask CDFG to concur with M&A's findings that the agricultural ditches on the project site are not stream channels.

Proposed impacts to the San Joaquin River and its levee from installation of and outfall station would be regulated pursuant to Section 1600-1603 of the Fish and Game Codes.

4.10.2 Environmental Impacts

Analysis Methodology

M&A biologists reviewed several documents. The primary document used was the WLSP Final Environmental Impact Report (EIR) (Grunwald & Associates 1995). Supporting technical reports for the EIR were also reviewed, including AA. Rich and Associates (1994), Harland Bartholomew & Associates (1994), Sycamore Environmental Consultants (1993, 1994, 1995a, and 1995b).

Special status species information in the WLSP EIR is over eight years old. To update this information, M&A searched the current California Natural Diversity Data Base (RareFind2 2001) and the California Native Plant Society Electronic Inventory (CNPS 2001) for all records within 10 miles of the project site. These records have been compiled into tables: special status plant species are listed in Appendix I, Table A, while special status wildlife species are listed Appendix I, Table B.

Sycamore Environmental Consultants (1993) prepared a wetland delineation map for the WLSP. This map was for a much larger area than the proposed project under review herein, but it included the Mossdale Landing site. Because the map had expired (by federal regulation, delineations are never valid longer than 5 years), M&A conducted a new delineation in April 2001. Prior to conducting this delineation, M&A reviewed soils information from the San Joaquin County Soil Survey (USDA 1992). A preliminary wetland map was prepared by M&A on May 4, 2001. On August 31, 2001, the Corps confirmed the May 4, 2001 wetland delineation map, and concluded that no Waters of the U.S. occur on the 477.3-acre project site (U.S. Army Corps of Engineers 2001).

M&A biologists conducted general surveys of vegetation and wildlife between March and November 2001 to document the existing conditions of the project site and to update the biology section found in the 1995 EIR. Follow-up surveys were again conducted in May 2002. The plant and wildlife species observed on the project site during the surveys are listed in Appendix I, Tables C and D, respectively.

Special surveys for selected special status wildlife (riparian brush rabbit and San Joaquin Valley woodrat) were conducted by Dr. Dan Williams and Mr. Geoff Monk during the summer of 2001. In addition, special status plant surveys were conducted between March and August 2001.

All terrestrial special status species that could be affected by the proposed project are covered by the SJMSCP. See Section 4.10 for analysis of project-related impacts to fish species. The format established in this section for addressing impacts to terrestrial special status species follows the formats for addressing impacts to these species presented in the SJMSCP. Groupings of special status species and treatments for these groupings are prescribed in the SJMSCP.

The City is a permit holder as described in the SJMSCP. Although use of the SJMSCP is voluntary, the City has decided to use this permitting process for the proposed project. As a result, the mitigation measures described in the SJMSCP and in this section supercede other mitigation programs (such as those associated with the WLSP).

As with other sections of this EIR, this section classifies impacts as “significant”, “less than significant”, or “no impact”. In addition, this section includes a fourth classification, “potentially significant”. This classification is used in circumstances where the presence of a special status species or resource is uncertain, but where project construction could result in a significant adverse impact to the species if the species were indeed present. This provides a conservative evaluation of project impacts.

The analysis is based on the following understandings:

- Special status species and sensitive habitats are those identified and discussed in the SJMSCP.
- Impacts to Waters of the U.S. are not covered in the SJMSCP and permits for impacts to this resource must be obtained from the Corps and the RWQCB.
- Provisions of the SJMSCP conform with or supercede policies of the City. The City has a specific plan covering the area of the proposed project (i.e., the WLSP). Some mitigation

measures in this plan differ from those in the SJMSCP. The City has chosen to use the measures in the SJMSCP rather than those in the WLSP.

THRESHOLDS OF SIGNIFICANCE

The Mossdale Landing project would result in a significant terrestrial biology impact if it would:

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in any local or regional plans, policies, or regulations, or by CDFG or USFWS.
- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in any local or regional plans, including the SJMSCP, policies, or regulations, or by CDFG, USFWS, or NMFS.
- Have a substantially adverse effect on federally protected wetlands as defined by Section 404 of the CWA, including, but not limited to marshes, vernal pools, and coastal wetlands, through direct removal, filling, hydrological interruption or other means.
- Interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

IMPACT ANALYSIS

Impact **4.10-a**

Terrestrial Biology - Special-Status Plant Species *No special-status plant species were observed during appropriately timed surveys for such species on the project site. Therefore,* ***no impact*** *would occur.*

The project site has a long history of agricultural activities. Hence, no potential impacts are expected to occur to rare plants in the uplands of the project site. A number of special-status plant species, on rare occasions, can be found in non-managed irrigation ditches. Although the likelihood of rare plants occurring in the actively maintained irrigation ditches on the project site is low, M&A biologists conducted appropriately timed surveys for potentially occurring special-status plants. Surveys focused on the genera of these plants. These genera include *Sagittaria*, *Eryngium*, and *Cirsium*. During systematic, appropriately timed surveys for these three genera on the project site, no members of these genera were found that were special status species. In fact, no members of the genera *Sagittaria* or *Eryngium* were observed at all. The only member of the genus *Cirsium* observed was *C. vulgare*, a common, non-native, ruderal species. Thus, no impacts to special-status plant species would likely occur associated with construction of the proposed project.

[redacted]

Terrestrial Biology - Valley Elderberry Longhorn Beetle. *Construction of the proposed project could affect blue elderberry shrubs, which are habitat for the valley elderberry longhorn beetle. This impact is potentially* ***significant****.*

The blue elderberry is the host plant for the federally-listed valley elderberry longhorn beetle. Seven blue elderberry shrubs have been recorded along an irrigation drainage ditch on the project site (see Exhibit 4.10-3). The portion of the ditch in which the elderberries are growing is scheduled to be filled as part of the proposed project, and these shrubs would be destroyed. During elderberry surveys no beetles or exit holes, which would confirm the presence of the beetle, were observed. However, the lack of exit holes is not considered confirmation of species absence. Therefore, impacts to elderberry shrubs, and thus potentially to the valley elderberry longhorn beetle, are considered potentially significant.

Impact **4.10-c**

Terrestrial Biology - Swainson's Hawk*. Construction of the proposed project could affect nesting habitat for the Swainson's hawk and would decrease foraging habitat for the species. This impact is* ***significant****.*

Swainson's hawks were observed on and near the project site during M&A surveys (see Exhibit 4.10-4). A nest was observed in an oak on the northwestern edge of the property in 2001, and a nest in the center of the property was recorded in 1994 (Sycamore Environmental 1995a). Some of these trees would be removed as a result of project construction. In addition, approximately 140 acres of foraging habitat (mostly alfalfa fields) would be eliminated by the project. Some trees on the margins of the project (as shown on Exhibit 4.10-4) may not be directly affected by removal, but nesting Swainson's hawks could be disturbed by project construction and/or operational activities near these trees. The take of active nests or of trees that have or could support nests, as well as the loss of foraging habitat, are considered a significant impact.

Impact **4.10-d**

Terrestrial Biology - Burrowing Owl*. Construction of the proposed project could affect habitat for burrowing owls. This impact is potentially* ***significant****.*

Burrowing owls nest and shelter in burrows created by small mammals, particularly ground squirrels. On rare occasions they may also excavate their own burrows. They prefer open areas with low grass so that predators can be seen easily. No burrowing owls have been observed on the project site during many site surveys conducted by biologists in the spring and summer of 2001. Areas that could be used by burrowing owls based on the 2001 surveys are shown in Exhibit 4.10-5.

At present, potential on-site habitat for this species is limited. However, portions of the site that remain uncultivated for periods of time could constitute suitable nesting habitat. Such areas occur on agricultural field edges and along the levee beside the San Joaquin River. In addition, burrowing owls could occur in the future in uncultivated or undeveloped portions of the pipeline route from the project site to WRP #1. Therefore, impacts to burrowing owls and their habitat are considered potentially significant.

Terrestrial Biology - Birds Nesting Along Riparian Corridors*. Construction of the proposed project could affect nesting habitat for birds that nest along riparian corridors. Impacts to nests or young of these species are potentially* ***significant****.*

Birds in this category that have been or could be present on the site include the white-tailed kite, Cooper's hawk, sharp-shinned hawk, yellow warbler, and yellow-breasted chat (Exhibit 4.10-6). White-tailed kites have been observed on the project site exhibiting defensive nesting behavior. Accordingly, kites are likely

to nest on or in the area around the project site. Cooper's hawks, sharp-shinned hawks, yellow warblers, and yellow-breasted chats have not been observed on the project site. Marginal nesting habitat exists for the yellow-breasted chat and yellow warblers along agricultural ditches and along the San Joaquin River. Only very marginal nesting habitat occurs for the sharp-shinned hawk and Cooper's hawk along an agricultural ditch on the northern end of the project site. Since these species are mobile, and could move into the area, and since portions of the project site will not be developed for many years, impacts to these three species are considered potentially significant.

Impact **4.10-f**

Terrestrial Biology - Birds Nesting in Isolated Trees or Shrubs Outside of Riparian Corridors. *Construction of the proposed project could affect nesting habitat for sensitive bird species (loggerhead shrike) nesting in isolated trees or shrubs outside of riparian areas. Impacts to the loggerhead shrike are regarded as potentially* ***significant****.*

The loggerhead shrike is a sensitive bird species that could nest in isolated trees or shrubs outside of riparian areas. Loggerhead shrikes have been observed on the site during several surveys. Potential nesting habitat exists for the loggerhead shrike in the shrubby trees found along irrigation ditches on the project site (Exhibit 4.10-6). The removal of such habitat would represent a potentially significant impact.

Impact **4.10-g**

Terrestrial Biology - Other Tree-nesting Raptors*. Construction of the proposed project could affect nesting red-tailed hawks, red-shouldered hawks, and great-horned owls. This impact is potentially* ***significant****.*

Other tree-nesting raptors that could nest on the project site in large trees found on the site include red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), and great-horned owl (*Bubo virginianus*). Red-tailed hawks and great-horned owls were observed on the project site during the 2001 surveys (see Appendix I), and nests of both species were recorded on the property in 1994 (Sycamore Environmental 1995a). Suitable red-shouldered hawk nest trees are present in the project area, and a nest was recorded near the project site in 1994 (Sycamore Environmental 1995a). Raptors nests could be lost as a result of tree removal. In addition, nesting raptors could be disturbed by project construction and/or operational activities near active nest trees. The potential for take of an active raptor nest is considered a potentially significant impact.

Impact **4.10-h**

Terrestrial Biology - Ground Nesting or Streamside/Lakeside Nesting Birds*. Construction of the proposed project could affect nesting habitat for ground nesting or streamside/lakeside nesting birds (northern harriers). This impact is potentially* ***significant****.*

Northern harriers have been observed on numerous occasions foraging over the alfalfa fields on the project site. This species nests on the ground in high grass or around shrubby vegetation. It does not typically nest in actively cultivated fields, but may nest immediately adjacent to such fields in protected or neglected areas. Although there is an abundance of foraging habitat, nesting habitat on the site is marginal. Since the extent of shrubby and unfarmed ground vegetation is exceptionally limited, it would be unlikely that this hawk would be found nesting on the project site. If the project were constructed today, project impacts would be less than significant. However, fields left fallow and undisturbed could develop suitable breeding habitat for harriers. Consequently, impacts in the future could occur and thus are considered potentially significant.

Impact **4.10-i**

Terrestrial Biology - Colonial Nesting Birds*. Construction of the proposed project could affect nesting habitat for colonial nesting birds (tricolored blackbird, black-crowned night-heron). This impact is potentially* ***significant****.*

Species that do or could occur on the project site include the tricolored blackbird and black-crowned night heron. Tricolored blackbirds nest in dense emergent vegetation, such as cattails and tules. They also can be found nesting in extensive blackberry (*Rubus* spp.) patches. While there are very sparse occurrences of both blackberry and cattails/tules, these habitats are not large enough to support nesting colonies of tricolored blackbirds (Exhibit 4.10-6). Accordingly, suitable tricolored blackbird nesting habitat does not occur on the project site. In addition, no tricolored blackbirds have been observed on the site. As such, no impacts are expected to occur to this species. However, suitable habitat could develop in the future if portions of the site are left undisturbed for months or years.

The black-crowned night heron nests in dense shrubs and trees. Suitable nesting habitat for the black-crowned night heron occurs in the large drainage ditch on the north end of the project site (Exhibit 4.10-6). Individual black-crowned night herons have been observed flying over the site, but no rookeries are known to occur on the project site and none have been found during surveys conducted for this species. Because the suitable vegetation that could be used by these species is sparse, it is unlikely that they would breed on the site. However, nesting habitat for this species could develop if the site was left undisturbed for long periods.

If the project were constructed today, impacts to these two species would be less than significant. However, portions of the project site will not be developed for many years. If these areas were to remain fallow and/or otherwise remain undisturbed, tricolored blackbirds and/or black-crowned night herons could potentially establish themselves at the project site and later could be affected by project development. This would represent a potentially significant impact.

Impact **4.10-j**

Terrestrial Biology - Riparian Habitat*. Construction of the project would impact riparian habitat in agricultural ditches on the project site. Because these ditches are supported exclusively by irrigation water, impacts to this vegetation is considered* ***less than significant****. The proposed outfall station that would be constructed on the levee above the San Joaquin River would affect a small area of riparian habitat on the riverside of the San Joaquin River east levee. This impact is potentially* ***significant.*** *.*

With respect to the ditches on the project site mapped in the SJMSCP as Great Valley Riparian Forest, some of the mapped areas in fact do support riparian vegetation (Exhibit 4.10-1). Of the approximately 3,775 linear feet of Great Valley Riparian Habitat mapped over agricultural ditches in the SJMSCP, approximately 1,096 linear feet actually supports woody riparian vegetation. The balance supports mostly herbaceous or shrubby vegetation that is routinely removed on an annual or semi annual basis as part of the agricultural enterprise in operation on the property over the past few decades. Regardless, all riparian vegetation in the ditches on the project site including the woody vegetation is entirely supported by agricultural irrigation water.

The proposed outfall location on the San Joaquin River is shown in Exhibits 3-7 and 4.10-1. At this location, there is an open area of levee vegetated with common weedy herbaceous species. To the sides of the proposed outfall location there is a sparse riparian cover that has established in an otherwise maintained levee

area. Alongside where the outfall station would be installed, and that potentially could be affected by installation of the outfall via direct impacts or root damage, is: one small box elder (2 inches in diameter at breast height), two black willows (8 inch and 24 inch diameters at breast height), a California button willow (*Cephalanthus occidentalis californicus*) (4 inches in diameter at breast height), and one Fremont cottonwood (double trunk – one 14 inches the other 30 inches at breast height). These trees form a sparse and narrow canopy that potentially serves as nesting and resting habitat for common bird species. These trees are above the ordinary high water mark of the river and outside Corps jurisdiction. Impacts to the trees are covered under the SJMSCP. Regardless, their disturbance would represent a significant impact.

Impact **4.10-k**

Terrestrial Biology - Waters of the State and Waters of the U.S. *Construction of the proposed storm water outfall on the San Joaquin River would affect Waters of the U.S. This is a potentially* ***significant*** *impact.*

There would be impacts to Waters of the State and Waters of the U.S. from construction of a storm water outfall on the river side of the San Joaquin River levee on the west side of the project site. This outfall would discharge above the ordinary high water mark of the river, but would include spillway armoring below the ordinary high water mark. The outfall and spillway armoring would not impact wetlands as defined by the Corps's 1987 Wetlands Delineation Manual (U.S. Army Crops of Engineers 1987). However, the spillway armoring would disturb a small area below the high water mark of the river which is an "other water of the United States," and as such, would represent a potentially significant impact

Impact **4.10-l**

Terrestrial Biology - Off-Site Roadway Improvements*. Several off-site roadway improvements are required by traffic mitigation in this EIR, including : (1) additional lanes at the I-5/Louise Avenue interchange; (2) moving the Manthey Road/Louise Avenue intersection 300 feet to the west; (3) additional southbound lane to Manthey Road between Louise Avenue and Main Street; and (4) a new traffic signal at the Manthey Road/Main Street intersection. Construction of these improvements could result in loss of Swainson's hawk foraging habitat and it could affect nesting habitat for northern harriers. This is a potentially* ***significant*** *impact.*

Several off-site roadway improvements are required by traffic mitigation in Section 4.5 of this EIR. These include: (1) additional lanes at the I-5/Louise Avenue interchange; (2) moving the Manthey Road/Louise Avenue intersection 300 feet to the west; (3) additional southbound lane to Manthey Road between Louise Avenue and Main Street; and (4) a new traffic signal at the Manthey Road/Main Street intersection. An EDAW biologist conducted a site visit of these improvement sites on February 20, 2002 to assess potential impacts associated with these improvements.

The site of the proposed interchange improvements new Manthey Road/Louis Avenue intersection, and new Manthey Road/Main Street traffic signal consist of concrete, asphalt, compacted dirt shoulder, sparsely vegetated shoulder slopes, and/or vacant area (between the freeway and the off-ramps). No sensitive species or their habitats were observed within these improvement areas during the site visit. Therefore, construction of the improvements at this location would result in less-than-significant impacts.

Construction of the additional southbound lane of Manthey Road, along with the realignment of Manthey Road to connect to the new Manthey Road/Louise Avenue intersection, would result in loss of agricultural

habitat. Because the site survey was conducted in winter, it is unknown whether the agricultural field that would be bisected currently provide foraging habitat for Swainson's hawks, but there is potential for it to do so in the future. Loss of suitable foraging habitat for Swainson's hawk would be a significant impact.

Northern harriers were observed foraging within the proposed new Manthey Road alignment. As discussed above, under Impact 4.10-g, this species nests on the ground in high grass or around shrubby vegetation. It does not typically nest in actively cultivated fields, but may nest immediately adjacent to such fields. Currently, nesting habitat within the proposed alignment is marginal, and it is unlikely that northern harriers would nest in this area. If the project were constructed today, impacts would be less than significant. However, fields left fallow and undisturbed could develop suitable breeding habitat for harriers. Consequently, impacts in the future would be potentially significant.

Impact **4.10-m**

Terrestrial Biology - Gold Rush Boulevard PPL. *While the majority of the Gold Rush Boulevard PPL contains agriculture with little sensitive resource value, the PPL does contain potential Swainson's hawk foraging habitat and is proposed adjacent to an active Swainson's hawk nest. Development of Gold Rush Boulevard within this PPL could have a potentially* ***significant*** *impact.*

Gold Rush Boulevard is proposed in an area that is completely under agricultural production. No sensitive resources would be affected in the footprint of the proposed alignment (Exhibit 4.10-7). Two irrigation ditches would be affected by construction of this road, but these ditches do not have sensitive habitats where Gold Rush Boulevard would cross these ditches. Regardless, the ditches are supported exclusively by pumped irrigation water. Thus impacts to these ditches are not regarded as significant. However, indirect impacts could occur to a Swainson's hawk nest from the construction of Gold Rush Boulevard. An active Swainson's hawk nest was found in May 2002 at a location where the proposed Gold Rush Boulevard intersects the San Joaquin River levee (Exhibit 4.10-7). This location is not within the project site, but is within a zone of influence. The nest occurs on the inboard side of the levee directly across from the levee's intersection with the proposed Gold Rush Boulevard. No other impacts would occur to special-status plant or animal species from construction of Gold Rush Boulevard. Any disturbance to nesting hawks that would result in loss of eggs and/or young would be considered a significant impact. Similarly, loss of Swainson's hawk foraging habitat would be considered a significant adverse impact.

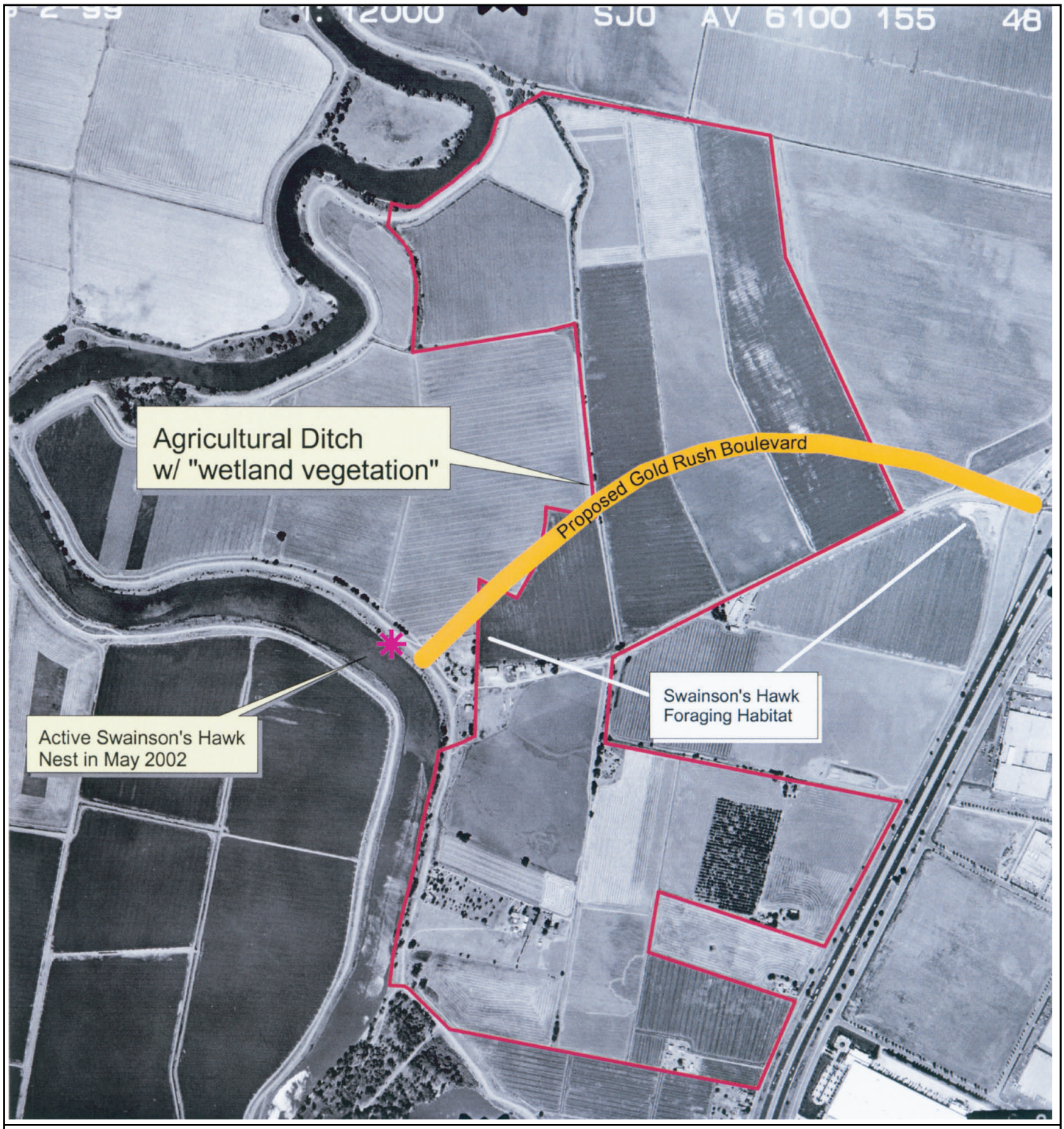
Impact **4.10-n**

Terrestrial Biology - Oak Trees. *Construction of the proposed project would remove non-native and native trees from the project site. Impacts to trees would be considered* ***less than significant*** *with implementation of the preservation and replacement program proposed by the project applicant.*

Both exotic and native trees such as valley oaks would be removed by the project. Most of these trees grow in association with existing residences, in the agricultural ditches, or on the edges of project site. There are no special protection provisions provided by state or federal law for native and/or nonnative trees occurring on the project site. The SJMSCP does not specifically call for the preservation of oak trees that are not part of riparian habitat or oak woodland. The City of Lathrop has no heritage tree ordinance or other provisions in its General Plan that would protect trees on the project site. While there is a chapter in the Cities' General Plan devoted to trees (Chapter 12.16), this chapter only provides management measures for existing trees in streetscape settings. Finally, there are no provisions that would protect any tree on the project site City of Lathrop's southwest Specific Plan which was prepared for the area that includes the project site.

While there are no special provisions for protection of trees, valley oaks are regarded by the scientific community as particularly valuable habitats for wildlife. Raptors nest in valley oaks, and many bird and mammal species forage on the mast crops provided by valley oaks. As indicated in Chapter 3, the project includes a preservation/avoidance plan for the largest valley oaks on the project site. Specifically, the majority of healthy valley oaks over 40 inches dbh would be preserved. The current project plan indicates that six of the largest 10 valley oaks on the project site will be preserved. The remaining four largest valley oaks occur on property boundaries and are within proposed road alignments.

The project proponent is currently investigating the feasibility of preserving these trees within the road alignments. In addition, the plan includes provisions to establish an oak community on the project site. This provision includes a prescription that all valley oaks larger than 18 inches dbh that are removed shall be replaced on the project site by installation of three valley oaks within the river parks and/or open space portions of the project site. Replacement trees will be at least one-gallon tree pots, and shall be watered for a period of three years or as otherwise necessary to establish the trees on the project site.



Proposed Gold Rush Boulevard Alignment Impacts to Terrestrial Biological Resources

EXHIBIT 4.10-7

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

0 1000 2000 FEET

NORTH

EDAW

In consideration of the above, and the absence of any laws or regulations that would protect any tree on the project site, impacts to valley oaks and all other trees on the project site are regarded as less than significant.

4.10.3 MITIGATION MEASURES

Primary mitigation will be through use of the SJMSCP. The SJMSCP has a variety of sources for funding projects that can be used to offset project impacts. Among these is the collection of development fees. Five fee categories are described in the SJMSCP (as amended): (A) No Pay Zone, (B) Multi-Purpose habitat land conversion fee, (C) Agriculture habitat land conversion fee, (D) Natural habitat land conversion fee, and (E) Vernal Pool habitat land conversion fee. Agricultural habitats, which make up most of the project site, are those that support annual or perennial agricultural crops, including ruderal areas. Orchards belong to the multi-purpose open space category. Fees are based on the amount of each category converted to non-open space. Exhibit 4.10-8 shows the locations, acreages, and of the fee categories on the project site.

Fees for each category were determined by a complicated formula that establishes a per-acre fee depending on the category of land developed. The three fees applicable to the proposed project are $1,690 per acre for agricultural habitat lands, $1,690 per acre for natural habitat lands, and $845 per acre for multi-purpose open space lands. Fees for vernal pool habitats and no pay zones are not applicable to the project site..

Fees are collected by the permit holder, in this case the City of Lathrop, and transferred to the Joint Powers Authority (JPA) for use in mitigation projects appropriate for the project impacts. According to the SJMSCP, fees for projects larger than 350 acres must be collected before a grading permit is issued, or before ground disturbance if a grading permit is not required. The JPA must approve the fee amount. To pay the fee, the project proponent may pay the fee in cash, or may post a bond in the amount of the fee. Regardless, the project proponent will be required to pay the fee prior to development.

Use of the SJMSCP also requires development of appropriate minimization and avoidance measures. Minimization and avoidance measures prescribed in the SJMSCP include protecting specified natural habitats and conducting preconstruction surveys for specified special-status species. In addition, the SJMSCP may restrict all potential take of some covered species. In some cases, impacts to specified species and/or their habitats are not covered in the SJMSCP. In such cases, consultation with the USFWS is required to address impacts to federally listed species that have no take provisions in the SJMSCP. Minimization and avoidance measures for all the species potentially occurring on the project site are presented below. Distinctions are made for those species covered under the SJMSCP and those species not covered under the SJMSCP.

Independent of any relief provided applicants via the SJMSCP for impacts to special status species, the federal Migratory Bird Treaty Act and Fish and Game Codes protect nesting birds from harassment and/or direct take. These laws and their prohibitions remain unmodified by the SJMSCP. Such constraints are considered and incorporated into the mitigation measures prescribed below.

Source: Monk & Associates, Inc., June 2002.

Land Use Fee Category According to the SJMSCP for Proposed Impact Areas

EXHIBIT 4.10-8

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

0 500 1000 FEET

NORTH

EDAW

The mitigation measures below correspond by number and name to the environmental impacts. Where either a "less-than-significant impact" or "no impact" will occur, no mitigation is identified below (this is the reason why some of the mitigation measures may skip impact numbers).

4.10-b **Terrestrial Biology - Valley Elderberry Longhorn Beetle.** The applicant shall use the SJMSCP to mitigate potentially significant impacts to the valley elderberry longhorn beetle. The SJMSCP requires preconstruction surveys to determine the number of elderberry stems greater than one inch in diameter at the base elevation of each valley elderberry that would be affected by the project. In August 2001, M&A biologists conducted a survey for elderberry shrubs. Seven shrubs were found growing in an agricultural ditch as indicated on Exhibit 4.10-3. One shrub was surrounded by brambles (roses and blackberries) and did not have stems counted. The six remaining shrubs had 29 stems greater than one inch in diameter. After payment of the required fees, the JPA shall provide three new plants for each stem greater than one inch in diameter for a compensation ratio of 3:1. The SJMSCP requires that any shrubs with exit holes be compensated for at a ratio of 6:1. However, no exit holes were found during surveys for this beetle conducted in the summer of 2001. Although the valley elderberry longhorn beetle is a listed species, the USFWS is a signatory on the SJMSCP. Accordingly, no further consultation with the USFWS is required regarding this species because the SJMSCP covers the valley elderberry beetle.

Implementation of Mitigation Measure 4.10-b would reduce the impacts to the valley elderberry longhorn beetle to less-than-significant levels.

4.10-c **Terrestrial Biology - Swainson's Hawk.** The applicant shall use the SJMSCP to mitigate potentially significant impacts to this species foraging habitat. To prevent the take of nesting Swainson's hawks, preconstruction surveys shall be conducted by a qualified biologist in all areas indicted on Exhibit 4.10-4 and all nesting Swainson's hawks on the project site shall be identified. In order to prevent loss of eggs and/or nestlings, as otherwise required to avoid direct take, a minimum 500-foot setback shall be established around any nesting Swainson's hawks and maintained until the fledglings have left the nest. The setback area shall be clearly marked with brightly colored fencing. The setback may be modified if a qualified raptor biologist determines that the setback can be modified without undue disturbance to the nesting hawks. No nest tree shall be removed until the young fledge the nest and are independent of the nest tree. Typically, nesting trees should only be removed between September 1st and February 15th after Swainson's hawks have completed nesting and young have reached independence of the nesting tree.

Implementation of Mitigation Measure 4.10-c would reduce the impacts to Swainson's hawks to less-than significant-levels.

4.10-d **Terrestrial Biology - Burrowing Owl.** No burrowing owls are known to use the project site. Any impacts to this owl would be mitigated using the methods provided in the SJMSCP. Section 5.2.4.15 of the SJMSCP provides several methods for discouraging burrowing owls from using prospective project sites. These include retaining tall vegetation on the site, disking or plowing the site, or using various chemicals or traps to kill ground squirrels (consult the SJMSCP for further discussion). To ensure that there is no direct take of nests and/or burrowing owls, preconstruction surveys for burrowing owls shall be conducted in areas shown on Exhibit 4.10-5 in the 30-day period prior to

ground disturbance. If burrowing owls are found on the site, the following mitigation measures shall be implemented.

- During the non-breeding season (September 1 through January 31), burrowing owls found in burrows on the site can be evicted using passive relocation methods described in the CDFG's Staff Report on Burrowing Owls (October 1995).

- During the breeding season (February 1 through August 31), occupied burrows shall not be disturbed. A 300-foot setback from these areas shall be established and marked with brightly colored fencing. The setback area shall not be disturbed until a qualified raptor biologist determines that the birds have not yet begun egg laying or that the fledglings are capable of independent survival. Once the young are capable of independent survival, as approved by CDFG, the burrows can be destroyed. One-way eviction doors shall be installed over active burrows for a minimum of three days prior to the time any burrow is destroyed.

Implementation of Mitigation Measure 4.10-d would reduce the impacts to burrowing owls to less-than-significant levels.

4.10-e **Terrestrial Biology - Birds Nesting Along Riparian Corridors.** Preconstruction nesting surveys for Cooper's hawk, sharp-shinned hawk, white-tailed kite, yellow warbler, and yellow-breasted chat shall be conducted by a qualified raptor biologist/ ornithologist in areas shown on Exhibit 4.10- 6 prior to ground disturbance. To protect eggs and or nestlings from direct take, if any yellow warbler or yellow- breasted chat nests are found, a 100-foot setbacks shall be established around the nest(s) until the fledglings have left the nest. If any Cooper's hawk, sharp-shinned hawk, or white-tailed kite nests are found, 500-foot setbacks shall be established around each nest. A qualified raptor biologist/ ornithologist may modify these setback requirements if it is determined that no take of eggs or nestlings would occur under the modified condition. The setback area(s) shall be clearly marked with brightly colored fencing. Nesting habitat can be removed after nestlings reach independence of the nest site.

Implementation of Mitigation Measure 4.10-e would reduce project impacts on special status birds nesting along riparian corridors to less-than-significant levels.

4.10-f **Terrestrial Biology - Birds Nesting in Isolated Trees or Shrubs Outside of Riparian Corridors.** To prevent potential impacts to the loggerhead shrike during nesting, preconstruction surveys shall be conducted in areas shown on Exhibit 4.10-6 prior to ground disturbance. If nesting birds are found, a 100-foot setback shall be established around the nesting area until the fledglings have left the nest. The setback areas shall be marked with brightly colored fencing. A qualified ornithologist may modify these setback requirements if it is determined that no take of eggs or nestlings would occur under the modified condition.

Implementation of Mitigation Measure 4.10-f would reduce projects impacts on special status birds nesting in isolated trees or shrubs outside of riparian areas to less-than-significant levels.

4.10-g **Terrestrial Biology - Other Tree-nesting Raptors.** To prevent potential impacts to nesting red-tailed hawks, red-shouldered hawks, and great-horned owls, preconstruction surveys shall be conducted in all areas with trees on or within 500 feet of the project. If active nests are found, a 500-foot setback shall be established around the nesting area until the fledglings have left the nest. The setback area shall be clearly marked with brightly colored fencing. A qualified ornithologist may modify these setback requirements if it is determined that no take of eggs or nestlings would occur under the modified condition. No nest tree shall be removed until the young fledge the nest and are independent of the nest tree.

Implementation of Mitigation Measure 4.10-g would reduce projects impacts on other tree-nesting raptors to less-than-significant levels.

4.10-h **Terrestrial Biology - Ground Nesting or Streamside/Lakeside Nesting Birds.** If left undisturbed for a year or more, most of the project site could develop fallow areas that would provide suitable nesting habitat for the northern harrier. To prevent the potential take of northern harriers, a qualified raptor biologist shall conduct preconstruction surveys on the project in suitable areas prior to ground disturbance. If a nest is found, a 500-foot setback shall be established around the nesting area until the fledglings have left the nest. The setback shall be clearly marked with brightly colored fencing. A qualified raptor biologist/ ornithologist may modify these setback requirements if it is determined that no take of eggs or nestlings would occur under the modified condition.

Implementation of Mitigation Measure 4.10-h would reduce project impacts on special status ground nesting or streamside/lakeside nesting birds to less-than-significant levels.

4.10-i **Terrestrial Biology - Colonial Nesting Birds.** To prevent potential impacts to colonial nesting birds, including the tricolored blackbird and the black-crowned night heron, preconstruction surveys shall be conducted prior to ground disturbance. If any colonial species are found nesting, a 500-foot setback shall be established around the nesting colonies and no ground disturbance shall take place until the fledglings have left the nest. The setback shall be clearly marked with brightly colored fencing. A qualified ornithologist may modify these setback requirements if it is determined that no take of eggs or nestlings would occur under the modified condition

Implementation of Mitigation Measure 4.10-i would reduce project impacts on special status colonial nesting birds to less-than-significant levels.

4.10-j **Terrestrial Biology - Riparian Habitat.** Although the loss of riparian habitat is covered by the SJMSCP, it also provides measures to avoid or replace riparian vegetation. Riparian vegetation that is removed during outfall construction and/or that occurs in agricultural ditches should be replaced. Any California native tree or shrub that is removed shall be replaced at a 3:1 ratio. Replacement trees/shrubs shall be at least one-gallon size. Replacement shall occur along the riverside of the east levee of the San Joaquin River or otherwise suitable areas. Suitable areas shall include other riparian areas or areas that can be modified into a riparian habitat with a passive water supply (i.e., non-irrigated water supply). All installed trees shall be irrigated for a period of three years during an initial establishment period.

Implementation of Mitigation Measure 4.10-j would reduce project impacts to riparian habitat to less-than-significant levels.

4.10-k **Terrestrial Biology - Waters of the State and Waters of the U.S.** Prior to installing the proposed outfall, the applicant shall obtain all necessary environmental permits, including, but not limited to permits from the U.S. Army Corps of Engineers, CDFG, RWQCB, and the Bureau of Reclamation (District 17). The project shall meet all the requirements of the permitting agencies. In addition, the following measures shall be implemented:

- All turbid water entering the dewatered work area shall be pumped from the work area up and over the levee to a holding pond constructed at the base of the levee. After any silt-laden waters settle, they may ether be discharged onto croplands adjacent to the work site, or back into the San Joaquin River.

- Erosion control measures shall be implemented on the levee to ensure that no deminimis fill (sediments) enters the San Joaquin River. Such measures shall include installation of silt fencing, hay bales, and/or hay wattles to ensure there is a sediment barricade between the work area and the river.

- Upon completion of the outfall, all dewatering structures shall be removed from the river and all barren soils stabilized using a tackified hydromulch.

- No equipment fueling shall be allowed on the levee. All equipment must refuel below and outside the levee in areas that are designated for refueling and that are contained so that accidental spills are trapped in the containment area.

Implementation of Mitigation Measure 4.10-k would reduce project impacts on Waters of the State and Waters of the U.S. to less-than-significant levels.

4.10-l **Terrestrial Biology - Off-Site Roadway Improvements.** The applicant shall use the SJMSCP to mitigate potentially significant impacts to Swainson's hawk foraging habitat. To prevent the potential take of northern harriers, prior to ground disturbance, preconstruction surveys shall be conducted within 500 feet of the proposed Manthey Road realignment by a qualified raptor biologist. If a nest is found, a 500-foot setback shall be established around the nesting area until the fledglings have left the nest. The setback shall be clearly marked with brightly colored fencing. A qualified raptor biologist/ ornithologist may modify these setback requirements if it is determined that no take of eggs or nestlings would occur under the modified condition.

Implementation of Mitigation Measure 4.10-l would reduce the impacts to Swainson's hawks and northern harriers to less-than-significant levels.

4.10-m **Gold Rush Boulevard PPL.** The applicant shall use the SJMSCP to mitigate potentially significant impacts to Swainson's hawk foraging nesting habitat. To prevent the potential take of nesting raptors including Swainson's hawk, northern harriers, and/or burrowing owls, preconstruction surveys shall be conducted by a qualified raptor biologist within 500 feet of the

Gold Rush Boulevard PPL prior to ground disturbance. If a raptor nest is found, a 500-foot setback shall be established around the nesting area until the fledglings have left the nest. The setback shall be clearly marked with brightly colored fencing. A qualified raptor biologist/ ornithologist may modify these setback requirements if it is determined that no take of eggs or nestlings would occur under the modified condition.

Implementation of Mitigation Measure 4.10-m would reduce the impacts to Swainson's hawks and northern harriers to less-than-significant levels.

4.10.4 RESIDUAL SIGNIFICANT IMPACTS

No residual significant impacts would occur with implementation of the mitigation measures recommended in this section.

4.11 FISHERIES RESOURCES

The following section evaluates the potential environmental effects of the Mossdale Landing project on fisheries resources. This evaluation is based on a fisheries study of the proposed project prepared by Monk & Associates LLC (M&A), which in turn is based on information contained in a report tilted *Water Quality Analysis Report, Mossdale Landing* (RBF 2001) (attached as Appendix C of this EIR). The RBF report specifically addresses potential impacts from proposed stormwater discharges from the Mossdale Landing project on San Joaquin River (SJR) surface water quality. M & A's study also relies upon fisheries data from the vicinity of the proposed project provided in the *Lathrop Water, Wastewater and Recycled Water Master Plan EIR* (EDAW 2001).

The Mossdale Landing project site is located along the east bank of the SJR in the greater Sacramento/San Joaquin Delta (Delta). Since it is proposed that stormwater runoff from the project site be discharged to the SJR through a constructed outfall, such discharges are examined herein with respect to degradation of water quality and impairment of beneficial uses of the receiving water (SJR), potential impacts to fisheries resources in the SJR. This section also examines the impacts to fisheries and the local aquatic environment associated with the construction of the proposed outfall.

Over the last few years, numerous fish inventories have been conducted in the SJR in the vicinity of the proposed project. These inventories provide baseline information on species diversity and relative abundance in the SJR in the vicinity of Lathrop. At least two studies provide in-depth summaries of the numerous fish inventories: the *West Lathrop Specific Plan, Fishery Resources Assessment* (A.A. Rich and Associates 1994), and the Master Plan EIR. Because the Master Plan EIR presents current, location-specific fisheries data for the reach of the SJR in the immediate vicinity of the project site, this subsection of the EIR excerpts portions of that analysis. Should the reader wish further information on existing fisheries in the Lathrop portion of the SJR, please refer to the referenced source documentation.

In this section of the EIR the potential degradation of water quality and impairment of beneficial uses of the SJR from the Mossdale Landing project is one area of focus. Another area of focus is the expected impacts to fisheries resources from the potential degradation of water quality in the SJR resulting from implementation of the proposed project. Finally, this EIR section examines the physical impacts to the environment from implementation of the proposed project that could affect fisheries in the SJR.

4.11.1 EXISTING CONDITIONS

PHYSICAL SETTING

Receiving Waters

The receiving water for the Mossdale Watershed is the SJR. The SJR is approximately 330 miles long and flows through portions of Contra Costa, Fresno, Madera, Merced, Sacramento, San Joaquin and Stanislaus Counties. The river experiences flows as low as 1,500 cubic feet per second (cfs) in dry years, and exceeds 40,000 cfs in wet years. At the Vernalis gauging station a short distance upstream of the Mossdale Landing site, the mean flow rate is approximately 4,700 cfs (EDAW 2001).

Water quality in the SJR has degraded significantly since the 1940's, primarily due to reservoir developments for agricultural purposes in tributaries of the SJR and in its upper watershed. Also, there has been degradation of water quality caused by drainage over and through upslope saline soils on the west side of the San Joaquin Valley. Other degradation has occurred from use of pesticides and fertilizers, agricultural return flows, municipal discharges, and channelization of the SJR.

The stretch of the SJR adjacent to the Mossdale Landing site is within the jurisdiction of the Central Valley Regional Water Quality Control Board (CVRWQCB). As designated in the CVRWQCB Basin Plan for this region, beneficial uses for the receiving water may include warm and cold freshwater habitat, migration of warm and coldwater fish species, and spawning of warm water fish species. Accordingly, it is these beneficial uses that are examined in this EIR section.

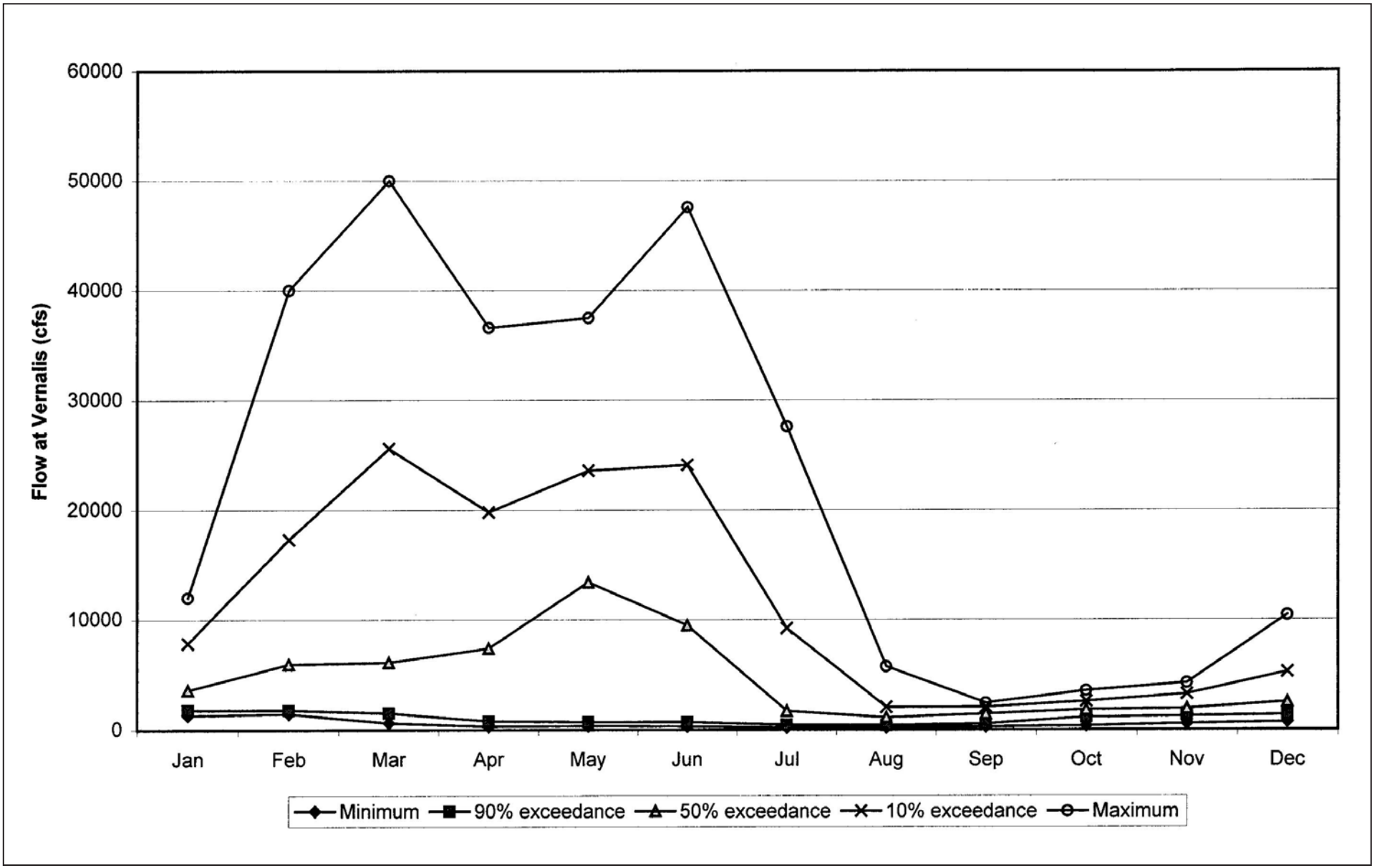
Hydrology

The aquatic habitat in the reach of the SJR adjacent to the project site is a tidally influenced riverine habitat. A typical tidal cycle causes an oscillation of the water surface elevation of about 3 feet (EDAW 2001). River current velocities vary with the tidal cycle and depend on total river flow. Flow reversals may occur at lower flow levels.

Hydrologic conditions in the San Joaquin Basin are dominated by snowmelt from the Sierra Nevada. Before completion of major water storage projects on the SJR and its major tributaries, the hydrograph peaked in May and dropped to low levels in the fall (Exhibit 4.11-1). Since the completion of Friant Dam in 1947, McClure Reservoir in 1960 (on the Merced River), Don Pedro Reservoir in 1970 (on the Tuolumne River), and the New Melones Reservoir in 1978 (on the Stanislaus River), the hydrograph has been greatly altered (Exhibit 4.11-2).

Before 1947, peak flows ranged between 20,000 and 50,000 cfs from March through June. Median flows (50% exceedence peaked in May at over 13,000 cfs and declined rapidly to summer levels to a range of 1,000 to 1,500 cfs. Since 1978, peak flows in the SJR typically occur in January and February and range between 30,000 to 50,000 cfs. Median flows (50% exceedence) range from about 4,300 cfs in March to 1,700 cfs in July (see Exhibits 4.11-1 and 4.11-2).

Changes to flows have affected fish populations, particularly migratory salmonids including special-status native fish that include the chinook salmon (*Oncorhynchus tshawytscha*) and steelhead (*Oncorhynchus mykiss*). Reductions in spring peak flows that enhance the ability of young fish to migrate downstream to and through the Delta have been especially detrimental. There has also been a substantial increase in summer flows since completion of water management projects. Significant flows are transferred from reservoir storage areas, through agricultural irrigation systems, and back into the SJR in the summer months.



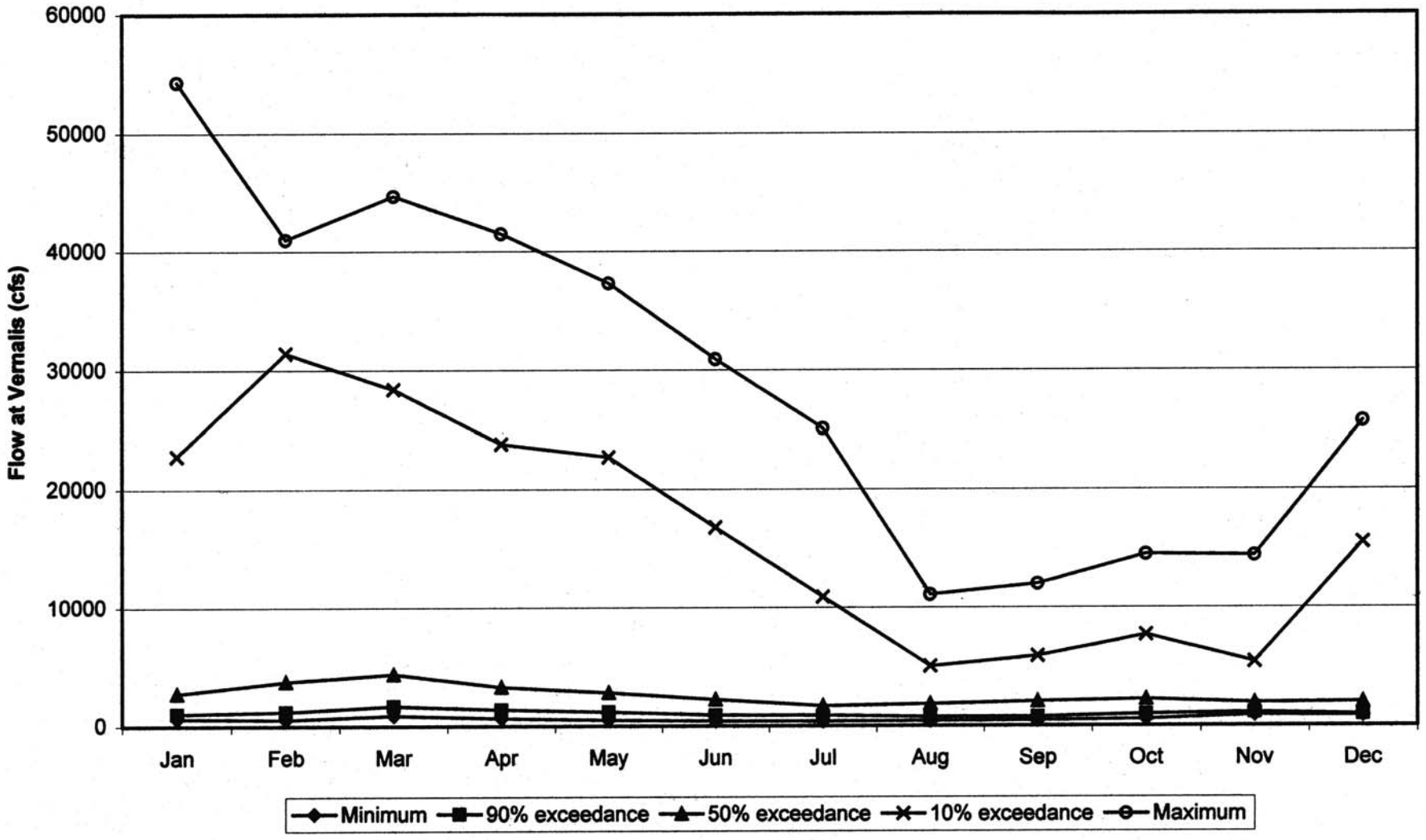
Data Source: U.S. Geological Survey Water Resources Data Reports, 9/2000.

San Joaquin River Hydrograph, pre-1947

EXHIBIT 4.11-1

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 11/01

EDAW



Data Source: U.S. Geological Survey Water Resources Data Reports, 9/2000 .

San Joaquin River Hydrograph, post-1978

EXHIBIT 4.11-2

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 2/02

EDAW

Fish Communities

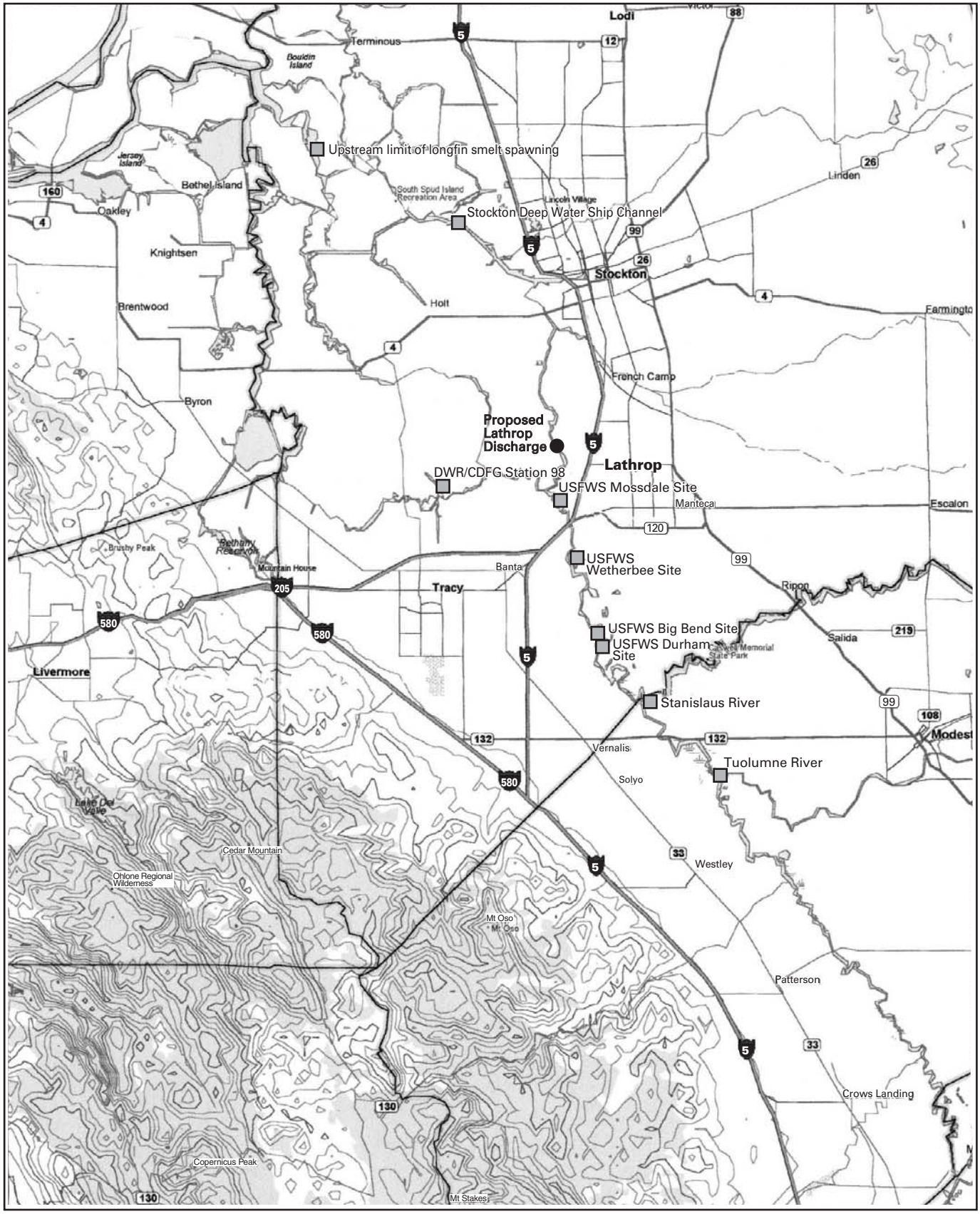
Monitoring Surveys

The lower SJR and Delta support a diverse fish community composed of both native and introduced exotic species. Substantial amounts of information documenting fishery resources of the Delta are currently collected by several resource agencies. Several data sources were used to evaluate fishery resources in the vicinity of the proposed Mossdale Landing project. These include mid-water trawl surveys, egg and larval surveys, beach seine surveys, and real-time monitoring data. Each of these surveys was developed to meet specific information needs and each has its own methods and uses. None of these surveys was specifically developed to address impacts of the Mossdale Landing project, although they provide useful information for this analysis.

The California Department of Fish and Game (CDFG) has conducted monthly mid-water trawl surveys in September through December since 1967, and in January through April since 1992, at a number of standard sites throughout San Pablo Bay, Suisun Bay, and the Delta. CDFG uses these surveys to index the abundance and distribution of young-of-year and other age groups of fishes that inhabit the estuary. The closest mid-water trawl location to the proposed Mossdale Landing project is Station 912 on the SJR about 20 miles downstream from the City of Lathrop. Given the distance to this trawl location, it may have a different subset of fish species, abundance, and/or seasonal timing. No sampling is conducted between May and September and species occurrence and relative abundance during the summer and fall may be different from that indicated by the mid-water trawl surveys. Species captured and relative abundance of species may be skewed since smaller fish in the open water of deeper mid-channel areas have a higher probability of being sampled.

Egg and larval surveys are conducted by the California Department of Water Resources (DWR) and CDFG as part of the Southern Delta Entrainment Monitoring program to estimate annual entrainment losses of targeted species to the State Water Project (SWP) and Central Valley Project (CVP) intakes in the southern Delta. The survey measures abundance and distribution of egg and larval fish species in the southern Delta and impacts of the SWP/CVP operations and the South Delta Temporary Barriers Project. Samples are collected from early February to mid-July. The closest egg and larval sample location to the proposed Mossdale Landing project is Station 98 on Salmon Slough near the junction of Old River with the Grant Line Canal, approximately 8.5 river miles from the proposed outfall station (Exhibit 4.11-3). This location is off the main SJR channel and may not be representative of fish species occurrence and abundance near the proposed project.

Beach seine surveys are conducted by the U.S. Fish and Wildlife Service (USFWS) in the Lower SJR, Delta, and Lower Sacramento River from January through June. The primary objective of these surveys is to monitor abundance and distribution of juvenile chinook salmon, but other fishes inhabiting shallow near-shore areas are also sampled. Beach seine surveys are not conducted between July and December and may not be representative of fish species presence and abundance during summer and fall months. There are several beach seine sites in the vicinity of the proposed Mossdale Landing project and these surveys are probably the best indicator of fish species occurrence and seasonal abundance near the project site.



Source: EDAW, Inc., 2001.

Fish Sampling Locations

EXHIBIT 4.11-3

Mossdale Landing UDC EIR
CITY OF LATHROP

0 4 8 MILES

NORTH

EDAW

JN 1T019.01 2/02

The Mossdale site is located near river mile 56, immediately downstream of the I-5 bridge and approximately 1 mile upstream of the proposed Mossdale Landing project site. The Wetherbee site is located approximately 1.5 mile upstream of the Mossdale Landing project site, and the Big Beach and Durham sites are approximately 5.5 miles and 10.5 miles upstream (Exhibit 4.11-3).

Since 1996, the Interagency Ecological Program (IEP) Real Time Monitoring Project has conducted daily sampling at various sites during the period from April 1 through June 30 using Kodiak trawls. One of theses sites is at Mossdale, a location just upstream from the Mossdale Landing project site. Kodiak trawls sample fish in the water column in main channel locations. Species occurrence and relative abundance may be substantially different during the period between July and March when sampling does not occur.

Species Composition

Table 4.11-1 lists fish species expected to occur in the vicinity of the Mossdale Landing project based on monitoring surveys in the South Delta and Lower SJR. Table 4.11-2 shows the relative abundance of many of these fish species at the sampling locations near the project site. The majority of fish found near the project site are introduced species that have native ranges in warm water habitats of the eastern U.S. or are species native to Asian waters. Striped bass (*Morone saxatilis*) and American shad (*Alosa sapidissima*) are anadromous species native to the East Coast of the U.S. that support popular recreational fisheries. The three goby species listed in Table 4.11-1 have been captured in mid-water trawls and the egg and larval surveys downstream of the project site, but not in beach seining surveys closer to the project site. They may not occur as far upriver as the project site location.

Steelhead have been reported in the vicinity of the proposed project only from the real-time monitoring surveys. Historically, there were spawning populations of steelhead in the Stanislaus, Tuolumne, and Merced Rivers (EDAW 2001) and small remnant populations may still persist in the SJR (McEwan and Jackson 1996). Migrating steelhead would be expected to pass by the project site, primarily in the winter and spring.

In entrainment monitoring studies assessing larval fishes in the south Delta conducted by DWR, the most common species captured are chameleon goby (*Tridentiger trigonocephalus*), prickly sculpin (*Cottus asper*), threadfin shad (*Dorosoma petenense*), and striped bass (EDAW 2001, Spaar 1993). These species made up 99% of the larval catch during monitoring in 1991-1994. Delta smelt (*Hypomesus transpacificus*) have not comprised more than 0.5%, and longfin smelt (*Spirinichus thaleichthys*) and splittail (*Pogonichthys macrolepidotus*) have made up less than 0.1% of the total larval catch.

Special Status Fish Species in the Mossdale Landing Region

Eight special status fish species are potentially present in the SJR in the vicinity of the project site as listed below:

- Steelhead
- Sacramento spring-run chinook salmon
- Sacramento fall/late fall run chinook salmon
- Sacramento winter-run chinook salmon
- Delta smelt
- Longfin smelt
- Sacramento splittail
- Green sturgeon

Table 4.11-1
Fish Species Reported in the Vicinity of the Proposed Lathrop Discharge

Common Name	Scientific Name	Midwater Trawl Survey	Egg and Larval Survey	Beach Seine Survey	Real-Time Monitoring
Native Species					
Hitch	*Lavinia exilicauda*			X	X
Sacramento blackfish	*Orthodon microlepidotus*		X		
Sacramento splittail	*Pogonichthys macrolepidotus*			X	XX
Sacramento squawfish	*Ptychoch eilus grandis*			XX	
Sacramento sucker	*Catostomus occidentalis*		X	X	X
Delta smelt	*Hypomesus transpacificus*		X		X
Longfin smelt	*Spirinichus thaleichthys*				X
Steelhead/Rainbow trout	*Oncorhynchus mykiss*				X
Chinook salmon	*Oncorhynchus tshawytscha*	X		X	X
Threespine stickleback	*Gasterosteus aculeatus*				X
Prickly sculpin	*Cottus asper*		X	X	
Tule perch	*Hysterocarpus traski*			X	X
Introduced Species					
American shad	*Alosa sapidissima*	X			X
Threadfin shad	*Dorosoma petenense*	X	X	X	X
Goldfish	*Carassius auratus*			X	
Red shiner	*Cyprinella lutrensis*			X	
Carp	*Cyprinus carpio*	X		X	
Golden shiner	*Notemigonus chrysoleucas*	X		X	X
Rosyface shiner	*Notropis rubellus*			X	
Fathead minnow	*Pimephales promelas*			X	X
White catfish	*Ameiurus catus*	X			X
Black bullhead	*Ameiurus melas*				X
Channel catfish	*Ictalurus punctatus*	X		X	X
Wakasagi	*Hypomesus nipponensis*				X
Western mosquitofish	*Gambusia affinis*			X	
Inland silverside	*Menidia beryllina*	X	X	X	X
Striped bass	*Morone saxatilis*	X	X	X	X
Bluegill	*Lepomis macrochirus*	X		X	X
Redear sunfish	*Lepomis microlophus*			X	X
Smallmouth bass	*Micropterus dolomieu*			X	
Largemouth bass	*Micropterus salmoides*			X	X
White crappie	*Pomoxis annularis*	X		X	X
Black crappie	*Pomoxis nigromaculatus*	X		X	X
Bigscale logperch	*Percina macrolepida*		X	X	
Yellowfin goby	*Acanthogobius flavimanus*	X			
Shimofuri goby	*Tridentiger bifasciatus*	X			X
Chameleon goby	*Tridentiger trigonocephalus*		X		

Source: EDAW 2001

Table 4.11-2
San Joaquin River Species Relative Abundance in Beach Seine Surveys Near the Proposed Lathrop Discharge

Species	Mossdale	Wetherbee	Big Beach	Durham
Red Shiner	56%	51%	68%	86%
Inland Silverside	33%	39%	2%	1%
Threadfin Shad	4%	3%	0.1%	0.02%
Chinook Salmon	3%	1%	0.4%	0.1%
Sacramento Splittail	1%	1%	26%	0.3%
Western Mosquitofish	1%	0.2%	0.1%	0.1%
Sacramento Sucker	1%	2%	3%	12%
Golden Shiner	1%	0%	0%	0%
Fathead Minnow	0.1%	1%	0.2%	0.1%
Sacramento Blackfish	0.1%	0.1%	0.005%	0%
Largemouth Bass	0.1%	0.1%	0%	0.05%
Bluegill	0.1%	0.1%	0.05%	0.1%
Redear Sunfish	0.1%	0.1%	0.05%	0.02%
Sacramento Squawfish	0.1%	0.5%	0.1%	0.02%
Black Crappie	0.1%	0%	0%	0%
Bigscale Logperch	0.1%	0.2%	0.01%	0%
Bass Unknown	0.03%	0.1%	0.05%	0%
Hitch	0%	0%	0%	0%
Striped Bass	0.03%	0.05%	0%	0%
Prickly Sculpin	0.02%	0.2%	0.1%	0%
Goldfish	0%	0%	0%	0%
Rosyface Shiner	0%	0%	0.03%	0%
White Crappie	0%	0%	0%	0%
Tule perch	0%	0.1%	0.1%	0%
Common Carp	0%	0.05%	0.005%	0%
Channel Catfish	0%	0%	0.005%	0%
Smallmouth Bass	0%	0%	0%	0.05%

Source: EDAW 2001

None of the special status species, except possibly splittail, are resident in the vicinity of the project site. In beach seine surveys conducted by the USFWS, splittail abundance was comparable at the Mossdale site (approximately 1 mile upstream of proposed Mossdale Landing project site) and at the Wetherbee site (approximately 1.5 mile upstream of the Mossdale Landing project site) (Table 4.11-2). Splittail comprised about 1% of the total catch at both locations. Catch of splittail at Big Beach, about 5.5 miles upstream of the Mossdale Landing project site, exceeded catch at both Mossdale and Wetherbee sites but was dominated by large catches on a few dates in 1995 and 1998, including a catch of over 3,900 on a single sample date in June 1998. This large catch may represent an unusual concentration of splittail or may be representative of natural

variation in local abundance of the species during the reproductive period. In either case, it appears to be transient.

Although no special status species are known to be resident in the vicinity of the project site, the eight special status fish species listed above migrate through or reside in the SJR in the project area for periods during their life cycle. Provided below is a summary of the status and general habitat requirements of each of these eight special status fish species.

Steelhead-Central Valley Evolutionarily Significant Unit (ESU) (Oncorhynchus mykiss)

Steelhead (Central Valley ESU) are federally listed as threatened. This fish has been captured in the vicinity of the Mossdale sampling station in the real-time monitoring surveys. There is limited information available concerning the historical or present abundance and distribution of steelhead within the SJR and its tributaries. McEwan and Jackson (1996) indicate that a small, remnant run persists in the Stanislaus River, and that steelhead were observed in the Tuolumne River in 1983. Also, that a few large rainbow trout that appear to be steelhead enter the Merced River Hatchery annually. Steelhead in the San Joaquin drainage are included by the National Marine Fisheries Service (NMFS) in the Central Valley ESU and are listed as threatened. The project site is located within USFWS designated critical habitat for the Central Valley ESU. The major factor influencing steelhead populations in the San Joaquin system is loss of habitat due to construction of impassable dams on the major tributaries. Juvenile steelhead reside in nursery streams for one to two years before migrating to the ocean and suitable coldwater habitat exists primarily upstream of the present dam sites.

Adult steelhead migrate upstream to spawning habitat in the tributaries during the winter and early spring. Steelhead smolts migrate from rearing areas in the tributaries to the ocean primarily in the spring. The SJR in the vicinity of the project site would be used by steelhead primarily as a migration corridor between the ocean and coldwater habitat in the tributaries.

Chinook salmon-Central Valley spring run (Oncorhynchus tshawytscha)

Chinook salmon (Central Valley spring run) are listed under both the California Endangered Species Act (CESA) and the federal Endangered Species Act (ESA) as threatened. Central Valley spring-run chinook salmon were listed as a federally threatened species on September 16, 1999. Spring-run chinook salmon historically inhabited the upper reaches of tributaries to the SJR and other Central Valley streams. They are now extirpated from all tributaries of the SJR Basin, representing a large portion of the historic range and abundance of the Central Valley ESU.

The Central Valley ESU includes all naturally spawned populations of spring-run chinook salmon in the Sacramento River and its tributaries in California. The only streams in the Central Valley currently considered to have wild spring-run chinook salmon populations are Mill and Deer Creeks, and possibly Butte Creek, all tributaries of the Sacramento River. Most of the spring-run salmon in the Central Valley originate from the Feather River and Butte Creek Hatcheries. Much of this production is released off station in the Sacramento River Delta and San Francisco Bay. Although the project site occurs outside of the designated ESU, spring-run fish, particularly juveniles can be found in the lower SJR.

Spring-run chinook salmon leave the ocean and enter rivers between March and May in immature condition. They hold over the summer and spawn between late August and mid-October (Moyle et al. 1995). The embryos hatch after a 5-6 month incubation period. Some juveniles may migrate downstream soon after emerging in March-April and others may move downstream the following fall as yearlings. The out migrants may spend some time in the Sacramento River or estuary to gain additional size before going out to sea but most have presumably left the system by mid-May (Moyle et al. 1995).

Spring-run chinook salmon are reported in real-time monitoring surveys from the Mossdale sampling station, to just downstream of the project site. Since some spring-run salmon may hatch at around the same time as some of the fall-run salmon, there may be little difference in size to distinguish them. In addition, many spring-run and fall-run salmon are reared in hatcheries and will have different growth characteristics from wild fish. Many of the spring-run salmon reported `in real-time monitoring at the Mossdale sampling station are likely to be of hatchery origin since large numbers are released into the Delta. Many of the fish reported as spring-run may in fact be fall-run fish. The federal proposal to list Central Valley spring-run chinook as endangered applies only to naturally spawned, non-introduced fish. Spring-run salmon occurring in the vicinity of the Mossdale Landing project site, which originate from hatcheries, would not be considered special status species.

Chinook salmon-Central Valley fall/late fall run (Oncorhynchus tshawytscha)

Chinook salmon (Central Valley fall/late fall run) are designated as federal candidate species and California species of special concern. Neither designation provides direct legal protection pursuant to the CESA or ESA. Chinook salmon are regularly captured in beach seine surveys and real-time monitoring surveys in the SJR near the City of Lathrop.

On September 16, 1999, NMFS determined that listing the Central Valley fall/late fall run Chinook salmon was not warranted for this Evolutionary Significant Unit (ESU). The ESU includes all naturally spawned populations of fall-run chinook salmon in the Sacramento and SJR Basins and their tributaries, east of Carquinez Strait.

Habitat for fall-run chinook salmon within the San Joaquin system exists only in three tributary streams, the Stanislaus River, the Tuolumne River, and the Merced River. Annual production of fall-run chinook salmon from these streams over the period 1967-91 averaged about 40,000 fish including 11,000 in the Tuolumne, 19,000 in the Stanislaus, and 10,000 in the Merced. About 10% of the Merced River production was from hatchery production and the rest was natural production. Production estimates include adult fish returning to spawn and those harvested in both ocean and instream fisheries (EDAW 2001). Production of fall-run chinook salmon in the San Joaquin system over the 1967-91 period accounted for about 7% of the Central Valley fall-run chinook total production and about 10% of the Central Valley fall-run chinook natural production.

Adult fall-run chinook salmon migrate from the ocean to upstream spawning areas in the late summer and fall. In the SJR system, adults migrate somewhat later than those in the Sacramento River system, generally reaching spawning areas between September and December. Eggs incubate until March. Fall-run fry generally emerge from the streambed from December through March and rear in the river for a short period. Some fry may rear as far downstream as the Delta, particularly in wet years. Fall-run juveniles emigrate as

smolts from April through June. There is a small percentage of fall-run juveniles (about 5%) that may not emigrate until the fall or winter following hatching. Fall-run chinook salmon would be expected to occur in the vicinity of the proposed project only during periods when they are migrating between the ocean and habitat in the three tributary streams and during the late winter and early spring when fry may be rearing in the vicinity. Beach seine samples in the vicinity indicate the presence of rearing fry in January through March and smolts in April and May.

NMFS has determined that abundance of fall-run chinook salmon in the San Joaquin system is low relative to historic levels due to severe habitat degradation (EDAW 2001). NMFS attributes habitat degradation to agricultural and municipal water use activities in the Central Valley, which result in point and non-point pollution, elevated water temperatures, diminished flows, and smolt and adult entrainment into poorly screened or unscreened diversions (EDAW 2001). High harvest rates in the ocean fisheries may also contribute to reduced abundance. In the San Joaquin Basin, many of these factors are being evaluated and addressed in a collaborative effort between water interests and state/federal agencies in a scientifically based adaptive management plan known as the Vernalis Adaptive Management Plan (VAMP). Initial plan elements involve operational changes at the Delta pumping plants during the peak salmon smolt out migration period (April 15 to May 15); additional river flows for adult fall-run chinook salmon upstream migration in October; and installation and operation of barriers to improve the survival of juvenile chinook emigrating from the Lower SJR (EDAW 2001).

Chinook salmon-Central Valley winter run (Oncorhynchus tshawytscha)

Chinook salmon (Central Valley winter run) are listed as endangered under both the state and federal ESAs. Sacramento River winter-run chinook salmon were listed as a federally Threatened species on April 6, 1990. Critical habitat for Sacramento winter-run chinook was designated on June 16, 1993. Sacramento winter-run chinook were re-classified as an endangered species on January 4, 1994. The status applies to all Sacramento River winter run chinook salmon, wherever found. Although the project occurs outside of the designated ESU, winter run fish have been observed in the project vicinity.

Historically, winter-run chinook salmon inhabited the Upper Sacramento River and its tributaries, the McCloud, Pit, and Little Sacramento rivers. Construction of Shasta Dam in the 1940s eliminated access to all historic spawning habitats for winter-run salmon in the Sacramento River Basin. A single spawning population persists in the main stem of the Sacramento River immediately downstream of Keswick Dam (EDAW 2001).

Adult winter-run salmon migrate up the Sacramento River to spawn from December through May, and peak spawning occurs from May to June. Fry are known to pass by the Red Bluff Diversion Dam from mid-September to Mid-October (Moyle et al. 1989). Winter-run chinook juveniles emigrate from the upper Sacramento River as smolts from January through May. Peak migration of smolts through the Delta is primarily from January through March.

Winter-run salmon are reported in real-time monitoring surveys at the Mossdale sampling station based on their length at the time of capture. Since most winter-run fry emerge by the end of August, whereas fall-run and spring-run fry do not begin emerging until December, winter-run juveniles captured in the Delta in the

spring will generally be larger than fall-run or spring-run juveniles. There is some hatchery production of winter-run fish in Battle Creek. These fish are released in the Upper Sacramento River.

Delta smelt (Hypomesus transpacificus)

Delta smelt are listed as threatened under both the state and federal ESAs. The U.S. Fish and Wildlife Service administers protective measures for this species with respect to the Federal Endangered Species Act. Delta smelt have been recorded in real-time monitoring surveys at the Mossdale sampling station and in egg and larval surveys in the vicinity of Salmon Slough and Old River. Delta smelt are endemic to the upper Sacramento-San Joaquin estuary. They occur primarily in open, surface waters of Suisun Bay, in the Sacramento River upstream to Isleton, and in the SJR downstream of the Mossdale sampling station. Since the early 1980s, they have been most abundant in the northwestern Delta in the channel of the Sacramento River (Moyle et al. 1995). Delta smelt spawn at one year of age and most adults die after spawning. They generally reach a maximum size of about 2-3 inches.

Delta smelt spawn in freshwater but at other times can tolerate salinity up to about 10 to 12 parts per thousand (ppt) (a level considered to be approximately 1/3 that of ocean water). Spawning occurs between February and June. Most spawning appears to occur in dead-end sloughs and shallow edge-waters of the channels in the upper Delta and in the Sacramento River above Rio Vista (Moyle et al. 1995). After hatching, larvae drift downstream with the currents and congregate in the zone where out-flowing freshwater mixes with incoming seawater. They feed primarily on zooplankton.

Delta smelt populations have fluctuated greatly in the past. Their short lives and relatively low fecundity make populations susceptible to depression following periods when conditions are unfavorable, such as during droughts. The Delta smelt population fell to very low levels in the early 1980s. The declines have been attributed to reduction in Delta outflow in some years, excessively high outflow in other years, entrainment losses to water diversions, changes in food organisms, toxic substances, loss of genetic integrity, and habitat destruction (particularly loss of shallow water habitat) (Moyle et al. 1989).

The project site is near the upper limit of known distribution of Delta smelt in the SJR. Delta smelt do not generally occur in mid-water trawls or beach seining in the vicinity of the proposed project. However, the project site is within USFWS designated critical habitat for the Delta smelt (USFWS 1995). Larval Delta smelt have been sampled, generally in low numbers, in southern Delta entrainment monitoring at Salmon Slough. Salmon Slough is near where Old River joins the Grant Line Canal and is the closest station to the Mossdale sampling station for egg and larval sampling.

Longfin smelt (Spirinichus thaleichthys)

Longfin smelt are designated as a federal species of concern and California species of special concern. These status designations do not provide direct protections for the species pursuant to CESA or ESA. Longfin smelt have been documented in the SJR in the vicinity of the project site only in the real-time monitoring surveys. They were taken on a single day of sampling between 1996 and 1998. Distribution of longfin smelt is centered in the west Delta, Suisun Bay, and San Pablo Bay. In wet years they are distributed more toward San Pablo Bay and in dry years more toward the west Delta. Peak spawning occurs between February and April in upper Suisun Bay and the lower and middle Delta. Spawning rarely occurs upstream of Medford

Island in the SJR and Rio Vista in the Sacramento River. The project area is outside the primary distribution area of longfin smelt in the Sacramento-San Joaquin Delta.

Larval longfin smelt are generally collected below Medford Island in the SJR and below Rio Vista on the Sacramento River, indicating that spawning rarely occurs above these locations (Moyle et al. 1995). The proposed project is located well upstream of Medford Island, and longfin smelt eggs and larvae are generally not expected to occur in the vicinity of the project.

Sacramento Splittail (Pogonichthys macrolepidotus)

Sacramento splittail are listed under ESA as threatened and are a California species of special concern. They were listed as threatened by the USFWS in February 1999. Sacramento splittail are captured in beach seine surveys in the SJR in the vicinity of the project site and in real-time monitoring surveys at the Mossdale sampling station. Splittail are large minnows that live for up to seven years and reach lengths of 12 inches or more. The species is found only in California's Central Valley. Their range in the Central Valley has been restricted since the arrival of Europeans and their abundance has declined, particularly during drought periods. Decline in abundance has been attributed to changed estuarine hydraulics (especially reduced outflows) modification of spawning habitat, climatic variation, toxic substances, introduced species, predation, and exploitation.

Splittail are primarily found in freshwater and appear to prefer shallow water habitat in slow-moving sections of rivers and sloughs. Splittail are currently most abundant in and around Suisun Marsh (Moyle et al. 1995). Historic distribution included the Sacramento River as far as Redding, including lower reaches of the Feather and American rivers, and the SJR as far south as the present site of Friant Dam.

Splittail spawn in the lower reaches of rivers, dead-end sloughs and in larger sloughs such as Montezuma Slough (Moyle et al. 1995). Spawning peaks between February and April in the upper delta. Larvae initially remain in close proximity to spawning sites and move into deeper water as they mature. Splittail are presently found primarily in the Delta, Suisun Bay, Suisun Marsh, and other parts of the Sacramento-San Joaquin estuary.

In the SJR, splittail have been found below the Merced River confluence (Brown and Moyle 1993), and successful spawning has been observed in the Tuolumne River during wet years in the 1980s (Moyle et al. 1995). Splittail have been collected in beach seine sampling conducted by the USFWS at the Mossdale sampling station. Abundance was greatest in 1995 and 1998 when splittail comprised from 1% to 37% of the seine catches at these sites.

Green sturgeon (Acipenser medirostris)

The green sturgeon are designated as a federal species of concern and a state species of special concern. These status designations do not provide direct protections for the species pursuant to CESA or ESA. Green sturgeon have been found from Ensenada, Mexico, to the Bering Sea and Japan (Miller and Lea 1972). They are also found along the North Pacific coasts of Korea, China, and the Amur River of the USSR (Berg 1948). Nearest the project site, green sturgeon have been reported in San Francisco Bay (Aplin 1967), San Pablo Bay (Ganssle 1966; Miller 1972), and the lower SJR and the Delta (Radtke 1966).

At present, biologists are unsure of the spawning locations of the green sturgeon. Spawning has been reported at 1.5 km above Orleans on the Klamath River (Moyle 1976) and in the upper inland streams of large rivers such as the Sacramento and Klamath rivers (Fry 1973). The early developmental biology of this species is essentially unreported. In the Sacramento Delta the diet of juvenile sturgeon consists mostly of amphipods and mysid shrimps (Radtke 1966). Little is known about the age and growth of the green sturgeon.

Project Site/SJR Physical Environment

The project site includes portions of the east levee of the SJR The levee is an actively maintained structure. The County Flood Control District (RD 17) constantly maintains the levee, removing invasive woody species that could compromise the integrity of the levee. Similarly, the U.S. Army Corps of Engineers constantly re-armors and otherwise physically ensures that the integrity of the levee is maintained. Adjacent to the project site the SJR is approximately 200 feet wide and approximately 10 feet deep. There is no riparian vegetation on the bank opposite the project site. On the project site, there is a sparse occurrence of valley and foothill riparian habitat scattered where the levee is not frequently maintained. Because of the sparse nature of canopy species on the river/levee interface, there is little shading over the river. Common woody species found along the river/levee interface include a moderately to scant cover of arroyo willow (*Salix lasiolepis*), Goodding's black willow (*Salix gooddingii*), narrow-leaved willow (*Salix exigua*), Fremont cottonwood (*Populus fremontii*), and valley oak (*Quercus lobata*). There are also other isolated occurrences of riparian canopy species. The understory consists of a sparse cover of Himalayan blackberry (*Rubus discolor*), California blackberry (*Rubus ursinus*), and wild rose (*Rosa* sp.). There is also dense herbaceous cover comprised of other common species including Russian thistle (*Salsola tragus*), broad-leaf pepper grass (*Lepidium latifolium*), wild radish (*Raphanus sativus*), summer cotton weed (*Epilobium brachycarpum*), alkali mallow (*Malvella leprosa*), horehound (*Marrubium vulgare*), mugwort (*Artemisia douglasiana*), and grass species such as rip-gut brome (*Bromus diandrus*), fox-tail barley (*Hordeum murinum leporinum*), annual blue grass (*Poa annua*) and six weeks grass (*Vulpia bromoides*). Other habitat characteristics of the levee include packed dirt or rock or concrete riprap. Over time these areas may come to support riparian vegetation, and willows and cottonwoods area scattered along the levee. The high level of disturbance from levee maintenance causes most of the herbaceous plants to be ruderal species common in agricultural areas. Also found on the project site are two separate private pumping stations that pump water both from the river to agricultural lands, and pump tail waters from agricultural ditches back into the SJR.

At the proposed outfall station location, there is an open area of levee vegetated with common weedy herbaceous species. To the sides of the proposed outfall location there is a sparse riparian cover that has established in an otherwise maintained levee area. Alongside where the outfall station would be installed, is: one small box elder (*acer negundo californica*) (two inches in diameter at breast height), two black willows (8 inch and 24 inch diameters at breast height), a button willow (*Cephalanthus occidentalis californicus*) (4 inches in diameter at breast height), and one Fremont cottonwood (double trunk – one 14 inches the other 30 inches at breast height). These trees form a sparse and narrow, canopy that potentially provide some shade to fish at the river's edge. These trees are above the ordinary high water mark of the river and outside Corps jurisdiction. Impacts to the trees would are covered under the SJMSCP (see the Terrestrial Biology, Section 4.10, for a discussion of impacts to riparian vegetation, the significance of such impacts, and mitigation measures developed to offset such impacts).

REGULATORY SETTING

Federal and California Endangered Species Acts

Both ESA and CESA require consultation with the appropriate resource agency if a project may result in take of a federal- and/or state-listed threatened or endangered species. Incidental take, or that take that occurs while otherwise conducting legal activities, is not permitted by CDFG, NMFS, or USFWS if it would jeopardize the continued existence of the listed species. If a take were to occur incidental to the purpose of a project, and such take would not jeopardize the continued existence of a federal listed species, a permit may be authorized by the USFWS and/or NMFS under the ESA. NMFS is the agency responsible for administering the ESA with respect to listed anadromous species which include all federally listed salmon and steelhead. The U.S. Fish and Wildlife Service is responsible for administering the ESA with respect to non-listed anadromous species which include the Sacramento splittail and the Delta smelt.

Similarly, if there could be impacts to state-listed species, CDFG could authorize incidental take pursuant to §2081 of CESA, or could adopt the federal incidental take permit if the species was listed under both the ESA and CESA. Prior to authorizing incidental take, a management/mitigation plan would have to be developed that would either benefit and/or otherwise mitigate the impacts to a listed species.

San Joaquin County Multi-species Habitat Conservation and Open Space Plan (SJMSCP)

The San Joaquin Council of Governments recently adopted a Habitat Conservation Plan (HCP) for offsetting impacts to biological resources on projects sites within San Joaquin County. The plan was prepared with the cooperation of regulatory agencies, cities, and other interested parties. The resulting document is the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP), dated November 14, 2000. The purpose of the plan is to balance the often-conflicting interests of agriculture, development, and the environment.

One of the primary goals of the SJMSCP is to obtain permits from state and federal agencies that would cover a variety of project activities for the next 50 years. This goal was partially achieved when the USFWS and the CDFG issued incidental take permits in conformance with the ESA and the CESA. The SJMSCP has a variety of mechanisms for complying with the ESA and CESA. These mechanisms are too numerous to discuss here, but they are briefly discussed in the impact and mitigation measures subsections where they apply.

While the SJMSCP covers non-anadromous special-status fish species in San Joaquin County, it only does so if these impacts occur in non-jurisdictional waters (i.e., if the affected water body is not a water of the United States). While the SJMSCP does provide "Incidental Take Minimization Measures" for non-anadromous fish species including green sturgeon, Delta smelt (outside of designated critical habitat), Sacramento splittail, and Longfin smelt, it only covers these species in non-jurisdictional waters. Since these fish rarely occur in non-jurisdictional waters, and since the proposed project may affect the habitat of these species in the SJR, a water of the United States, the SJMSCP has no practical application for impacts to fish species for the proposed project.

4.11.2 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

The Mossdale Landing project would result in a significant fisheries impact if it were to result in one or more of the following:

- The destruction or substantial disruption of the habitat of a special-status species;
- Substantial alteration of the abundance, diversity, or species composition such that it reduces the viability of the species;
- Substantial interference with the movement of any resident or migratory fish.

IMPACT ANALYSIS

Potential impacts to fishery resources from the storm water collection system proposed as part of the Mossdale Landing project could include: (1) potential impacts to aquatic habitat; (2) potential impairment of water quality (beneficial uses) of the SJR; and (3) potential impacts to special-status fish species. These potential impacts are discussed below.

Impact **4.11-a**

Fisheries - Potential Impacts To Aquatic Habitat. *Construction of the proposed stormwater outfall to the San Joaquin River would result in the removal of several relatively small trees that may provide shade and cooling at the water's edge, the temporary disturbance of a small area along the inside portion of the east levee, and both temporary construction activity and the development of hardened slope armoring below the ordinary high water mark of the river. These activities would affect a small area within the river side of the levee, would be largely temporary, and would incorporate design features to minimize disruption below the ordinary high water mark of the river. However, the performance of construction activities within the river side of levee could result in potentially* ***significant*** *impacts to aquatic habitat if not conducted in accordance with appropriate construction Best Management Practices.*

Under the Mossdale Landing project, stormwater runoff generated at the project site would be discharged to the SJR through the development and operation of a proposed outfall (Exhibit 3- 7). The proposed outfall would include five pipes (the storm drain force mains from each of the five sub-shed within the greater Mossdale Village, including the three from the project site). The five pipes would be constructed up and over the levee rather than via jack-and-bore through the levee. In order to avoid obstruction of the existing service road on top of the levee, the pipes would be buried within the first three feet of the top of the levee in accordance with RD17 guidelines. On the inboard side surface of the levee, a single concrete platform would be constructed for the five 10-36-inch outfall pipes, and a concrete spillway would be constructed with hardened slope protection to ensure that the discharge does not erode the levee. Hardened slope protection would consists of interlocking brick (i.e., amorflex® or similar) that would extend below the ordinary high water level. The discharge itself would occur above the 100-year storm flow level of the river. This is well above the ordinary high water level of the river. Storm water would run down the hardened concrete spillway into the river. Flows would be considered "super critical" or too shallow and rapid flowing to be suitable for

fish migration (i.e., it would not constitute "an attractive nuisance" to migrating fish). Further details about the conceptual design of the proposed outfall are presented in Appendix D of this EIR.

The proposed outfall location on the San Joaquin River is shown on Exhibits 3.7 and 4.10-1. At this location, there is an open area of levee vegetated with common herbaceous species. To the sides of the proposed outfall location there is a sparse riparian cover that has established in an otherwise highly maintained levee area. Alongside where the outfall station would be installed, and perhaps that could be impacted by installation of the outfall via direct impacts or root damage is: one small box elder (*acer negundo californica*) (two inches in diameter at breast height), two black willows (8 inch and 24 inch diameters at breast height), a California button willow (*Cephalanthus occidentalis californicus*) (4 inches in diameter at breast height), and one Fremont cottonwood (double trunk – one 14 inches the other 30 inches at breast height) along the borders of the area where the outfall is proposed. These trees are above the ordinary high water level of the river and outside Corps jurisdiction. The sparse riparian cover that these trees provides forms a narrow, canopy that potentially provides shade over the river's edge. Fish often seek shaded areas, such as may be provided by these trees, to rest and escape from the summer sun. The loss of these trees, and their associated shading and cooling effects, would affect a minimal area of the river surface, but would still represent a net reduction in river shading that would represent a significant impact. See Section 4.10, Terrestrial Biology, for an evaluation of the value of these trees as terrestrial habitat and the impacts associated with the loss of this habitat.

Construction activity associated with the proposed outfall (i.e., the portion of the proposed outfall bank armoring below the ordinary high water mark of the river) could potentially result in a take of individual special status fish. However, such mortality would be unlikely for several reasons. First, the outfall would not modify the existing contours of the SJR—after completion—all pre-construction contours would be restored. Second, all work on the outfall spillway below the mean annual water level would occur in a dewatered working environment. Third, construction would occur during the summer months when anadromous fish are not present in the SJR. Still, construction activities below the ordinary high water mark of the river could affect aquatic habitat without the implementation of appropriate construction Best Management Practices (BMPs), which could affect non-anadromous fish in the river and any anadromous stragglers (i.e., fish which would not normally be in the SJR during the summer but which may still be present). Such affects could include temporary degradation of water quality in the immediate vicinity of construction due to erosion/siltation. The potential take of individual special status fish, and the potential temporary degradation of water quality in the immediate vicinity of the proposed outfall, during the construction period would represent a potentially significant impact.

Development of the proposed outfall spillway and slope armoring could potentially hinder the future growth of aquatic vegetation. However, the proposed slope protection would be perforated and allow natural sediments to be exposed through the armoring. This would allow herbaceous vegetation growth in the armoring above the mean annual water level up to the proposed bench. Because of the outfall design and the construction methods that will be used to construct the outfall station, a less-than-significant impact would occur to aquatic habitat associated with the proposed outfall.

The indirect effects on aquatic habitat from the operation of the proposed outfall could include creation of a nuisance to migrating fish species seeking upstream spawning habitats during flood stage. Such a nuisance could entrain fish in the outfall pipes and/or pumps. However, in consideration that the outfall pipes (at their

invert elevations) would be installed above the 100-year flow level of the river, which is well above the high-stage flood level in the SJR, fish would be unlikely to be able to reach the pipes and/or pumps to become entrained. In addition, even if flood stage water levels did reach outfall pipes, each pipe would be installed with a flap gate. This would reduce the likelihood of fish becoming entrained in the outfall pipes. Therefore, a less-than-significant impact would occur.

Impact **4.11-b**

Fisheries - Potential Impairment of Water Quality (Beneficial Uses) of the San Joaquin River. *The proposed project would include the discharge of recycled water to land and the discharge of stormwater runoff into the San Joaquin River (SJR) as methods of disposal. The recycled water disposed of at the project site would we tertiary treated and disinfected to Title 22 standards for unrestricted use and would not reach the SJR. The stormwater runoff would go through a comprehensive set of proposed Best Management Practices (BMPs) to remove urban contaminants from the runoff, and at the same time existing agricultural discharges from the site would be eliminated under the proposed project. For these reasons, the proposed discharges would result in less-than-significant impairment of the water quality of the SJR (i.e., less-than-significant impairment of beneficial uses). The proposed project would have a* ***less-than-significant*** *impact on fisheries.*

Introduction

The Mossdale Landing project would generate two sources of discharge: (1) recycled water (treated wastewater); and (2) stormwater runoff. The potential for these discharges to affect the water quality of the SJR, and thus fisheries resources, is evaluated below.

As discussed in Chapter 3 and Sections 4.3 and 4.8, the project proposes to use tertiary treated Title 22 disinfected wastewater for unrestricted use as irrigation water. This recycled water would be applied at the project site at agronomic rates, and would be applied outside of riverine environments on the project site so as to avoid discharge to the SJR. The project would include some temporary on-site storage of treated wastewater in proposed lined storage ponds. These ponds would be sized to accommodate both the treated wastewater and 100-year storm flows, and would not drain to the stormwater system. As indicated in Section 4.3, the use of recycled water at the project site would not result in the discharge of recycled water to the SJR, would not result in violation of water quality standards or waste discharge requirements, and would not result in significant water quality impact to the SJR. Therefore, water quality impacts associated with the proposed use of recycled water at the project site would not have the potential to impact fisheries resources in the SJR.

As discussed in Chapter 3 and Sections 4.1 and 4.2, and as detailed in the Drainage Plan for Mossdale Landing, which is included in its entirety as Appendix D of this EIR, the project proposes to collect stormwater runoff generated at the project site and would discharge this runoff into the SJR. Under the proposed project, stormwater from the project site would be collected by an on-site storm drain system and diverted to a set of proposed grassy swales. A pump station would pump the runoff from the swales to an on-site detention/sedimentation basin. Once the capacity of the basin is reached, as during large storm events, the system would stop delivering water to the basin and would instead divert the runoff from the grassy swales directly to the SJR. Pumped flow rates would be approximately 10 to 30 percent of the peak discharge rates, that are anticipated to be between 90 cfs and 270 cfs. When flow rates into the pump stations would exceed the outflow rates into the SJR, storm waters would be diverted to onsite detention basins (not the same

as the water quality basins) until the storm event subsides. This storm water system, a system that includes water quality and detention basins, would allow sediments and contaminants to fall out of the water column prior to being discharged to the SJR. BMPs, including but not limited to biofiltering through the grassy swales, would help reduce the amount of sediments and contaminants in the discharge. See Section 4.2 and Appendix E for a comprehensive list of the proposed BMPs. As indicated in Section 4.2, these BMPs would avoid significant water quality impacts to the SJR associated with the proposed discharge.

While the proposed discharges would result in less-than-significant water quality impacts to the SJR with implementation of the proposed BMPs, they could still potentially affect fisheries resources in the Lathrop stretch of the SJR.

Water Quality of the SJR

The following subsection is a summary of information contained in the surface water quality report prepared for the proposed project (Appendix C of this EIR) and the Lathrop Water, Wastewater & Recycled Water Master Plan EIR (EDAW 2001).

The U.S. Environmental Protection Agency (EPA) is the primary federal agency responsible for management of water quality in the United States. The Clean Water Act (CWA) is the federal law that governs water quality control activities initiated by the EPA and others. Section 303 of the CWA requires the adoption of water quality standards for all surface waters in the United States. Under Section 303(d), individual states are required to develop lists of water bodies that do not meet water quality objectives after required levels of treatment by point source dischargers. Total maximum daily loads (TMDLs) for all pollutants for which these water bodies are listed must be developed in order to bring them into compliance with water quality objectives. According to the California 1998 303(d) list for the CVRWQCB, the SJR is impaired for the following agricultural pollutants/stressors/indicators:

- Group Boron
- Group Chlorpyrifos
- Group DDT
- Group Diazinon
- Group Electrical conductivity (salinity)
- Group Selenium
- Group Unknown toxicity
- Group “A” pesticides

Except for selenium, these pollutants exceed applicable water quality standards for a 130-mile stretch of the SJR upstream of the City of Lathrop, from the Airport Way Bridge near Vernalis to the Mendota Dam. Selenium levels exceed applicable water quality standards for 50 miles upstream of the City of Lathrop, from Vernalis to the Salt Slough confluence.

Protection and enhancement of existing and potential “beneficial uses” of water bodies are primary goals of water quality planning. state law defines beneficial uses as “ÿdomestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves” (Water Code Section 13050(f)). Additional

protected beneficial uses of the SJR include groundwater recharge and fresh water replenishment (designated GWR and FRSH, respectively, in standard basin plans). Degradation of water quality in the SJR has impaired many of the beneficial uses for this water body, including but not limited to freshwater habitat for fisheries resources.

Standards for Relevant Pollutants in the SJR

The following subsection is a summary of information contained in the surface water quality report prepared for the proposed project (Appendix C of this EIR) and the Lathrop Water, Wastewater & Recycled Water Master Plan EIR (EDAW 2001).

Of those pollutants/stressors for which the SJR is considered impaired, the CVRWQCB currently has TMDLs in place for selenium and drafts under consideration for boron, diazinon, chlorpyrifos, and salinity. TMDLs for other listed constituents are in the planning stages. These TMDLs were based, in large part, on the August 2000 edition of the CVRWQCB *A Compilation of Water Quality Goals*, which compiles existing water quality standards for all constituents of concern within the Central Valley Region (CVRWQCB 2000).

Selenium is a naturally occurring trace element known to be hazardous to waterfowl at elevated levels. Subsurface agricultural drainage discharges are another major source of selenium. The CVRWQCB has adopted the EPA aquatic life criterion for total selenium of 5g/L four-day average as the selenium water quality objective for the lower SJR.

Boron is an element commonly found in soils of the western United States. Mainstay California crops, such as citrus fruits, grapes, and nuts, are highly sensitive to boron in irrigation water in concentrations as low as 0.5 mg/L. Boron toxicity has been linked to fetal malformations in certain species of fish, toads, and frogs, and adverse effects of even moderate boron concentrations have been reported in dogs and rats. The EPA has set a suggested no-adverse response level (SNARL) for boron in drinking water of 0.6 mg/L, while the California State action level is 1 mg/L. No TMDLs for boron have been established; however, it is reasonable to assume that concentration levels would be on the order of those cited above.

Diazinon and **chlorpyrifos** are organophosphorus insecticides commonly used for agricultural purposes in the SJR Basin. Diazinon is moderately soluble in water and does not readily adsorb to soil organic matter; it is likely to be washed off of crops and soil during rainfall or irrigation. In addition, diazinon can readily volatilize into air or fog, where it can be transported for great distances before being redeposited on soil or surface waters. Conversely, chlorpyrifos is relatively insoluble in water and adsorbs strongly to soil organic matter.

The toxicological effects of these two pesticides are cumulative. Both diazinon and chlorpyrifos are toxic not only to aquatic insects, but to freshwater aquatic crustaceans and arthropods, which serve as potential food sources for early life stages of fish. Further, diazinon has been shown to damage the olfactory function of some fish in concentrations as low as 1,000 ng/L.

The CVRWQCB has not established TMDLs for either diazinon or chlorpyrifos. However, the Regional Board has determined that an acceptable diazinon target would be between zero and the target derived by the California Department of Fish and Game using EPA methodology: 50 ng/L 4-day average and 80 ng/L 1-hour

average. An acceptable chlorpyrifos target would be between zero and the target determined by the CDFG: 14 ng/L 4-day average and 25 ng/L 1-hour average.

Salinity is the dissolved mineral content in water. Whether measured in terms of total dissolved solids (TDS) or electrical conductivity (EC), the CVRWQCB recognizes high concentrations of salt or saline water as the most serious long-term water quality issue on the SJR. High salinity negatively impacts potable water supplies, fish and other aquatic life, crops ranging from tomatoes and alfalfa to beans and apricots, poultry, livestock, and waterfowl. No TMDLs for salinity have been established; however, the Federal Drinking Water standard is set at 500 mg/L.

Dissolved Oxygen is the oxygen used for respiration by fish and other aquatic life. A considerable effort to understand low dissolved oxygen (DO) levels in the San Joaquin River and specifically in the deep-water ship channel (DWSC) constructed for the Port of Stockton is ongoing. A report was recently published in draft entitled, "*Synthesis of Findings on the Causes and Factors Influencing Low DO in the San Joaquin River Deep Water Ship Channel Near Stockton, Ca*", by G. Fred Lee and Associates, El Macero, California dated April 17, 2002. The following information is referenced to this document.

The DWSC currently experiences DO depletion below the objective during the summer and fall. The DO objective is 5 mg/l from December 1 through August 31 of each year, and 6 mg/l for September 1 through November 30 of each year. The primary constituents of concern are carbonaceous biochemical oxygen demand (CBOD) and nitrogenous biochemical oxygen demand (NBOD). CBOD occurs primarily in the form of algae, and NBOD occurs primarily in the form of ammonia and organic nitrogen.

Lee (2002) notes in the *Synthesis* report that, "From the information available, …stormwater runoff [is] not a major source of oxygen demand that causes depletion in the summer and fall months." The primary sources of oxygen demand are discharges of algae from mud and salt sloughs and portions of the watershed consisting of irrigated agriculture and natural wetlands. This oxygen demand enters the DWSC, which has an extended hydraulic residence time as compared to natural conditions, creating excursions below the DO objective. The report notes that, "The development of the DWSC…greatly reduced the oxygen demand assimilative capacity of the SJR below the Port. It has been found that if the Channel did not exist, there would be few, if any low-DO problems in the [SJR]."

In summary, the DO problem in the SJR is largely a dry weather phenomenon, created by the DWSC and sustained by algal growth. Nutrient loadings during dry weather periods (ammonia and organic nitrogen) also contribute to the problem. The Mossdale Landing project will not discharge significant dry weather flows since all surface runoff under the proposed project would discharge to the proposed onsite detention areas , and such runoff would only be discharged to the river if the detention areas were to become full as would potentially occur during heavy rainfall in the wet season. (see Section 3.3.1.2, Appendix C of this EIR, for further discussion). During the summer months, the detention areas should completely infiltrate any dry weather flow from the proposed development. As such, there are no anticipated significant adverse affects to the SJR or fisheries from changes in DO levels resulting from the proposed project.

Analysis

Each of the pollutants/stressors identified above poses a potential threat to the water quality of the SJR. However, it should be noted that none of the listed pollutants exceed water quality objectives for the Mossdale Watershed, as the defined limits of impairment end upstream of the City of Lathrop, at Vernalis. Additionally, with the exception of diazinon, the proposed master-planned community, Mossdale Landing, would not produce any of these pollutants in concentrations that would adversely impact the water quality of the SJR (RBF 2002).

The surface water quality report prepared for the Mossdale Landing project (Appendix C of this EIR) includes a constituent (pollutant) loading model prepared for the project. The model evaluates the likely implications of the proposed development on the SJR with implementation of the BMPs proposed as part of the project (listed in Section 4.2) of this EIR. The model indicates that constituent loading under the proposed project with proposed BMPs in place would be lower than loading under the existing agricultural condition for most of the 303(d) constituents analyzed. The two exceptions are selenium and diazinon for which the receiving water, the SJR, is listed as impaired. The model indicates that selenium and diazinon loading in stormwater runoff from the project site would increase under the proposed project as compared to the existing agricultural condition of the project site.

With regard to selenium, the projected increase in total selenium would still result in selenium levels lower than the TMDL set for this constituent by the CVRWQCB of 5 Fg/l (RBF 2002). Additionally, it should be noted that the primary source of selenium in stormwater runoff is the weathering of older marine shales, generally found in mudflats and sloughs. With projected imperviousness increasing from 0 to 53%, there is no evidence to suggest that selenium levels will increase with urbanization. In fact, selenium loading is likely to decrease as a result of increased impervious cover. The projected increase shown in Tables 4.2-1 and 4.2-3 is due to the use of average export coefficients in the model that do not adequately reflect selenium loading for this area. Therefore, stomrwater discharge from the proposed project would not result in significant degradation of the water quality of the SJR in terms of selenium (RBF 2002).

TMDLs for diazinon have not yet been determined by the RWQCB; however, the concentration of diazinon under existing conditions is already higher than the range currently being considered by the CVRWQCB. Diazinon load resulting from the proposed project with BMPs in place would not result in a measurable increase in the overall diazinon levels in the SJR, which themselves must be reduced through application of regional measures that are beyond the scope of this project. Furthermore, the EPA is currently phasing out the application of diazinon in residential development, with complete phase out expected by December of 2003, which will decrease diazinon use by approximately 75% according to the EPA. This phase-out would greatly reduce diazinon in the model such that load from largely residential development such as Mossdale Landing would approach zero. Because the proposed project would not create a measureable increase in diazinon concentrations in the river, diazinon is being phased out in residential projects, and the proposed project would not be occupied in earnest until after 2003 (after diazinon phase-out), stormwater discharge from the proposed rpoject would not result in significant degradation of the water quality of the SJR in terms of diazinon (RBF 2002).

Overall, the proposed Mossdale Landing project with BMPs in place would serve to decrease loading for most pollutants and thereby improve water quality in the SJR over the existing condition (RBF, 2001). This

improved water quality would in turn beneficially affect fish populations in the SJR or at least not significantly affect these populations. Therefore, with implementation of the proposed BMPs (listed in Section 4.2 of this EIR), water quality impacts associated with the proposed discharge of stormwater runoff from the project site to the SJR would result in less-than-significant impacts to fisheries resources.

Impact **4.11-c**

Fisheries - Potential Impacts to Special-Status Fish Species. *As indicated under Impact 4.11-b, the proposed discharge of stormwater runoff from the project site to the SJR would result in less than significant water quality-related fisheries impacts. However, project construction activities associated with the development of the proposed stormwater outfall could affect existing shading of the river and could temporarily increase the amount of sediment entering the river during construction of the outfall station. While unlikely, it is conceivable that there could be a temporary loss of usable special status fish species habitat. Also, dewatering the outfall work area could conceivably entrain fingerling fish and/or result in the take of special-status fingerling fish. Any such disturbance would therefore represent a* ***potentially significant*** *impact.*

None of the special status species, except possibly splittail, are resident in the vicinity of the project site year round. However, as indicated previously, eight special status fish species may be present in the Lathrop stretch of the SJR during at least part of the year. These species include anadromous fish such as the Steelhead (Central Valley ESU), Chinook salmon (Central Valley spring run), Chinook salmon (Central Valley fall/late fall run), and Chinook salmon (Central Valley winter run), and, non-anadromous fish such as the Delta smelt, green sturgeon, Sacramento splittail, and Longfin smelt. As indicated under Impact 4.11-b, the discharge of stormwater runoff to the SJR associated with the proposed project would result in less-than-significant water quality-related fisheries impacts. However, construction activities associated with development of the proposed stormwater outfall could result in disturbance and/or displacement of the above listed species during the construction period. Disturbance, displacement, or take could be associated with one or more of the following activities: (1) removal of sparse canopy vegetation along the banks of the river where an outfall station would be constructed. While the canopy vegetation on the levee where the outfall station would be constructed is sparse, this canopy vegetation currently provides a small amount of shade that may be important to special-status fish; (2) construction activities on the river side of the levee, both above and below the ordinary high water level, that could lead to sedimentation; and (3) construction and dewatering activities below the ordinary high water mark, which could lead to entrainment of fish. While the above construction activities would be restricted to summer months, when anadromous fish are not normally present in the Lathrop stretch of the SJR, some of the non-anadromous fish could be present. Also, there is the potential to impact anadromous stragglers. Any take of special-status fish species would represent a significant impact. Since there is a small likelihood that such impacts could occur, these impacts are considered potentially significant.

4.11.3 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" will occur, no mitigation is identified below (this is the reason why some of the mitigation measures may skip numbers).

4.11-a **Fisheries - Potential Impacts To Aquatic Habitat.** Project engineers shall design the proposed outfall using the NMFS *Guidelines for Salmonid Passage at Stream Crossings* (2000). Avoidance and minimization Best Management Practices (BMPs) taken from these Guidelines shall be incorporated into the design and construction of the outfall. These BMPs are as follows:

- Remove the minimum amount of vegetation on the levee to accommodate the outfall station.
- All impacted trees and shrubs that currently shade the SJR shall be mitigated. Potentially, it is estimated that one small box elder (two inches in diameter at breast height), two black willows (8 inch and 24 inch diameters at breast height), a button willow (4 inches in diameter at breast height), and one Fremont cottonwood (double trunk – one 14 inches the other 30 inches at breast height) could be impacted by construction of the outfall. Conceivably, through careful construction, most impacts to canopy species could be avoided. However, any loss of canopy vegetation shall be compensated for by replacement plantings along the levee on the project site. Each tree or shrub impacted shall be replaced with three trees or shrubs of the same species, or a California native equivalent. Replacement trees/shrubs shall be in 5 gallon pots or larger. They shall have a temporary irrigation system that shall be maintained a minimum of three years or until the planted trees/shrubs are established. Trees shall be planted in the fall after the outfall station is constructed, but not before water and electricity is available for the irrigation system. They shall be planted no later than one year after the outfall station is installed.
- Flap gates shall be installed on each outfall pipe.
- Implement erosion control BMPs during construction. These measures include: (1) revegetation before the rainy season of all barren soils resulting from the outfall construction or any other construction-related activities if the barren areas could contribute silt runoff into the SJR; (2) keeping silt and silt laden water from entering the SJR during the construction period (including isolating the outfall work area (i.e., dewatering the work area) from the SJR via construction of a sheet pile wall or similar barrier), pumping silt-laden waters in the isolated work area to a desiltation basin behind the levee on the project site; and (3) collection and disposing of silt and water collected in the desiltation basins to land (i.e., use as soil supplements, irrigation water, etc.).
- Restrict construction activity within the river side of the levee to between the dates of June 1 to October 30 when migrating anadromous fish would not be expected to be in the SJR near the project site.
- Construct the outfall in contour with the existing levee so as to not reduce the original volume of the SJR.
- Restrict all construction activities to the levee wall (i.e., no modification of the channel bottom).
- Remove all surplus material in the channel upon completion of the outfall.
- Restrict materials installed below the mean annual water line, to well above this line, to armorflex® precast erosion control blankets. No riprap shall be used as erosion control material. No curing concrete shall have contact with the river.
- Restrict all equipment refueling and maintenance to designated containment areas below the outside wall (non-river side) of the levee.

- Cure any concrete used to anchor armorflex® below the water line of the river a minimum of 30 days without an appropriate sealer, or 7 days with an appropriate sealer, prior to coming in contact with SJR waters.

Finally, Project engineers or project biologists shall also consult with the NMFS and USFWS regarding the design of the proposed outfall station. If required by NMFS and/or USFWS, incidental take permits shall be acquired prior to installation of the outfall station.

Implementation of Mitigation Measure 4.11-a would reduce impacts to the aquatic environment from construction of the proposed stormwater outfall to the SJR to less-than-significant levels.

4.11-c **Fisheries - Potential Impacts to Special-Status Fish Species.** Implement Mitigation Measure 4.11-a.

Implementation of Mitigation Measure 4.11-c, along with implementation of the project BMPs listed in Section 4.2 of this EIR, would reduce potential impacts to special-status fish species to less-than-significant levels.

4.11.4 RESIDUAL SIGNIFICANT IMPACTS

There would be no residual significant fisheries impacts with implementation of the mitigation measures identified in this section.

4.12 CULTURAL RESOURCES

This section evaluates the potential environmental impacts of the Mossdale Landing project on archaeological and historical resources at the project site, the off-site utility improvement locations, the locations of the off-site roadway improvements required by mitigation in Section 4.5 of this EIR, and the off-site areas of the Gold Rush Boulevard Precise Plan Line (PPL). This section is based on an archaeological report, dated June 2002 , prepared for the proposed project by EDAW, a historical resources report prepared for the proposed project by JRP Historical Consulting Services, Inc., dated January 2002, and a historical resources addendum to the historical resources report dated June 7, 2002.

Given the confidentiality requirements of the State and the Information Center, locational references to existing archaeological resource sites in this EIR section are provided in general rather than specific terms. The archaeological report, which identifies the specific locations of recorded cultural resource sites in the project area, is on file for review by authorized individuals at the City of Lathrop Public Works Department, 16775 Howland Road - Suite One, Lathrop, California 95330 (209-858-2860 extension 328). The historic resources report and addendum, which is not subject to such restrictions, is included in its entirety as Appendix J of this EIR.

For purposes of the following analysis, "archaeological resources" are defined as Native American artifacts, deposits, and human remains, as well as early European (17th through early 20 thcentury) artifacts, while "historic resources" are defined as buildings of greater than 45 years of age.

4.12.1 EXISTING CONDITIONS

PHYSICAL SETTING

Archaeological / Ethnographic Setting

The earliest well-documented entry and spread of humans into California occurred at the beginning of the Paleo-Indian Period (10000-6000 BC). Social units are thought to have been small and highly mobile. Known sites have been identified within the contexts of ancient pluvial lake shores and coast lines evidenced by such characteristic hunting implements as fluted projectile points and chipped stone crescent forms. Prehistoric adaptations over the ensuing centuries have been identified in the archaeological record by numerous researchers working in the area since the early 1900s, as summarized by Fredrickson (1974) and Moratto (1984). Due to the plentiful resources and temperate climate described above, the Central Valley was well populated prehistorically and served as the location for some of the more substantial village sites known in California.

Beardsley (1948) and Lillard, Heizer and Fenenga (1939) and others conducted numerous studies that form the core of our early understanding of upper Central Valley archaeology. Little has been found archaeologically which dates to the Paleo-Indian (10000-6000 BC) or the Lower Archaic time periods, however archaeologists have recovered a great deal of data from sites occupied by the Middle Archaic period. The lack of sites from earlier periods may be due to high sedimentation rates, leaving the earliest sites deeply buried and inaccessible. During the Middle Archaic Period (3000-1000 BC), the broad regional patterns of foraging subsistence strategies gave way to more intensive procurement practices. Subsistence economies

were more diversified, possibly including the introduction of acorn processing technology. Human populations were growing and occupying more diverse settings. Permanent villages that were occupied throughout the year were established, primarily along major waterways. The onset of status distinctions and other indicators of growing sociopolitical complexity mark the Upper Archaic Period (1000 BC to AD 500). Exchange systems become more complex and formalized. Evidence of regular, sustained trade between groups was seen for the first time.

Several technological and social changes characterized the Emergent Period (AD 500-1800). The bow and arrow were introduced, ultimately replacing the dart and atlatl. Territorial boundaries between groups became well established. It became increasingly common that distinctions in an individual's social status could be linked to acquired wealth. Exchange of goods between groups became more regularized with more goods, including raw materials, entering into the exchange networks. In the latter portion of this period (AD 1500-1800), exchange relations became highly regularized and sophisticated. The clamshell disk bead became a monetary unit for exchange, and increasing quantities of goods moved greater distances. Specialists arose to govern various aspects of production and exchange.

Three time periods were well represented in archaeological assemblages in the general vicinity of the project area. These assemblages are discussed in detail in Moratto (1984) and summarized here. The Windmiller Pattern (3000-1000 BC) of archaeological assemblages included an increased emphasis on acorn use as well as a continuation of hunting and fishing activities. Ground and polished charmstones, twined basketry, baked-clay artifacts and worked shell and bone were hallmarks of Windmiller culture. Widely ranging trade patterns brought goods in from the Coast Ranges and trans-Sierran sources as well as closer trading partners. Distinctive burial practices identified with the Windmiller Pattern also appeared in the Sierra foothills, indicating possible seasonal migration into the Sierra. The Berkeley Pattern (1000 BC to AD 500) represented a greater reliance on acorns as a food source than was seen previously. Distinctive stone and shell artifacts distinguished it from earlier or later cultural expressions. The Berkeley Pattern appears to have developed in the Bay Area and was spread through the migration of Plains Miwok Indians. The Augustine Pattern (AD 500 to Historic Era) may have been stimulated by the southern migration of Wintuan people from north of the Sacramento Valley. Their culture was marked by increasing populations resulting from more intensive food procurement strategies, as well as a marked change in burial practices, increased trade activities and a well-defined ceramic technology.

Ethnographically, the Northern Valley Yokuts occupied the project vicinity, that is, the land on either side of the San Joaquin River from the delta to south of Mendota. The Diablo range probably marked the Yokuts' western boundary (Wallace 1978); the eastern edge would have lain along the Sierra foothills. Yokuts occupation of the northern parts of the range may be relatively recent, as linguistic evidence points towards an earlier Miwok occupation. The Yokuts gradually expanded their range northwards, and clearly occupied the area during the Spanish Colonial period, as evidenced by mixed historic and prehistoric artifact assemblages. The late prehistoric Yokuts may have been the largest ethnic group in pre-contact California. The triblet, populated by a few hundred to a few thousand occupants, served as the basic political unit (Moratto 1984). Structures ranged from single-family dwellings to multi-family communal structures, and included sweat houses and ceremonial lodges.

Euroamerican contact with the Northern Valley Yokuts began with infrequent excursions by Spanish explorers traveling through the Sacramento-San Joaquin Valley in the late 1700s to early 1800s. Many

Yokuts were lured or captured by missionaries and scattered among the various missions. Many escaped and returned to the Valley. Raiding parties among the Spanish (and later Mexican) herds became prevalent, leading to retaliatory action by the settlers. The malaria epidemic of 1833 decimated the population, killing thousands of the tribesmen. The influx of Europeans during the gold rush era further reduced the population due to disease and violent relations with the miners. Though there was no gold within the Yokuts territory, miners passing through on their way to the diggings caused a certain amount of upheaval. Former miners, who had seen the richness of the San Joaquin Valley on their way east later returned to settle and farm the area (Wallace 1978).

Archaeological Resources

Three pedestrian archaeological surveys were conducted for this analysis: (1) one in June 2001 covering the project site and off-site utility improvement sites (Exhibit 3-8); (2) one in May 2002 covering the locations of the off-site roadway improvements required by mitigation in Section 4.5 of this EIR (Exhibit 4.5-9); and (3) one in June 2002 covering the off-site areas of the Gold Rush Boulevard PPL (Exhibit 3-12).

The potential archaeological resources found during the surveys include two potential archaeological sites (Moss 1 and 2) and four isolated artifacts (Moss Isolates 1-4) within the project site, and three isolated artifacts (Moss Isolates 5-7) within the off-site areas of the Gold Rush Boulevard PPL. No arcaheological finds were made during the surveys within the off-site utility improvement sites or the off-site roadway improvement sites.

Each of the potential arcaheological resources found during the surveys are described below:

- Moss Site 1 consisted of a variable-density scatter of historic (post-European occupation) artifacts within the matrix of an elevated dirt road. Artifacts within the deposit included modern and historic glass, ceramic, and metal. The deposit measured approximately 280 meters (m) long by 30 m wide and reached a maximum density of approximately 10 artifacts per square meter. Artifacts were found lying on the surface as well as embedded in the roadway, indicating potential depth to the deposits. However, the road appears to have been constructed utilizing excavated material from a nearby irrigation ditch. The overall indications are that the artifact scatter identified as Moss 1 is comprised of redeposited material that retains no historic integrity. Exploratory excavations and evaluation of this site have not yet been conducted, but it does not appear to retain significant values that would make it eligible for listing in the California Register of Historic Resources (CRHR).

- Moss Site 2 is a historic homestead built atop a large, low earthen mound near the center of the project area. Buildings include a dilapidated residence, a collapsed storage/farm equipment shed, a garage, and depressions that may mark the sites of privies, wells, or other structures. Miscellaneous domestic debris surround the structures. The homestead is situated on top of a large, low earthen mound measuring approximately 60 m east-west by 100 m north-south and rises approximately 1.5 to 2 m above the surrounding landscape. Dense grasses and other ground cover prevented good surface visibility in the vicinity. This mound may be prehistoric in origin and may contain occupation remains or Native American burials. Two burial mounds have been recorded approximately 3,500 feet south of the Mossdale Landing project area, indicating a strong possibility

that this mound is also prehistoric. Exploratory excavations and evaluation of this site have not yet been conducted but it may be eligible for listing in the CRHR.

- Moss Isolate 1 consists of a mano fragment found near the center of the project area. This isolated artifact does not appear to contain significant values that would make it eligible for listing in the CRHR.

- Moss Isolate 2 consists of a fragment of a black opaque Prosser button. This button type was manufactured after 1840. This isolated artifact does not appear to contain significant values that would make it eligible for listing in the CRHR.

- Moss Isolate 3 consists of a thick stoneware fragment found in a squash field north of Louise Avenue. The stoneware fragment appears to be from a large jug or crock and included a dark brown interior glaze and a creme colored exterior glaze. No estimate of age was possible based on this remnant. This isolated artifact does not appear to contain significant values that would make it eligible for listing in the CRHR.

- Moss Isolate 4 consisted of a belt-driven water pump found in an irrigation ditch near the northwestern corner of the project area. The pump was discarded and replaced with an electrical unit. This isolated artifact does not appear to contain significant values that would make it eligible for listing in the CRHR.

- Moss Isolate 5 consisted of a pestle fragment. The pestle exhibited a slightly convex distal end, and an older break at the proximal end. Gouges and striations marked damage caused by plowing. The pestle measured approximately 9.5 cm long and 3.5 cm in diameter. The pestle was photographed but not collected. This isolated artifact does not appear to contain significant values that would make it eligible for listing in the CRHR.

- Moss Isolate 6. This isolated artifact consists of a late stage core reduction flake made on green chert. The dorsal surface retained approximately 10% cortical surface. The flake measured approximately 5.2 x 5.0 x 0.9 cm. The flake was found in a plowed field 110 m from the San Joaquin River. It was not collected. This isolated artifact does not appear to contain significant values that would make it eligible for listing in the CRHR.

- Moss Isolate 7 consists of an aqua bottle glass fragment, measuring approximately 1.5" x 1". Aqua glass was used between ca. 1800 and ca. 1910. The piece was recovered from a plowed field near a livestock corral. No diagnostic features were observed, and it was not collected. This isolated artifact does not appear to contain significant values that would make it eligible for listing in the CRHR.

Additional information was found through conversations with local landowners. In particular, Thomas Osborn identified Louise Avenue as a historic road and discussed the presence of a historic river ferry and boardinghouse (both called "Johnson's") in the area. By examining structures in the vicinity and their proximity to Louise Avenue, it seems likely that a large house just outside the project area at the northwest end of Louise Avenue was the boarding house, and that the ferry would have docked near there. This same

ferry is marked as "Packard's" on the 1861 General Land Office (GLO) Plat map. No connecting road or structures are depicted on the plat map, though a telegraph line is shown crossing the river at the same place.

Historic Setting

The San Joaquin County area in which the project site is located has an agricultural history going back to the 1850s and possibly earlier. The area was largely swamp land until the 1860s when the first levees were constructed along the San Joaquin River and area tributaries. The state adopted a federal plan for reclamation in 1911 (the so-called Jackson Plan, which planned for levees and bypasses to control flooding on a regional basis). It was at this time that the State Reclamation Board was established. Federal efforts resulted in construction of substantially larger levees along the river near Mossdale after World War II, which paved the way for year-round farming of the project site. It was not until 1926 that the San Joaquin County map showed the parcels within the project site subdivided much as they are today. American Cream Company and M. Oliveira owned the current Terry parcel. The other parcels were denoted by initials on the map, so it is unclear who owned them.

Mossdale was an early settlement along the San Joaquin River south of the project site. During the gold rush, it was an important river crossing and ferry terminal. The Southern Pacific Company made Lathrop an important division point and major stop in 1871, and it continued to be a railroad town until the early 1940s. Early maps show a San Jose-to-Sacramento road passing through the project area generally along the current West Louise Avenue alignment. This alignment later was adjusted to become U.S. 50 in the 1950s and 1960s, and then I-5 in 1971.

Historic Resources

Two historical field surveys were conducted for this analysis: (1) one in January 2002 covering the project site (Exhibit 3-3); and (2) one in June 2002 covering the off-site areas of the Gold Rush Boulevard PPL. Historical field surveys were not conducted of the off-site utility improvement sites and the locations of the off-site roadway improvements required by mitigation in Section 4.5 of this EIR because existing structures are not located within these areas.

The potential historic resources within the project area reflect the agricultural and transportation history of the area with widely dispersed farmstead and appurtenant structure complexes of varying ages. The project site is made up of eight agricultural properties, totaling 477.3 acres. The site contains 26 existing structures, 18 of which were constructed in 1956 or earlier and thus meet the screening criteria for historic resources (i.e., 45 years of age or older). The western off-site portions of the Gold Rush Boulevard PPL, between the western boundary of the project site and the river, contains two existing structures, the “northern barn” and “northern shed” (see page 5 of the historical report adendum in Appendix J of this EIR). These two structures were constructed in the 1950s or 1960s. In addition, a farm residence constructed circa 1923 is located outside but directly adjacent to the southern boundary of the PPL between the project site and the river. There are no potential historic structures located within the off-site utility improvement sites or the locations of the off-site roadway improvements required by mitigation in this EIR.

The six of nine properties on the project site and Gold Rush Boulevard PPL found to contain potential historic structures are identified in Exhibit 4.12-1 and listed in Table 4.12-1. Each of these properties is described

below. None of these properties appear to have been previously evaluated for their eligibility for listing in the CRHR, or the National Register of Historic Places (NRHP).

Table 4.12-1
Mossdale Landing Properties with Potential Historic Structures

Property	Address	APN(s)	Date(s) of Construction
1	401 and 655 West Louise Avenue	191-200-01, 191-190-02	ca. 1900, 1950s, 1975, 1983
2	500 West Louise Avenue	191-190-06	ca. 1896, 1920
3	17287 and 17599 S. Manthey Road	191-190-11, 191-190-23, 191-190-22	1954, 1959, 1979, 1983
4	750 West Louise Avenue	191-190-03	1948, 1930s
5	18041 S. Manthey Road	191-190-14	1917, 1977, 1990
6	777 West Louise Avenue	141-200-02, 191-190-01	1950s or 1960, ca. 1923

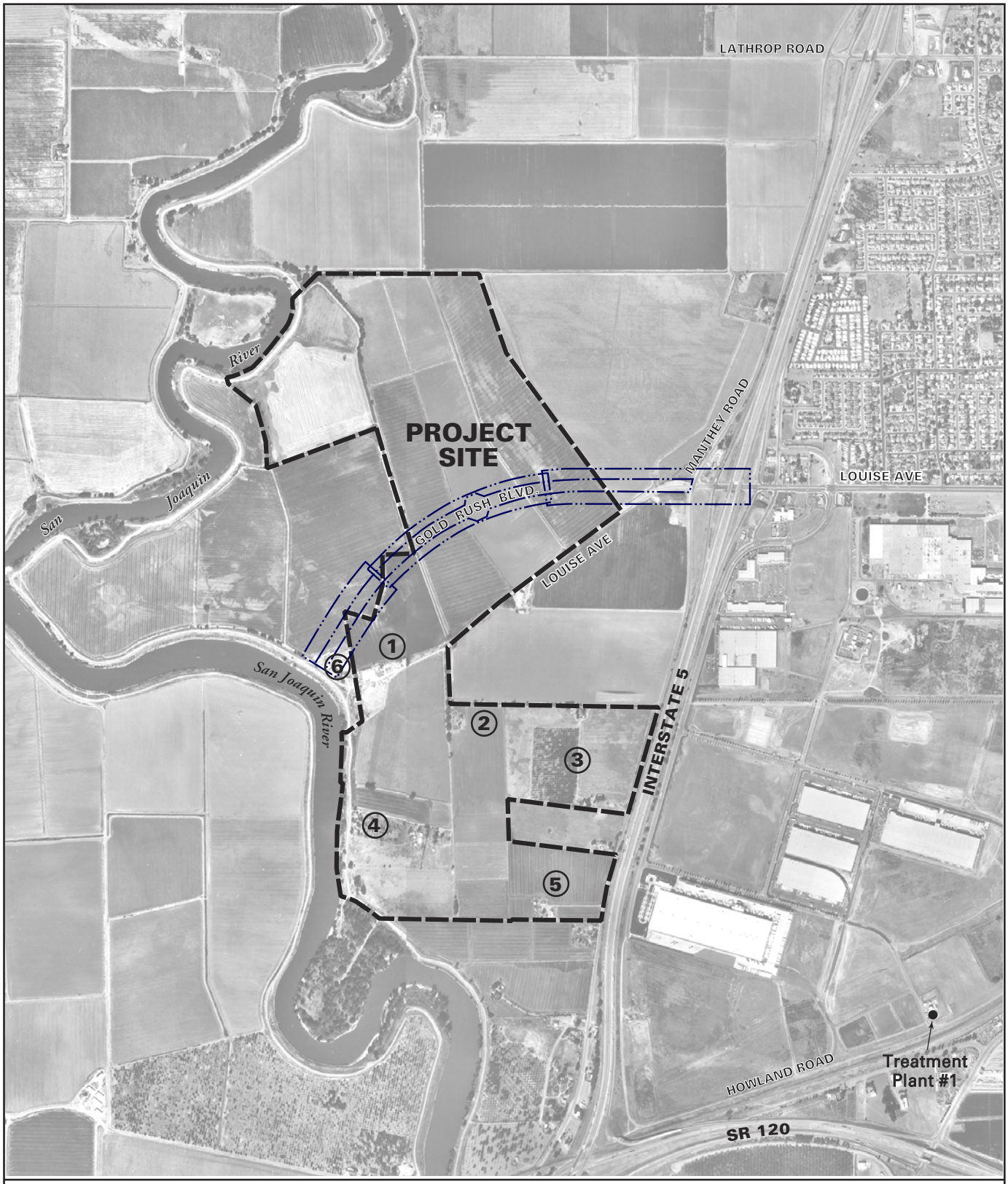
Source: JRP, January 2002.

Property #1 (401 and 655 West Louise Avenue)

The property at the end of West Louise Avenue, 401 and 655 West Louise Avenue, is located on two assessor's parcels and covers a total of 316.38 acres of the project site. The property's buildings include two houses with sheds and a garage, a pole barn, a small dilapidated barn, and a pump house. Of the two houses, one is a single-story building and the other is a one-and-a-half story.

The one-and-a-half story house is a side-gable wood frame building with a concrete foundation and a combination of wooden drop and shingle cladding. It has a shed located on the lawn next to its east side and there is a wood frame front-gable two-car garage adjacent to its northwest corner. The second residence is a one-story building with a side-gable roof.

San Joaquin County Assessor's Records indicate that the one-and-a-half story house was moved to its current located as early as a few years prior to 1949. The 1952 USGS quadrangle map Lathrop shows what was likely the original house set further back from the road. According to Barbara Terry, the one-and-a-half story house was moved prior to Frank Terry's purchase of the property in 1950.



Source: JRP, January 2002.

On-Site Historic Resources

EXHIBIT 4.12-1

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

0 1000 2000 FEET

NORTH

EDAW

Ms. Terry states that the one-story residence on the property was moved to its current location in 1957. Like the one-and-a-half story house, it was moved closer to West Louise Avenue (Johnson's Ferry Road). At first appraisal in 1949, the county assessor estimated the house to have been constructed around 1900.

Stockton building contractor Edgar Woodruff may have constructed the Terry property's main house at its original location during the early 20th century. In the 1923 *History of San Joaquin County*, George H. Tinkham listed Francis Hodgkins house at Lathrop as one of Woodruff's many buildings in the greater Stockton area. Woodruff was a Minnesota native who moved to California in 1890 and worked as a building contractor in the Stockton area from 1891 to 1921. Among his other buildings were the several residences in Stockton, the Stockton Record Building, the Stockton Hotel, the German Methodist Church in Stockton, and the Odd Fellows.

Property #2 (500 West Louise Avenue)

The property at 500 West Louise Avenue consists of an abandoned house and garage set at the corner of a 50-acre T-shaped parcel of the project site. Both the house and the garage are set up on a 31½-foot-high mound approximately 200 feet by 300 feet. It is unclear why this portion of the property is raised in such a fashion, but it is consistent with efforts to prevent flood damage to the house.

The simple Victorian house, constructed ca.1896, is a two-story side-gable building with wood siding, double-hung wood frame windows, and asphalt roof shingles. There is a small one-story front gable addition located on the south side of the house. It has similar detailing as the main house: double-hung wood frame windows, wood siding, and asphalt shingles on the roof. A later one-room shed roof addition is located on the east side of the rear addition. The house is in dilapidated condition, with holes in the exterior siding and many of the windows missing. The garage is a rectangular wood frame building with a front gable roof and is sheathed with lapped siding.

Property #3 (17287 and 17599 S. Manthey Road)

This property constitutes three assessor's parcels covering a total of 48 acres of the project site. On the property are two houses, two sheds, a shop building, and a mobile home.

The older of the two houses on the property was built in 1954 and is an L-shaped single story ranch style house. On the northeast side of the house is a corrugated metal shop building. To the southwest corner of the house is a small wood frame building with exposed rafters, a door on the south side, and a pyramidal wood shingle roof. A 4-foot-deep channel marks the north end of the property. Both the house and the mobile home are located on the south side of the property, and are entered by a long gravel driveway that runs along the southern property line.

The second residence is located at the end of the driveway and is a one-story Minimal Traditional residence. The house is L-shaped, with a side-gable roof covered with composition shingles. The residence is sheathed with a combination of stucco and wood siding. On the front elevation is an attached covered porch supported by simple square posts. The attached garage, which has a single pull-out door, is located on the north side

Property #4 (750 West Louise Avenue)

The property located at 750 West Louise Avenue consists of 5.79 acres of the project site, with the buildings consisting of two houses, a shed, a storeroom, and a cabin. The property borders the San Joaquin River on its west side and its buildings are located near West Louise Avenue.

The entry to the parcel is a gravel driveway that runs east-west. The buildings are described in order from north to south. The first house is located at the north end of the parcel and is an L-shaped single-story Ranch style house, built in the 1950s.

The second small residence is rectangular in shape with a side-gable roof and covered entry. The house sits on a concrete foundation and is sheathed with lapped wood siding and cornerboards.

The small storage shed is octagonal in shape with the same shape roof. It is also covered in lapped siding with cornerboards and fenestration on several sides.

Sitting north of the octagonal shed is a small rectangular residence. The building sits on a concrete foundation and has a side-gable composition shingle roof.

The southernmost building is a small wood garage with swinging doors, vertical wood siding, and a composition shingle shed roof.

USGS maps do not show any structures that predate the construction of the 1930s buildings currently located on the property. County assessor's records show that A. Linker built a residence around 1930 along with several other buildings, including a cabin, shed, garage, and stove room. Linker constructed the second residence around 1948, according to the assessor's record.

Property #5 (18041 S. Manthey Road)

The 24-acre parcel located at 18014 Manthey Road on the project site contains a historic period barn, two modern mobile homes and a modern garage that form a rectangular compound surrounded by agricultural land located between the San Joaquin River and U.S. 50 in southern San Joaquin County.

The barn, built circa 1900, is a rectangular building sided in corrugated metal with a corrugated metal gable roof and a shed roof extension on the north side. The historic period barn is one of three structures that appear on the 1952 USGS Lathrop map. County assessor record's state that it was constructed around 1900 along with other structures that probably burned in 1953.

Property #6 (777 West Louise Avenue)

The property at 777 West Louise Avenue (Silveira Property) consists of a main house, two barns, three sheds, agricultural fields, and irrigation ditches located on 230 acres at the western terminus of West Louise Avenue (formally Johnson's Ferry Road). Approximately 30 acres of the property is located within that off-site portion of the Gold Rush Boulevard PPL, between the western boundary of the project site and the San

Joaquin River (SJR), and contains the northern barn and the northern shed. The balance of the property, which contains the balance of the structures and features, is outside the PPL and outside the project site.

The "main residence" (outside but directly adjacent to the Gold Rush Boulevard PPL) is a two-story, Spanish Colonial Revival style house, likely built cira 1923. The house has an L-shaped footprint with an open arcade at the first story, a set of exterior steps on the south end, and a second story exterior corridor enclosed by wood frame openings. It is unclear whether the house is a wood frame or built with tile or brick. Its exterior is clad in trowelled stucco. The arcade and exterior corridor on the east side of the house face a courtyard and horse enclosures. The house's architectural style is derived from its stucco exterior, Mission tile roof, arched arcade and window/door openings. It is in generally fair condition and does not appear to have been highly altered, and thus appears to retain historic intergrity. Architecturally, only the main house possesses some architectural value—the other buildings appear to have been built with utilitarian designs using common building practices.

The two barns, built in the 1950s or 1960s, are located north and south of the main house. The "southern barn" (outside the PPL) is a two-story wood frame front-gable barn with a wide monitor style roof, corrugated metal roof, red-painted wood siding, and central hay loft. The "northern barn" (within the PPL) is a gable-roof building with vertical red-painted wood siding, corrugated metal roof, large double sliding door, and covered outrigger.

The three sheds, likely built in the 1950s or later, are located north and south of the main house, and two south and outside the PPL). The "northern shed" (within the PPL) has a wood frame, a shed roof, corrugated metal siding, and a south facing louver. The "shed north of the driveway" (outside the PPL) is a gable-roof wood frame building with vertical red-painted woood siding and a composite shingle roof. The "shed south of driveway" (outside the PPL) is a gable-roof wood frame building with vertical red-painted wood siding, a corrugated roof, and a tarp covering its east end.

In the early 1900s, Frances I. Hodgkins owned the property and built a house, which is located on the adjacent Terry property. The land remained part of a large property through the 1910s when San Franciscans E.M. Fossler and then Earnest A. Stend owned it, neither of whom resided on the property. In 1920, Stent sold the property to Joaquim A. Silveira who then sold it, in half interests, to Manuael Ferreira Oliveira and the American Cream Company. Oliveira appears to have resided on the property and was listed as a "farmer" in city directories until 1931. The property may have been used as a horse breeding operation, a dairy, or to grow alfalfa. Oliveira sold the southern and eastern portion of the property in 1950 to Frank Terry, who leveled the land and cultivated row crops. USGS quadrangle maps indicate that the Silveira property was similarly leveled for cultivation. By 1966, E.F. Silveira owned the property and transferred ownership to the current owner, J.W. Silveira. In recent years, the property appears to have been used for row crops with the house and other buildings rented to tenant farmers. Silveira does not live on the property

REGULATORY SETTING

Section 15064.5 of the California Environmental Quality Act (CEQA) provides protections for those cultural resources that meet the definitions of "unique archaeological resources" and "historical resources" as defined by CEQA.

With regard to unique archaeological resources, §21083.2 of CEQA indicates that a project that preserves such resources in place in an undisturbed state would avoid a significant cultural resources impact. Other acceptable methods of mitigation under §21083.2 include excavation and curation, or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a "unique archaeological resource").

With regard to human remains, §15064.5(e) of the State CEQA Guidelines requires that excavation activities be stopped whenever human remains are uncovered, and that the County coroner be called in to assess the remains. If the County coroner determines that the remains are Native American, the NAHC must be contacted within 24 hours. At this time, §15064.5(d) of the CEQA Guidelines directs that the lead agency consult with the appropriate Native Americans as identified by the NAHC and that the lead agency (or applicant) develops an agreement with the Native Americans for the treatment and disposition of the remains.

With regard to historical resources, §15064.5(b)(3) of the CEQA Guidelines indicates that a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995), shall be considered as mitigated to a level of less-than-significant impact.

4.12.2 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

The results of this analysis are based on a combination of background research, archaeological pedestrian surveys, historical resource surveys, and an assessment of historic structures

Archaeological Analysis

Information requests were submitted to the Native American Heritage Commission (NAHC) and the Central California Information Center (CCIC) of the California Historical Resources Information System. The NAHC was asked to conduct a search of the Sacred Lands files. The CCIC record search was requested by Peak and Associates in the Fall of 1999. The records search included a review of the California Historical Resources Information System, which lists NRHP sites, California Historical Landmarks, other government-designated cultural resource sites, and a review of Information Center maps and files of the findings of previous cultural resource surveys conducted in the project area.

In addition, historic GLO Plat maps for the area were examined. These maps, dating from the 1860s to 1870s, indicated that Rancho El Pescadero, a 35,546-acre Mexican Land Grant (Beck and Haase 1974) was located on the west side of the San Joaquin River, opposite the project area. A historic ferry was depicted south of the confluence of the Old and San Joaquin rivers, near what is now Louise Avenue.

Given the confidentiality requirements of the State and the Information Center, locational references to existing cultural resource sites in this EIR section are provided in general rather than specific terms. The 1999 records search, which identifies the specific locations of recorded cultural resource sites near the project area, is on file for review by authorized individuals as part of the archaeological report at the City of Lathrop

Public Works Department, 16775 Howland Road - Suite One, Lathrop, California 95330 (209-858-2860 extension 328).

See the preceding "Archaeological Resources" subsection for a description of the archaeological surveys conducted for this analysis.

Historic Structures Analysis

As discussed in the preceding "Historic Resources" subsection, reconnaissance surveys of the project site and Gold Rush Boulevard PPL were undertake by JRP to confirm the presence of structures, and to determine whether these structures could potentially represent historic resources (i.e., be 45 years of age or older). Through research of tax assessor records and County Recorder's office records, research at the San Joaquin County Library, California State Library in Sacramento, and visual inspection during the field surveys, those structures identified to be 45 years of age or older were recorded and photographed. Historical research was conducted at area libraries and at the San Joaquin County Tax Assessor's Office and Recorder's office to ascertain the historic context of the project site and on-site structures. For six of the eight properties that were found to contain potential historic resources, evaluation of the potential historic significance of the properties was accomplished using standards set by the California Department of Parks and Recreation, Office of Historic Preservation. This included the preparation of DPR 523 forms for each of the six properties. These forms are included in their entirety as part of the historic resources report and report addendum, Appendix J of this EIR. Based on the forms, the significance of the on-site structures as historic resources was determined.

THRESHOLDS OF SIGNIFICANCE

Archaeological Resources

The Mossdale Landing project would result in significant archaeological resources impacts if it would result in one or more of the following:

- Cause a substantial adverse change in the significance of a unique archaeological resource or a historical resource as defined in §21083.2 of CEQA and §15064.5 of the State CEQA Guidelines, respectively;

- Disturb any human remains, including those interred outside of formal cemeteries.

Section 15064.5 of the State CEQA Guidelines defines "substantial adverse change" as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings.

Section 21083.2 of the CEQA Statute defines "unique archaeological resource" as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria: (1) contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; (2) has a special and particular quality such as being the oldest of its type or the

best available example of its type; or (3) is directly associated with a scientifically recognized important prehistoric or historic event or person.

Section 15064.5 of the State CEQA Guidelines defines "historical resource" as a resource: (1) listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historic Resources; (2) listed in a local register of historic resources or as a significant resource in a historical resource survey; or (3) considered to be "historically significant" by a lead agency as supported by substantial evidence in the record. Generally, a resource shall be considered by the lead agency to be "historically significant" if it meets any of the following criteria for listing in the California Register of Historical Resources: (a) is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; (b) is associated with the lives of persons important in our past; (c) embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important individual; or (d) has yielded, or may be likely to yield, information important in prehistory or history.

Historical Resources

Consistent with §15064.5 of the State CEQA Guidelines, a project would result in significant historic resources impacts if it would affect historic resources listed or eligible for listing in the CRHR.

To be eligible for listing in the CRHR, a property must have both historic significance and integrity.

Historic significance is judged by applying the following CRHR criteria (also enumerated under §15064.5 of the State CEQA Guidelines):

> Criterion 1: Resources associated with important events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the U.S.
>
> Criterion 2: Resources that are associated with the lives of persons important to history.
>
> Criterion 3: Resources that embody the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic value.
>
> Criterion 4: Resources that have yielded, or may be likely to yield, information important in history.

Integrity is judged by considering the property's retention of location, design, setting, workmanship, materials, feeling, and association.

IMPACT ANALYSIS

The proposed project would include the development of residential, school, commercial, utility and open space uses on 477.3 acres, and approximately 7,200 linear feet of new pipeline and a pump station off-site. The proposed project would also include several off-site roadway improvements required in the Traffic section of this EIR, and approval of the Gold Rush Boulevard PPL. By overlaying a map of the proposed uses onto the maps of recorded archaeological and historical resource sites provided by the Information

Center and maps of the surveyed area, a determination can be made as to which recorded cultural resource sites could potentially be affected by the proposed project.

The mapping indicates that a total of two recorded archaeological sites, seven isolated artifacts and five recorded historical properties (containing multiple potential historic buildings) may be impacted by proposed project construction. The potential for the proposed project to result in significant impacts associated with these recorded sites, isolates and properties, and associated with any undiscovered/unrecorded archaeological resources that may be present at the project site, is evaluated below.

Impact **4.12-a**

Cultural Resources - Impacts on Listed Archaeological Sites. *The proposed project would not affect any archaeological sites listed in the National Register of Historic Places or the California Register of Historic Resources. Therefore,* ***no impact*** *would occur.*

There are archaeological sites located on the project site or off-site utility improvement locations that are listed in the NRHP or the CRHR. Therefore, the proposed project would have no impact on listed archaeological sites.

Impact **4.12-b**

Cultural Resources - Impacts to Recorded Archaeological Sites*. The proposed project would affect two archaeological sites and seven archaeological isolates recorded on the project site during the field survey. One of these, Moss 2 could represent a unique archaeological resource. Therefore, a* ***significant*** *impact could occur.*

The proposed project would have the potential to affect the two archaeological sites (Moss Sites 1-2) and seven archaeological isolates (Moss Isolates 1-7) recorded during the pedestrian field survey of the project site and off-site utility improvement locations. The archaeological significance of these sites is evaluated below.

Moss Isolates 1 through 7 represent surface scatter areas that are not listed and do not meet the criteria for unique archaeological resources. Furthermore, there is no indication that these surface deposits would lead to subsurface deposits that would represent unique archaeological resources. Therefore, a less than significant impact would occur.

Moss Site 1 represents historic-era surface scatter (glass, ceramic, metal) within the matrix of an elevated direct road. The overall indications are that the artifact scatter is comprised of redeposited material associated with the construction of the road. This scatter does not retain historic integrity, and does not appear to retain significant values that would make it eligible for listing in the CRHR. Furthermore, because the scatter appears to be redeposited, there is no reason to assume that these surface deposits would lead to subsurface deposits that would represent unique archaeological resources. Therefore, a less-than-significant impact would occur.

Moss Site 2 is a historic homestead built atop a large, low earthen mound. The mound may be prehistoric in origin and contain occupation remains or Native American burials. While the site is not listed in the NRHP or the CRHR, it may represent a unique archaeological resource as defined by CEQA and thus may be eligible for listing. The potential for prehistoric occupation debris or burials within the mound can only be determined by subsurface testing and evaluation. If the site were to represent a unique archaeological

resource as determined by such subsurface testing and evaluation, the proposed project could result in a substantial adverse change in the significance of the resource. This would represent a significant impact.

Impact **4.12-c**

Cultural Resources - Impacts to Undiscovered/Unrecorded Archaeological Sites. *Project-related construction activities could affect as of yet undiscovered or unrecorded archaeological resource sites. Such effects would represent a potentially* ***significant*** *impact*

Although no listed archaeological sites exist on the project site, off-site utility improvement locations, or the Gold Rush Boulevard PPL, and no recorded archaeological sites exist at these locations beyond those discussed previously, as of yet undiscovered or unrecorded cultural resource sites may potentially be uncovered by project construction activities. If such resources were to represent unique archaeological resources as defined by CEQA, any substantial change or destruction of these resources would represent a significant impact.

Impact **4.12-d**

Cultural Resources - Impacts to Undiscovered/Unrecorded Human Remains. *Project-related construction activities could affect as of yet undiscovered or unrecorded human remains. Such affects would represent a* ***significant*** *impact.*

Although no human remains have been listed or recorded on the project site, off-site utility improvement locations, or the Gold Rush Boulevard PPL, as of yet undiscovered human remains could potentially be uncovered by construction activities at these sites. Any such disturbance of human remains would represent a significant impact.

Impact **4.12-e**

Cultural Resources - Impacts to Historic Properties. *None of the existing structures on the project site are or appear to be eligible for listing in the California Register of Historical Resources. Therefore, a* ***less-than-significant*** *impact would occur.*

The project site contains five properties, with a total of 18 structures constructed in 1956 or earlier (i.e., are 45 years of age or older). None of the properties appear to have been previously evaluated for their eligibility for listing in the CRHR or the NRHP. None of these properties, or the structures therein, appear to meet the historic significance criteria established under CRHR criteria or CEQA for listing in the CRHR. The structures located on the five on-site properties do not appear to be associated with any events significant to the local area (Criterion 1) or associated with any known significant historic persons (Criterion 2). Nor do they appear to embody the distinctive characteristics of a type, period, or method of construction (Criterion 3). Furthermore, they do not appear to serve as sources of important information about historic construction materials or technologies (Criterion 4). Lacking historical and architectural significance, potential affects to existing structures on the project site would result in a less-than-significant impact. See Item B10 in the DPR forms, which are included in Appendix J of this EIR, for further discussion.

[redacted]

Cultural Resources - Impacts to Cultural Resources Associated with Off-Site Roadway Improvements. *Several off-site roadway improvements are required by traffic mitigation in this EIR. The development of these improvements would not affect recorded*

archaeological sites or listed historic properties, and would not affect any potential historic resources. However, the development of these improvements could potentially affect any undiscovered or unrecorded archaeological sites or human remains that may be present in the improvement areas. If any such archaeological sites were to amount to "unique archaeological resources" as defined by CEQA, or if human remains were found in the improvement areas, a ***significant*** *impact would occur.*

Several off-site roadway improvements are required by mitigation in Section 4.5 of this EIR. These include: (1) additional lanes at the I-5/Louise Avenue interchange; (2) moving the Manthey Road/Louise Avenue intersection 300 feet to the west; (3) additional southbound lane to Manthey Road between Louise Avenue and Main Street; and (4) a new traffic signal at the Manthey Road/Main Street intersection (Exhibit 4.5-9). EDAW conducted an archaeological and historic field survey of these improvement areas on February 8, 2002.

The improvement areas at the interchange consist of areas covered with concrete and/or highly disturbed uncovered soils. The new Manthey Road right-of-way from Louise Avenue to Main Street (i.e., improvements 2-4 above) consists of highly disturbed farmland and/or existing streets and sidewalks. No archeological sites or isolates were observed in either of these improvement areas. However, undiscovered or unrecorded archaeological resources and/or human remains may be present in these areas below the ground surface. If any such archaeological resources were present that amount to "unique archaeological resources" as defined by CEQA, or if human remains were present, project construction activities could affect these resources and result in a significant impact.

Impact **4.12-g**

Cultural Resouces - Impacts to Historic Properties Within the Gold Rush Boulevard PPL. *None of the existing structures on or adjacent to the Gold Rush Boulevard PPL are or appear to be eligible for listing in the California Register of Historical Resources. Therefore, a* ***less-than-significant*** *impact would occur.*

The Gold Rush Boulevard PPL bisecs the Silveira property which contains one structure (main house) known to be constructed in 1956 or earlier (i.e., 45 years of age or older), and five additional structures (two barns, three sheds) which may or may not have been constructed before 1956. Of these six structures, two are located within the proposed PPL (northern barn and northern shed), and one is located outside but directly adjacent to the PPL (main house) and thus could potentially be affected by development of a road within the proposed PPL.

The property does not appear to have been previously evaluated for its eligibility for listing in the CRHR or the NRHR. Neither the property nor the structures therein, appear to meet the historic significance criteria established under CRHR criteria or CEQA for listing in the CRHR. The structures located on the property do not appear to be associated with any events significant to the local area (Criterion 1) or associated with any known significant historic persons (Criterion 2), nor do they appear to embody the distinctive characteristics of a type, period, or method of construction or to represent the work of a master or posses high artistic value (Criterion 3). Furthermore, they do not appear to serve as sources of important information about historic construction materials or technologies (Criteron 4). Lacking historical and architectural significance, potential affects to existing structures within and adjacent to the Gold Rush Boulevard PPL would result in a less-than-significant impact. See the addendum to the historical report, including the DPR

forms prepared for the aforementioned structures. The addendum is included with the historical report in Appendix J of this EIR.

4.12.3 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" will occur, no mitigation is identified below (this is the reason why some of the mitigation measures may skip numbers).

4.12-b **Cultural Resources - Impacts to Recorded Archaeological Sites.** The City of Lathrop shall retain a professional archaeologicalist to conduct Phase II testing (i.e., limited test excavation to characterize the extent/nature of the archaeological deposit) at Moss Site 2. The investigations shall be conducted prior to the onset of construction at this site. The archaeologist shall recommend mitigation deemed necessary for the protection of any archaeological resources at the site concluded by the archaeologist to represent "unique archaeological resources" as defined by CEQA (photo documentation and preservation in-place, data recovery and curation, etc.). The City shall implement the mitigation prior to construction at this site.

This mitigation measure would reduce Impact 4.12-b to a less-than-significant level.

4.12-c **Cultural Resources - Impacts to Undiscovered/Unlisted Archaeological Sites.** Prior to the initiation of construction or ground disturbing activities, at the project site, off-site utility improvement sites, and the Gold Rush Boulevard PPL, all construction personnel shall be alerted to the possibility of buried cultural resources. Should artifacts, unusual amounts of stone, bone or shell, or human remains be uncovered during construction activities, work at the specific construction site at which the resources have been uncovered shall be suspended, and the City of Lathrop Public Works Department immediately contacted. At that time, the City shall retain a professional archaeological consultant. The archaeologist shall conduct a Phase II field investigation of the specific site and recommend mitigation deemed necessary for the protection of any cultural resources concluded by the archaeologist to represent "historical resources" or "unique paleontological resources" as defined by CEQA. The City shall implement the mitigation prior to the resumption of construction activities at the construction site.

This mitigation measure would reduce Impact 4.12-d to a less-than-significant level.

4.12-d **Cultural Resources - Impacts to Undiscovered/Unlisted Human Remains.** If human remains are discovered at the project site, off-site utility improvement sites, and the Gold Rush Boulevard PPL during construction, work at the specific construction site at which the remains have been uncovered shall be suspended, and the City of Lathrop Public Works Department and the San Joaquin 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.

This mitigation measure would reduce Impact 4.12-e to a less-than-significant level.

4.12-f **Cultural Resources - Impacts to Cultural Resources and Human Remains Associated with Off-Site Roadway Improvements** Implement Mitigation Measures 4.12-c and 4.12-d.

This mitigation measure would reduce Impact 4.12-f to a less-than-significant level.

4.12.3 RESIDUAL SIGNIFICANT IMPACTS

No residual significant cultural resource impacts would occur with implementation of the recommended mitigation measures.

5 CUMULATIVE IMPACTS

5.1 INTRODUCTION

As required by §15130 of the State CEQA Guidelines, this section includes a discussion of cumulative impacts. Cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (State CEQA Guidelines §15355). "The cumulative impact from several projects is the change in the environment, which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects" (§15355). Section 15130 of the State CEQA Guidelines requires EIRs to consider cumulative impacts "when they are significant".

CEQA Guidelines §15130(d) provides that "No further cumulative impacts analysis is required when a project is consistent with a general, specific, master, or comparable programmatic plan where the lead agency determines that the regional or areawide cumulative impacts of the proposed project have already been adequately addressed, as defined in §15152(f), in a certified EIR for that plan." The proposed project is consistent with the West Lathrop Specific Plan (WSLP), and the WSLP EIR was certified as adequate. Thus, it can be concluded that a new discussion of cumulative impacts is not needed in this EIR. However, the City of Lathrop has determined that it would be beneficial to re-examine cumulative impacts based on an update of the status of existing, proposed and approved projects in and around the project area.

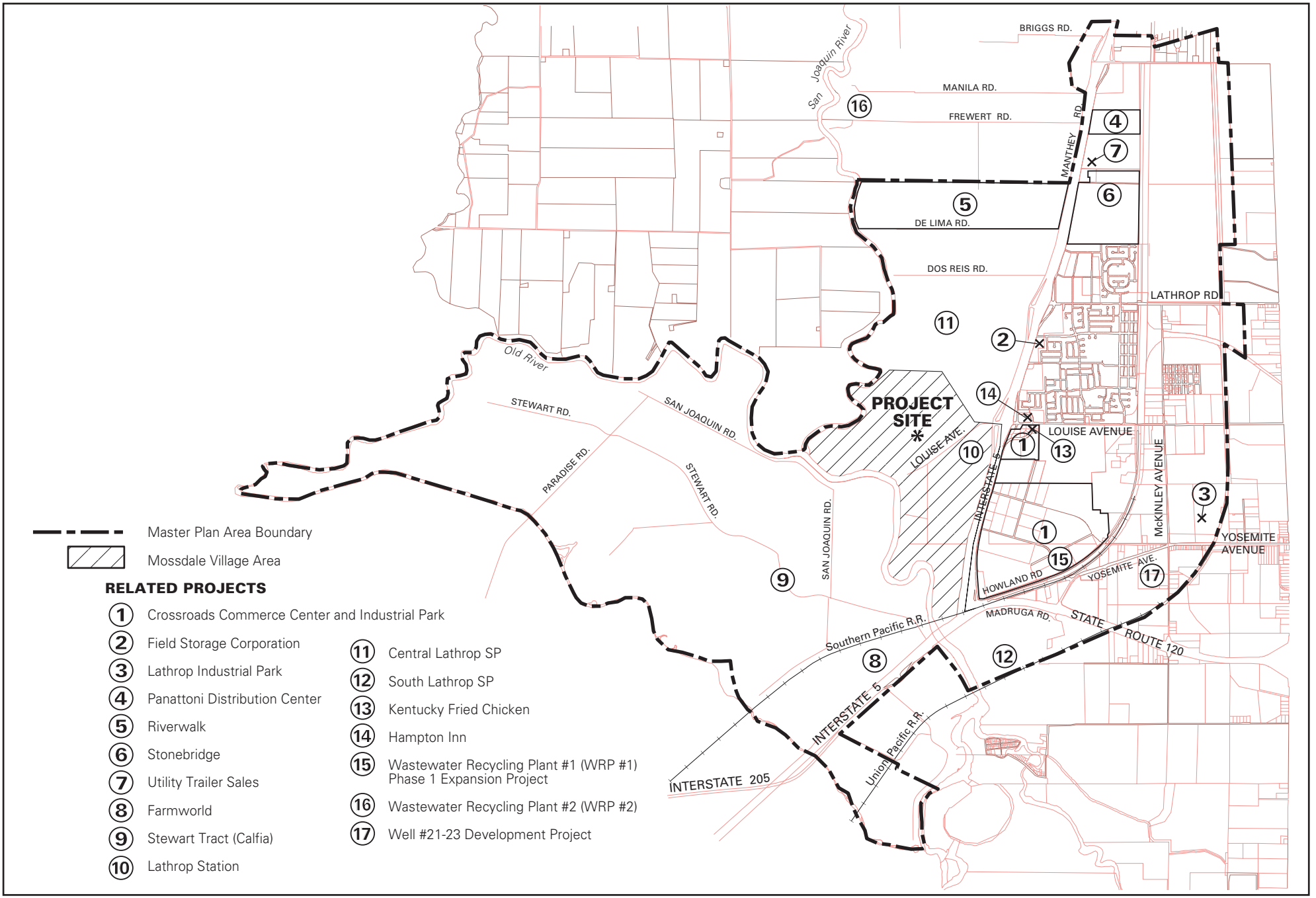
5.2 PROJECTS CONTRIBUTING TO POTENTIAL CUMULATIVE IMPACTS

The State CEQA Guidelines identify two basic methods for establishing the cumulative environment in which the project is to be considered: the use of a list of past, present, and reasonably anticipated future projects; or the use of adopted projections from a general plan or other regional planning document. For this EIR, a list of projects is used.

Past, present, and reasonably anticipated future projects that may have a cumulative effect on the resources in the project area are identified in Exhibit 5-1 and described below [based on the City of Lathrop's (City) June 21, 2001, Current Development Projects List and communication with Deanna Walsh of the City on July 17, 2001 and April 19, 2002]. They include development and utility infrastructure projects in the City. In all, approximately 4,000 residential units, 1,463,000 square feet of commercial, 2,850,000 square feet of industrial/warehouse, 250,000 square feet of office, 1,830 hotel/motel rooms, and two theme parks would be developed under these related projects by 2010[1] (see Table 4.4-A-6 in Appendix G of this EIR for more specific quantified information).

Crossroads Commerce Center and Industrial Park: Located on a site south of Louise Avenue between Howland and Harlan Roads in East Lathrop, Crossroads is an industrial/commercial area comprised of 450 acres of Industrial and 48 acres of Highway Commercial designated land. The industrial area includes an

[1] The year 2010 would represent the buildout year of the Mossdale Landing project and serves as the time horizon for the cumulative analysis in this EIR.



Source: City of Lathrop 7/17/01.

Related Projects

EXHIBIT 5-1

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 8/02

0 2000 4000 8000 FEET

NORTH

EDAW

existing 750,000 square foot Nestle distribution warehouse, three existing 250,000 square foot warehouses, and a 435,000-square-foot Longs Drugs warehouse. The Freeway Commercial area contains the existing 138,000-square-foot Lathrop Business Park, 4 fast food restaurants, a sit-down restaurant, Daimler Chryslar (430,770), and a 31,886-square-foot hotel. Crossroads is the largest project currently approved by the City.

Field Storage Corporation: Field Storage Corporation will be an 82,000 square foot mini-storage facility, with 1,025 square feet of office to be located on the east side of Harlan Road, south of J Street. The development will employ two persons. The adjacent parcel to the north will contain a 3,024-square foot car wash. Plans for these projects have been approved, with building permits soon to be issued.

Lathrop Industrial Park: Lathrop Industrial Park was approved by the Lathrop Planning Commission to contain four industrial warehouses. The first warehouse contains 231,840 square feet of warehouse space with offices and has recently been completed. The second warehouse contains 322,560 square feet and is currently under construction. The third and fourth warehouses are proposed but not yet constructed. The project is located at 2725 Yosemite Avenue in East Lathrop. The other three warehouses are yet to be constructed.

Panattoni Distribution Center: This project would add 263,200 square feet of warehouse space to an existing 436,800 square foot warehouse located at 11190 Harlan Road in East Lathrop. The first 436,800 square foot warehouse was recently completed. The project has Planning Commission approval, but does not have building permits.

RiverWalk: West of Interstate 5 (I-5) and east of the San Joaquin River (SJR) north from De Lima Road, the RiverWalk Specific Plan was a subdivision proposed on a 523-acre site to include 342 acres of single-family homes, a 20-acre elementary school site, 2 neighborhood parks on 12 acres, a 10-acre community park, a 10-acre open-space corridor and detention basin, and an 8-acre landscaped pedestrian/bicycle corridor. The project also would have included the development of two new roads, including Golden Valley Parkway and River Road. A 100-acre site for public uses was also proposed as the location for Water Recycling Plant (WRP) #2. In all, approximately 1,800 single-family homes would have been developed. Although the application for this project has recently been withdrawn by the applicant, it is included here as a likely development scenario for the site by 2010 because it was proposed at the time the NOP for the proposed project was released, and there is continued interest in the site from the development community to pursue development in the near future.

Stonebridge: East of I-5 and south of Squires Road on Harlan Road north of Warren Avenue in East Lathrop, Stonebridge is an approved 885 unit single-family residential subdivision that includes a 7.6-acre park facility and a 20-acre elementary school on a 211-acre site. Currently, 611 units of the project have been developed.

Utility Trailer Sales: Utility Trailer Sales will sell new and used truck trailers. Located at 12608 Harlan Road in East Lathrop, this retail establishment will include 54,056 square feet of sales area, with a shop and office, and 19,572 square feet of parts storage area. This project would employ 150 persons (75 employees per shift). Building permit applications are currently under review. This project was approved in July 2002.

FarmWorld: A highway retail entertainment project on 101.5 acres is proposed on a portion of the Stewart Tract, between Interstate 5 and the Union Pacific Railroad tracks along the west side of Manthey Road. It

would include: 250,000 square feet of specialty retail shops and entertainment uses; a 5,000-square-foot restaurant; a 14.5-acre entertainment area with live entertainment to include an arena, themed rides, food service, and educational exhibit areas; a 120-room hotel with conference facilities; a highway commercial area with restaurants, two service stations, and a 17,500-square-foot convenience market; an open-air farmer's market; and 1,767 parking spaces. This project is currently on hold at the request of the developer.

Califia/River Islands (Stewart Tract): Under the WLSP adopted by the City of Lathrop in 1996, the Stewart Tract is planned as a residential community and recreation-oriented commercial area on 5,794 acres west of the San Joaquin River. Development of the Stewart Tract is planned by the WLSP to occur over a 30-year period. By 2010[2], it is assumed in the traffic analysis (Section 4.5 and Appendix G of this EIR) that the Stewart Tract would contain a theme park, a water park, 1,755 hotel rooms, 1,400 single-family residences, 350 apartments, 515,000 square feet of retail, and an 18-hole golf course.

Development plans for the Stewart Tract as set forth in the WLSP may change. The applicant for the Stewart Tract site has proposed a different project, "River Islands at Lathrop" for the site, and the project differs from what was considered in the WLSP in a number of respects. Most notably, theme parks are no longer proposed as a primary land use; development proposals for the site now focus on a mix of uses including residential, employment and a town center. The River Islands proposal includes more permanent residences and employment uses. On balance, however, it appears that the prior project would produce substantially more traffic (due in large part to the theme park) than River Islands.

Despite the new River Islands proposal, this EIR continues to consider the project approved in the WLSP in this cumulative analysis and does not evaluate River Islands at Lathrop. There are several reasons for this. First, because the project approved in the WLSP provides for a greater overall level of development, it likely leads to more extensive environmental impacts than the River Islands project. Thus, it would be more conservative to consider the impacts from the approved project in this analysis than the newly proposed project. Second, CEQA does not provide clear guidance in cumulative analyses when there is a choice among considering two different project proposals for the same site; consequently, the approach considered herein with the more conservative analysis would be consistent with CEQA's goals of being more environmentally protective. Finally, the NOP for the proposed project was released in May 2001 and the traffic analysis was initiated at that time. The application for River Islands was not deemed complete until September 2001, over 4 months later. The traffic analysis would not have been able to consider River Islands, because the River Islands proposal was not sufficiently defined at the time the proposed project EIR was initiated. Further, §15130(4)(b)(1)(B) of the CEQA Guidelines states, in part, that the list of future projects considered in a cumulative analysis "… may be limited to those projects requiring an agency approval for which an application has been received at the time the NOP is released …" As stated above, the application for River Islands followed the NOP for the proposed project by several months. Each of these three reasons, on their own, is sufficient rationale for conducting the cumulative analysis by the method included herein.

Lathrop Station: This proposed development is located within the Mossdale Village area west of Golden Valley Parkway and south of Louise Avenue. An Urban Design Concept and two Vesting Tentative Maps

[2] The year 2010 would represent the buildout year of the Mossdale Landing project and serves as the time horizon for the cumulative analysis in this EIR.

have been filed for approximately 147 acres. The proposal includes 20 acres of Freeway Commercial, 16.5 acres of Service Commercial, 13.5 acres of Village Commercial, 34.3 acres of Low Density Residential, 15.5 acres of Medium Density Residential, and 4 acres of Neighborhood Park. A total of 440 dwelling units is proposed. The City is currently processing entitlements for this project.

Central Lathrop Specific Plan: West of I-5, west of the SJR, and north of Louise Avenue, the Central Lathrop Specific Plan includes approximately 1,044 acres designated as Residential, Commercial, Office, Community and Neighborhood Parks, Cultural Center, elementary Schools, and High School. The applicant has filed an Intent to Develop a Specific Plan.

South Lathrop Specific Plan: Located at the I-5/SR 120 intersection, north of the Union Pacific Railroad tracks and east of the SJR, this project covers 220 acres and is called the Landmark Logistic Center. An "Intent to File a Specific Plan" has been filed and includes a General Plan Amendment, Annexation and Tentative Map. The facilities would be oriented toward the professional trucking industry and would include vehicle related services; hotel accommodations; medical services; financial services; and retail and entertainment facilities, including a fishing pond, a 9-hole golf course, a miniature golf course, a bowling alley, a full service health club, movie theaters, and a 2,500-seat amphitheater.

Kentucky Fried Chicken: This project includes an approved KFC and A&W Restaurant on a 28,000-square-foot parcel located east of I-5 at 150 East Louise Avenue. This development includes 3,361 square feet of floor space with 71 seats. This is part of the larger Crossroads project and has been completed.

Hampton Inn: This development would include a three story, 45,000-square-foot motel on 1.9 acres east of I-5 and north of Louise Avenue.

Wastewater Recycling Plant (WRP) #1 Phase 1 Expansion Project (Formerly known as the WRP#1 Phase 1A/1B Expansion): Under the Lathrop Water, Wastewater and Recycled Water Master Plan (Master Plan), the existing Crossroads treatment plant located at on Howland Road near Yosemite Avenue would be expanded from its existing design capacity of 0.6 million gallons per day (mgd) to 6.1 mgd. The plant would also be upgraded from secondary to tertiary treatment, and would service future growth in the City.

At present, planning and the preparation of an EIR is taking place for the first phase of plant expansion under the Master Plan called the WRP #1 Phase 1 Expansion Project. Under this project, the plant would be expanded from its existing design capacity of 0.6 mgd to 3.6 mgd and upgraded to tertiary treatment in order to serve Califia/River Islands, Lathrop Station, and Mossdale Landing.

The Mossdale Landing project would include the development of wastewater and recycled water pipelines from the Mossdale Landing project site to WRP #1 in order to convey project wastewater to WRP #1, and to convey treated wastewater from WRP #1 back to the project site for land disposal.

Wastewater Recycling Plant (WRP) #2: Under the Master Plan, a new treatment plant would be developed in the northeastern portion of Mossdale Village with a capacity of up to 3.2 mgd. This plant would serve RiverWalk and other development in the Central Lathrop Specific Plan area. The development of this plant was in the process of being planned as part of the RiverWalk project, but the recent withdrawal of the

development application by the RiverWalk applicant has delayed project-level planning and CEQA review for WRP #2.

Well #21-23 Development Project

The City is proposing to construct three water wells (Wells 21, 22 and 23) and approximately 3,000 feet of water transmission pipeline to convey groundwater from the wells to the City's water distribution system. The project also includes proposals to construct associated well and pump houses, telemetry facilities, and pipelines. Each well would produce between 1,200 and 1,500 gallons per minute (gpm) from the Sacramento-San Joaquin Delta groundwater sub-basin. The project is consistent with the facilities planned for in the Lathrop Water, Wastewater & Recycled Water Master Plan (Master Plan), and would help meet the City's water demand from future planned growth (including Mossdale Landing) as projected in the Master Plan. Consistent with the Master Plan, this project would provide water to future planned growth until such time as surface water deliveries to the City commence associated with the San Joaquin Irrigation District's South County Surface Water Supply Project (SCSWSP). Once SCSWSP water deliveries commence, the wells would be used to supplement City water supplies during peak demand and to provide required fire flow.

SSJID South County Surface Water Supply Project (SCSWSP)

The SCSWSP is a joint project of SSJID and the cities of Manteca, Escalon, Lathrop, and Tracy (Participating Cities) to supply treated potable water to these participating cities. The primary objective of the SCSWSP is to provide a safe, reliable drinking water supply to the participating cities. The project involves construction and operation of a new water treatment plant at Woodward Reservoir in Stanislaus County, and a 36.5-mile, 20- to 54-inch water transmission pipeline with pumping facilities to deliver treated water to turnouts for each city. The SSJID's source of water is the Stanislaus River, based on its rights for direct diversion and diversion to storage. SSJID proposes to develop the project in two phases: Phase I (2003-2011) would supply approximately 31,000 AFY; Phase II (2011-2025) would increase the total supply to approximately 44,000 AFY. The City of Lathrop's requested capacity allocation from the SCSWSP is 14.6 mgd (maximum day demand) under Phase I and an additional 6.5 mgd under Phase II, for a total capacity allocation of 21.1 mgd supplied by the SCSWSP to the City of Lathrop. Two points of connection (POCs) to the City of Lathrop's municipal water system are proposed as part of the SCSWSP: one west of the UPRR tracks between the San Joaquin River and Paradise Cut, and the other along Lathrop Road east of the UPRR tracks. A third potential point of connection is proposed along Yosemite Avenue east of the UPRR tracks. The SCSWSP has been approved and adopted, and the EIR for the project has been certified. The SCSWSP is anticipated to be constructed and in operation by 2005 (EDAW 2001).

5.3 CUMULATIVE IMPACT ANALYSIS

The following sections contain a discussion of the cumulative effects anticipated from implementation of the proposed project together with the related projects for each of the 12 environmental issues evaluated in this EIR. This analysis conforms with §15130 of the State CEQA Guidelines which specifies that the "discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great a detail as is provided of the effects attributable to the project alone."

FLOOD CONTROL/DRAINAGE

Under the proposed project, the stormwater runoff generated at the project site would be discharged to the SJR rather than being conveyed to adjacent properties, consistent with the draft Drainage Plan for Mossdale Landing. The Drainage Plan for Mossdale Landing sets forth the drainage strategy and facilities for the proposed project. It also: (1) identifies where the proposed outfall structure will be placed to serve all development in the greater Mossdale Village watershed; (2) sets forth how drainage can be handled within the greater watershed; and (3) analyzes how drainage in the greater Mossdale Village watershed would not be adversely affected by the project's drainage. As long as the related projects in the Mossdale Village area adhere to the drainage strategy for the area as outlined in the Drainage Plan, the proposed project and cumulative development in Mossdale Village would not have the potential to divert runoff to adjacent properties, causing drainage impacts to said properties. Therefore, no significant cumulative drainage impact to adjacent properties would occur.

As demonstrated in the analysis included under Impact 4.1-b of this EIR, while the proposed project would increase the existing peak stormwater discharges to the San Joaquin River (SJR) from the project site, this increased discharge would not increase flows in the river such that flooding would occur at or downstream of the project site. The related projects within the Mossdale Village Watershed are required to discharge their stormwater runoff to the river. It is anticipated that in addition to related projects within the area, other related projects within the Mossdale Village and Stewart Tract portions of the City (i.e., RiverWalk, FarmWorld, Califia/River Islands, Lathrop Station, Central Lathrop Specific Plan, etc.) would also eventually discharge any incremental increase in peak stormwater runoff to the SJR. However, for two reasons it is anticipated that this cumulative increase in stormwater discharges to the SJR would not increase peak flows in the SJR to the point that the SJR would overflow its banks at or downstream of the City. First, the City requires a 30% reduction in peak flows via the use of on-site retention basins so that a large percentage of on-site runoff from the related projects would be discharged to the river after peak storm events and after water levels in the SJR have subsided. Second, the analysis contained under Impact 4.1-b demonstrates that, even during 100-year flows in the SJR, approximately 6.0 feet of freeboard would remain in the SJR at and downstream of the project site, and that the project's contribution to flows in the river would be less than 1/2 inch, so that the SJR has the existing available capacity required to absorb any increase in flow associated with the related projects. Hence, it is anticipated that cumulative drainage impacts associated with the SJR would be less than significant.

The proposed project includes a comprehensive set of BMPs to reduce sediment and other contaminants in its runoff, and mitigation measures are identified in Section 4.2 of this EIR to avoid sedimentation of the SJR during project construction. While the proposed project and the related projects would be required to comply with SWPPP and NPDES discharge requirements during construction and operation, the related projects may not be implemented with the BMPs proposed under the proposed project and the sedimentation-reduction mitigation measures identified in Section 4.2. Therefore, erosion and siltation from the construction and operation of the related projects could potentially fill in and/or reduce the capacity of the area's existing and future storm drain infrastructure and generate a significant cumulative drainage impact. The proposed project would not contribute to any such significant cumulative impact.

SURFACE WATER QUALITY - STORMWATER RUNOFF

The proposed project, along with several of the related projects (e.g., Riverwalk, FarmWorld, Califia/River Islands, Lathrop Station, and Central Lathrop Specific Plan,), would discharge its stormwater runoff to the SJR and would potentially degrade the water quality of the river.

As indicated under Impact 4.2-a of this EIR, the existing agricultural uses at the project site currently discharge stormwater runoff from the project site to the San Joaquin River (SJR). The load of pollutants in the stormwater discharges from the project site would change under the Mossdale Landing project. Under the Mossdale Landing project with proposed Best Management Practices (BMPs) in place, pollutant load in the discharge would decrease for 21 of the 23 constituents analyzed, and would increase for two of the 23 constituents (i.e., selenium and diazinon). The increase in selenium load would not exceed the TMDL for this pollutant set by the CVRWQCB. Although the increase in diazinon load would result in exceedance of applicable thresholds, regulations require the phase-out of diazinon use in residential developments in 2003 (before project discharges to the river would commence). Hence, with the proposed BMPs in place along with required compliance with NPDES discharge requirements, the stormwater discharges to the SJR associated with the proposed project would result in a less than significant water quality impact on the SJR.

While there are no assurances that the related projects would incorporate the same degree of BMPs as the Mossdale Landing project, two facts are clear. First, several of the related projects would phase-out existing agricultural runoff discharges from their respective sites that, like the proposed project, would represent a beneficial effect on the water quality of the SJR. Second, each related project that would discharge stormwater runoff to the SJR would be required to comply with NPDES discharge permits from the RWQCB, which adjusts requirements on a case-by-case basis to avoid significant degradation of SJR water quality. Therefore, while a greater quantity of urban runoff would be discharged to the SJR with implementation of the related projects, the associated surface water quality impacts would be expected to be less than significant. This is especially true in light of the CALFED Bay-Delta Program, the State of California Total Maximum Demand Load (TMDL) Program, and other programs and regulations currently being reviewed, adopted, and/or implemented to reduce regional water quality impacts on the Delta, and in light of existing regulations that are phasing out some of the chemicals, such as diazinon, known to be causing water quality problems in the Delta.

SURFACE WATER QUALITY - RECYCLED WATER

The Mossdale Landing project will land dispose of most or all of the treated wastewater on land rather than to the SJR until such time as the City of Lathrop secures permits for surface water discharges. Several of the related projects propose to do the same. In fact, while the Lathrop Water, Wastewater and Recycled Water Master Plan (Master Plan) calls for a portion of the treated wastewater generated in the City in the future to be discharged to the river, the first treatment plant expansion proposed under the Master Plan (i.e., the WRP #1 Phase 1 Expansion Project) proposes 100% land disposal.

As indicated in Section 4.3 of this EIR, the proposed project would result in a less-than-significant recycled water-related surface water quality impact because it would require: land application of tertiary treated and disinfected wastewater to Title 22 standards for unrestricted use (a very high level of treatment); diversion of all project site runoff through the proposed Best Management Practices (BMP) prior to discharging the runoff to the SJR; and requiring land application of the treated wastewater at agronomic rates so that it would not drain to the SJR. Furthermore, the presence of the east levee of the SJR between the river and the project

site would avoid gravity flow of recycled water (or stormwater containing recycled water) to the river. Finally, NPDES discharge permit would be required from the RWQCB for the on-site discharge, which would assure that no significant surface water quality degradation would result from the discharge.

While specific information about the treated wastewater disposal plans for each related project is not available, the combination of a lack of proposals for direct river discharge of treated wastewater, the high level of treatment proposed at WRP #1 under the WRP#1 Phase 1 Expansion Project (which would serve several of the related projects), and the need for any discharges to be permitted by the RWQCB indicate that the related projects would result in less-than-significant cumulative surface water quality impacts related to recycled water. In fact, even if any recycled water were to be directly discharged to the SJR from the related projects, the Master Plan evaluated the direct discharge of large amounts of tertiary treated wastewater to the SJR as planned for under the Master Plan, and determined that this discharge would result in less-than-significant project-level surface water quality impacts to the SJR and the Delta (EDAW 2001).

The Master Plan EIR did conclude that the Master Plan project along with the related projects as defined in the Master Plan EIR (i.e., regional growth within the San Joaquin Delta) could contribute to significant cumulative unavoidable surface water quality impacts to the SJR. This would occur if the TMDLs currently being reviewed by the regulatory agencies for dissolved oxygen (DO) and other pollutants are implemented yet are not as effective as anticipated and planned. If the incremental increase in treated wastewater generated by the Mossdale Landing project between interim conditions and buildout were river disposed instead of land disposed, the proposed project would contribute a small increment to a region-wide reduction in DO in portions of the San Joaquin Delta. This would represent a significant cumulative surface water quality impact if the referenced TMDLs are not successful in reducing pollutants.

GROUNDWATER QUALITY

The proposed project would include construction activities, generate urban runoff, and dispose of treated wastewater on land, each of which would represent a potential source of groundwater quality degradation. However, the proposed project would implement multiple measures to prevent contaminants from reaching the groundwater. These include implementation of BMPs to reduce urban contaminants in stormwater runoff that could percolate to the ground, tertiary treatment of wastewater to Title 22 standards for unrestricted use to avoid potential contamination of the environment, application of recycled water at agronomic rates to minimize percolation of recycled water below the root zone, and compliance with discharge and application regulations and permits. In addition, the development of impervious surfaces under the proposed project would decrease percolation to the groundwater, the depth to potable groundwater is greater than 150 feet, and all agricultural pesticides, herbicides, and fertilizers would be phased out at the project site, thus eliminating a potential source of groundwater degradation. Finally, the TDS concentrations in the recycled water to be applied would be lower than the TDS concentrations in the existing groundwater, and even if the recycled water to be land applied would come into contact with the groundwater, which would occur infrequently if at all as recycled water use would not occur during the wet season when groundwater is near the surface, the high level of treatment of the recycled water would avoid adverse affects even to the shallow aquifer as well as the deep aquifer which is used as a potable water source. The result would be less-than-significant groundwater quality impacts.

The related projects would be developed at multiple locations with varying depths to groundwater, would generate varying degrees of construction and urban runoff, would likely implement varying levels of application rates for the land disposal of recycled water, and would likely implement varying levels of BMPs, (ranging from none to a comprehensive set of BMPs similar to those in the proposed project). Some of the related projects, such as WRP #1, WRP #2, and the South Lathrop Specific Plan would include industrial components that could potentially involve the use and/or storage of untreated wastewater and/or hazardous materials which, if allowed to percolate to the groundwater, could result in groundwater quality degradation. Although there would likely be considerable variation among the related projects, and thus potentially varying levels of groundwater impacts, there are a considerable number of regulatory safeguards in place to ensure that groundwater contamination does not occur. These include, but are not limited to, treated wastewater discharge requirements, separation distance requirements between storage ponds and groundwater, storage pond lining requirements, and hazardous materials handling requirements. Furthermore, the majority of these related projects would replace existing agricultural uses that utilize pesticides, herbicides and fertilizers over large areas of permeable soils. Therefore, it is anticipated that less-than-significant cumulative impacts would occur, and if such impacts were to occur, the proposed project would not contribute to them.

The proposed Mossdale Landing project does not include proposals for the development of new wells, nor do the proposals for most of the related projects. However, the Mossdale Landing project along with some of the related projects (i.e., River Islands, Lathrop Station, etc.) will rely on new City wells for potable water until such time as SSJID SCSWSP water deliveries commence, at which time the proposed project and related projects will rely on the wells only to provide required fire flows and for water during peak demand.

TRAFFIC

The following, based on analysis prepared by Crane Transportation Group, evaluates the cumulative traffic impacts of the related projects (i.e., 2010 Base Case (Without Project) conditions), and the cumulative traffic impacts of adding the proposed project traffic to the cumulative traffic impacts (i.e., 2010 Base Case (With Project) conditions).

Technical tables and information in support of the traffic analysis are included in Appendix G of this EIR. The tables outline the development assumptions and associated trip generation associated with the related projects assumed in the analysis. It should be pointed out that the development assumptions and trip generation associated with the one related project that would have the greatest impact on future traffic conditions in the area, Califia/River Islands (Stewart Tract), are based on the development plans for the Stewart Tract as set forth in the WLSP rather than those currently under revision as part of the newly proposed development plan for the Stewart Tract (i.e., River Islands).

See Section 4.5 of this EIR for a description and analysis of existing baseline (2001) and existing baseline (2001) plus project conditions. The existing roadway network is shown in Exhibit 5-2.

2010 Base Case (Without Project) Conditions

Roadway Improvements

Introduction

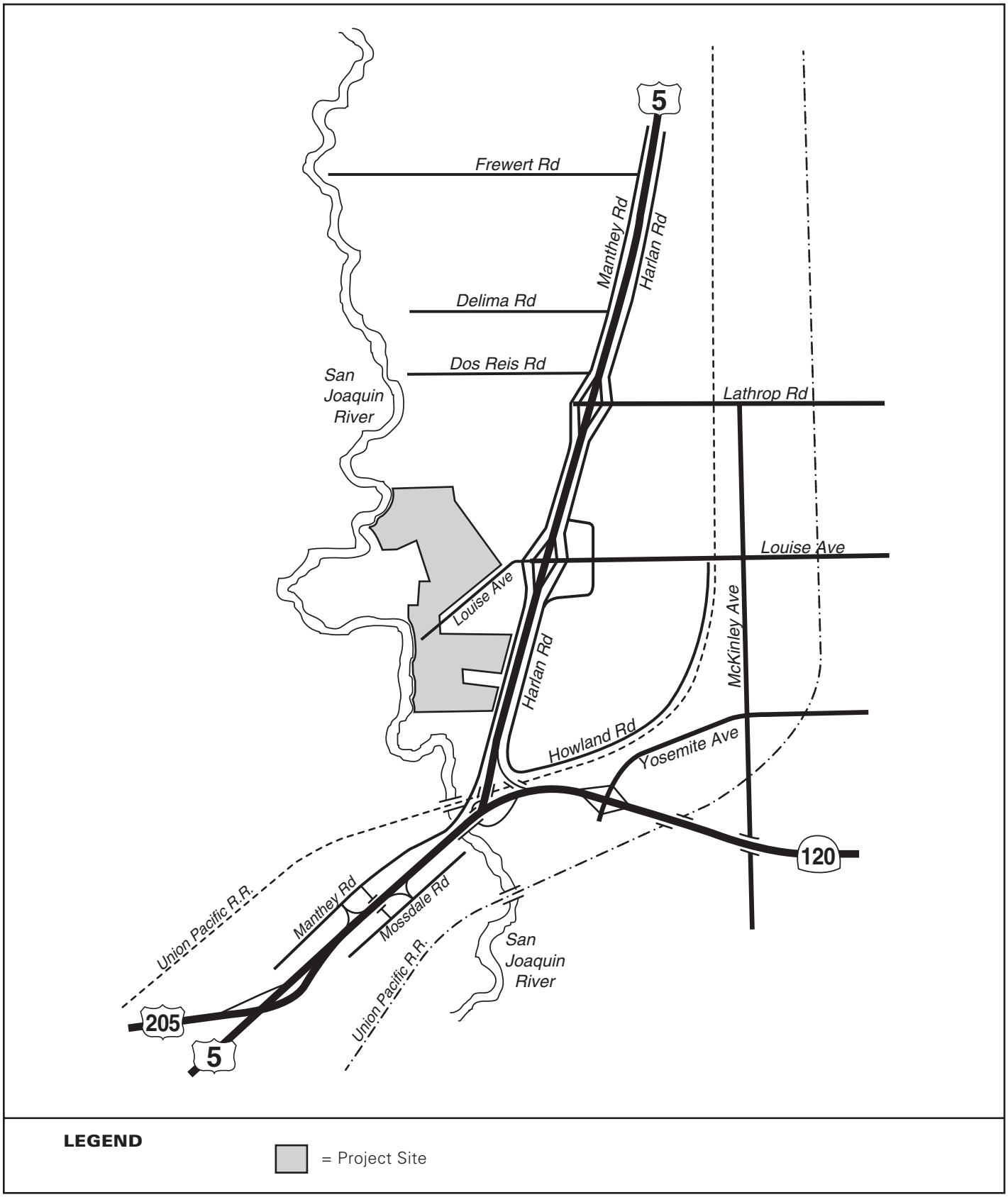
Future 2010 Base Case (Without Project) roadway improvements are previously planned improvements that have not yet been constructed, but which are assumed to be in place in 2010. These improvements have been planned for in the WLSP and/or in Project Study Reports (PSRs) approved by Caltrans. Because the WLSP is a plan to 2025, and both buildout of the Mossdale Landing project and thus the following cumulative traffic analysis projects to 2010, the traffic consultant worked with City of Lathrop planning staff to determine which of the roadway improvements planned for in the WLSP would likely be completed by 2010. These serve as the 2010 Base Case (Without Project) traffic improvement assumptions for this analysis.

The improvements assumed under 2010 Base Case (Without Project) conditions would be developed under cumulative assumptions irrespective of the Mossdale Landing project in order to serve future growth planned for in the City's General Plan and WLSP.

Roadway Improvements

The City of Lathrop currently has one circulation system improvement funded along the Louise Avenue corridor in the project vicinity. The north side of Louise Avenue between I-5 and New Harlan Road will be improved to its final four-lane configuration in 2003 (Jakab, February 2002). In addition, a PSR, completed in 1992 and approved by Caltrans, presents Phase I and II improvement plans for the Louise Avenue/I-5 interchange, the Louise Avenue/I-5 underpass, and for Louise Avenue through the Harlan Road intersection (Foulk 1992). Phase I of the PSR, which includes signalization of the Louise Avenue intersections with Harlan Road and both the I-5 north and southbound ramps, was completed in the late 1990s. Phase II is not scheduled for completion by 2005.There is no set date for completion of Phase II, which includes widening of the Louise Avenue/I-5 underpass to eight lanes and widening of the freeway off-ramps to three lanes. However, given the Lathrop Station, Califia, and other nearby development currently undergoing active planning and CEQA review at the present time, it is anticipated that the Phase II PSR improvements will be completed by 2010 with or without the Mossdale Landing project. It should be noted, however, that the West Lathrop Station plan required financial participation by all developments (including Mossdale Landing) towards the Phase II interchange improvements. Therefore, Mossdale Landing, when built, will be required to provide a payback for its fair share contribution towards this improvement.

I-205 (to the south) is planned by Caltrans to be widened to six lanes between I-5 and the 11th Street interchange in Tracy by the end of year 2006 or by mid-2007 (Yamzon, April 2002). In addition, northbound I-5 will be widened across the San Joaquin River to provide a fifth travel lane. It will then be possible to travel northerly on I-5 to the north of the I-5/SR120 diverge on four travel lanes. This fourth northbound lane will then merge into the existing three-lane segment of I-5 about halfway between the SR120 and Louise Avenue interchanges. This improvement is scheduled for completion in 2008 (Tritt, April 2002).



Source: Crane Transportation Group, 5/02.

Existing (2001) Roadway Network

EXHIBIT 5-2

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

NOT TO SCALE

NORTH

EDAW

In addition to the above, the following new or widened roadways in the project vicinity have been projected by City of Lathrop staff to be completed by 2010 (Batista, April 2002). These roadways are planned for in adopted plans (WLSP, PSR for the Louise Avenue/I-5 interchange). The new roads assumed in the 2010 Base Case (Without Project) and 2010 Base Case (With Project) conditions are shown in Exhibit 5-3.

- A new roadway named **Gold Rush Boulevard** will be constructed as the fourth (western) leg of the existing Louise Avenue/Manthey Road intersection. It will be extended to the southwest as a four-lane major arterial and cross the SJR via a new bridge to serve the Califia development on the Stewart Tract. The existing segment of Louise Avenue just west of Manthey Road will be eliminated (but the majority of Louise Avenue between Manthey

  Road and the SJR, along with a large segment of Gold Rush Boulevard between Manthey and the river, will become an internal street to the Mossdale Landing project).

- A new roadway named **Golden Valley Parkway** will intersect Gold Rush Boulevard approximately 800 feet west of I-5 to serve the Mossdale Village area. It will extend northward (initially as a two-lane road) to the future western extension of Lathrop Road and into the residential development north of Lathrop Road. It will extend half a mile south of Gold Rush Boulevard to Main Street as a two-lane facility to serve the Lathrop Station project as well as development farther to the south.

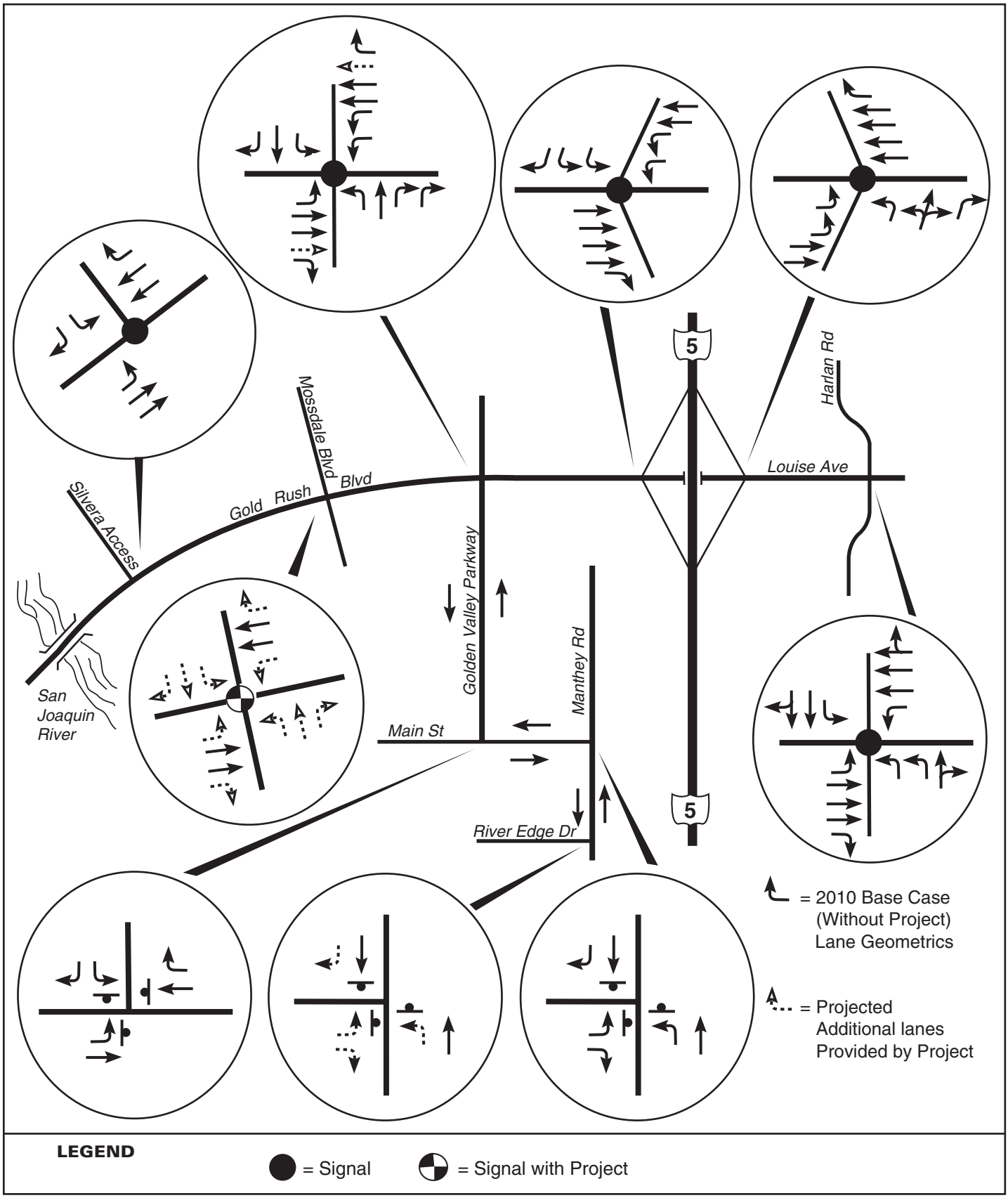
- **Lathrop Road** will extend westward to the vicinity of the SJR. However, there will be no connection between Lathrop Road and Gold Rush Boulevard along the river by 2010.

- **Paradise Road** will provide a western access from the Califia development to I-205 (via Arbor Avenue and the MacArthur Drive interchange).

- **Louise Avenue** will be widened to eight lanes through its interchange with I-5 and both the north and southbound off-ramps will be widened to three lanes at their surface street intersections with Louise Avenue. Louise Avenue widening will continue through its intersection with Harlan Road where three through-travel lanes will be provided in each direction. These geometrics are consistent with the maximum (Phase II) improvement plans for the Louise Avenue interchange contained in the August 1992 Interchange Reconstruction PSR by Brain Kangas Foulk (Foulk 1992).

- **Manthey Road** will no longer connect to Louise Avenue (or Gold Rush Boulevard). Rather, it will connect to Golden Valley Parkway to the south of Gold Rush Boulevard via Main Street and to the north of Gold Rush Boulevard via one or two new east-west streets.

- **Two new major intersections will be provided along Manthey Road south of Gold Rush Boulevard** to provide access to Lathrop Station, Mossdale Landing, and other development in Mossdale Village. Two new major intersections will be provided along Gold Rush Boulevard between Golden Valley Parkway and the SJR, one to serve the Mossdale Landing project (at Mossdale Boulevard) and one farther west to serve the Silvera



Source: Crane Transportation Group, 5/02.

2010 Base Case (without Project) and Base Case (with Project) Intersection Lane Geometrics and Control

EXHIBIT 5-3

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

NOT TO SCALE

NORTH

EDAW

property in Mossdale Village. All major intersections along Gold Rush Boulevard have been assumed signalized. All new intersections along Golden Valley Parkway and Manthey Road south of Gold Rush Boulevard have been assumed all-way-stop controlled so neither the Lathrop Station project nor other development to the south have indicated they are providing signalization at these locations.

Traffic Volumes

The long term analysis horizon was set for the year 2010 (i.e., project buildout). Based upon previous long term horizon traffic evaluations conducted for the City, only weekday PM peak hour conditions have been analyzed as this has been determined to be the period with the highest traffic volumes experienced on the local roadway system. Thus, design of the circulation system to accommodate PM peak hour volumes will also suffice for all other hours of the week.

Development expected within the immediate vicinity of the Mossdale Landing project by 2010 that would produce a substantial amount of traffic along the Louise Avenue corridor is as follows:

- Lathrop Station (two areas of development–south and east of Mossdale Landing–containing 370 single family units, 70 apartments, 479,335 square feet of freeway and service commercial uses, 132,000 square feet of village commercial use, and 44,000 square feet of office).

- Mossdale Village–excluding the Mossdale Landing and Lathrop Station projects (two areas of development–west and south of Mossdale Landing–containing a total of 600 single family units; 105,000 square feet of service commercial and 43,560 square feet of waterfront commercial).

- Califia partial development (west of Mossdale Landing across the SJR on the Stewart Tract–containing 1,400 single family units; 350 apartments; 1,755 motel/hotel units; 2 theme parks; 350,000 square feet regional commercial, 125,00 square feet of neighborhood commercial, 40,000 square feet of recreation retail and one 18-hole golf course).[3]

- Robinson property (north of Mossdale Landing–containing 1,200 single family units; 250,000 square feet of big-box retail and 100,000 square feet of office).

In addition to traffic from new Lathrop development, increased traffic from Manteca was also projected for 2010.

2010 Base Case (Without Project) PM peak hour volume projections for I-5, I-205 and SR 120 in the project vicinity were developed through a five-stage process. Initially, a straight line interpolation of 1998 to 2020

[3] During preparation of this study the Califia project was changed to River Islands and an NOP of an EIR was released for that project (after the NOP period closed for the proposed project). The Califia project has a greater amount of development than the proposed River Islands project. Thus, it is a conservative assumption to continue using the Califia development for the long-term horizon.

daily volumes projected by Caltrans was used to obtain 2010 daily projections. Next, a likely PM peak hour directional split of volumes was developed based upon the existing relationship between daily and PM peak hour volumes. In addition, while Caltrans future freeway projections, as well as closely-related future projections from the San Joaquin Council of Governments, reflect most expected development within Lathrop, they do not assume any significant degree of growth on the Stewart Tract (i.e., the Califia development). An increment of the traffic to represent the Califia development (expected by 2010) was included in the freeway projections presented in this section to reflect the expected impact from two theme parks, 1,755 lodging units, 1,750 residential units, one golf course and a regional retail center. Lathrop City Planning staff then estimated that Caltrans' background 2010 freeway volumes potentially reflected development of approximately half of the currently expected residential and commercial development north of Lathrop Road. In order to develop a true "without project" set of projections, the remaining half of this traffic increment was added into the 2010 Base Case (Without Project) freeway projections. Finally, City staff estimated that a greater level of development (approximately a 250,000 square feet of commercial) has currently been projected for the Lathrop Station and remaining Mossdale Village areas by 2010 than was likely included in the Caltrans projections. An increment of traffic due to this added development was also included in the Base Case (Without Project) freeway volumes.

Resultant 2010 Base Case (Without Project) PM peak hour surface street volumes are presented in Exhibit 5-4, while 2010 Base Case (Without Project) PM peak hour freeway volumes are presented in Exhibit 5-5.

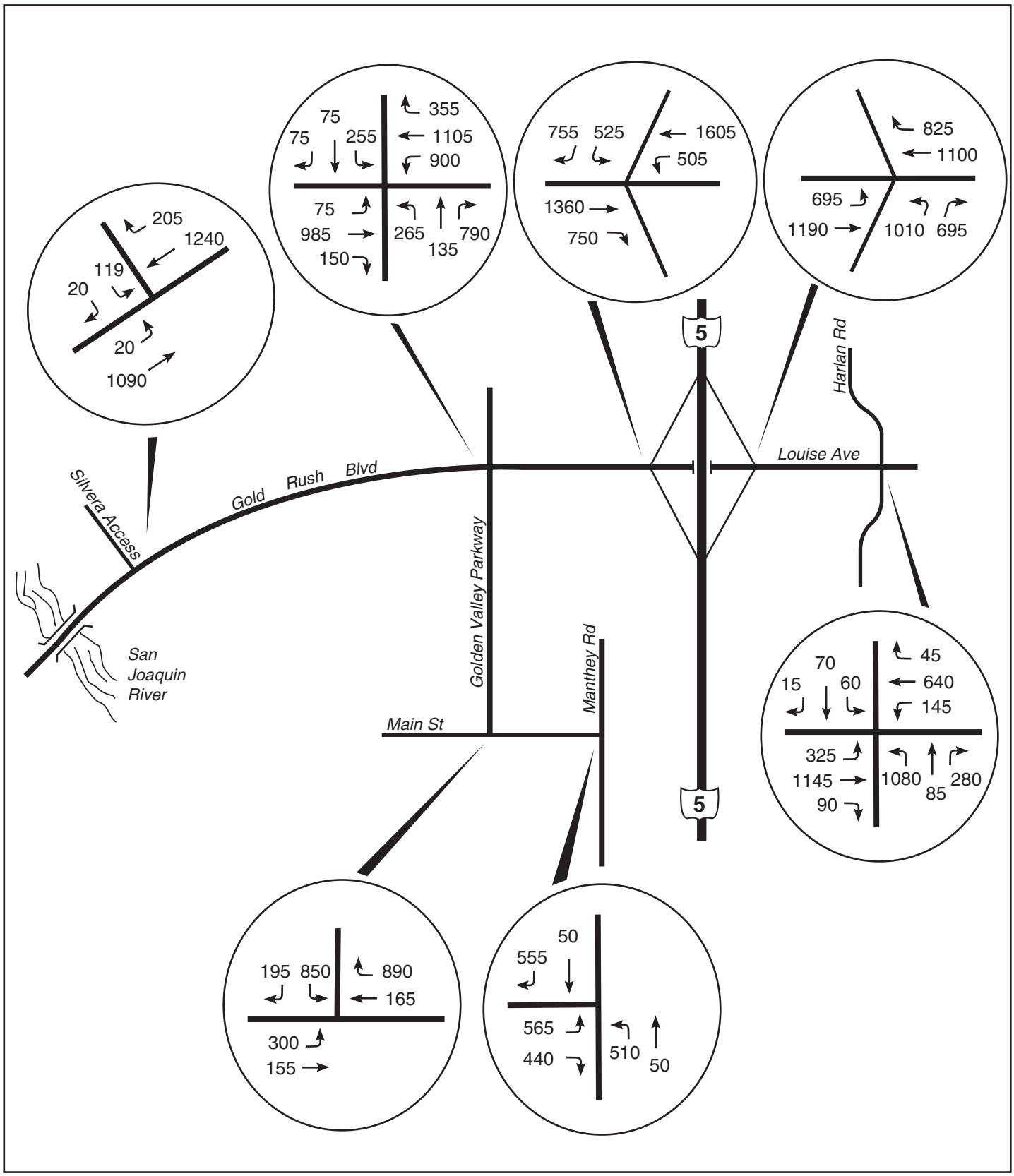
Operating Conditions

Intersection Operation

Table 5-1 shows that with 2010 Base Case (Without Project) PM peak hour volumes and expected roadway and intersection geometrics, half of the major intersections in the project area would be operating at acceptable levels of service while the following would not:

- Louise Avenue/I-5 Northbound Ramps–LOS F signalized operation
- Louise Avenue/I-5 Southbound Ramps–LOS F signalized operation
- Manthey Road/Main Street–LOS F all-way-stop operation
- Golden Valley Parkway/Main Street–LOS F all-way-stop operation

Table 5-2 identifies 2010 Base Case (Without Project) vehicle queues and available storage capacity. Table 5-2 shows that for 2010 Base Case (Without Project) conditions, Louise Avenue westbound through traffic on the approach to the I-5 southbound ramps intersection would back up through the northbound ramps intersection during the PM peak hour. Likewise, Louise Avenue eastbound through traffic on the approach to the I-5 northbound ramps intersection would back up through the southbound ramps intersection during the same time period.



Source: Crane Transportation Group, 5/02.

2010 Base Case (Without Project) Traffic Volumes
PM Peak Hour

EXHIBIT 5-4

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

NOT TO SCALE

NORTH

EDAW

Table 5-1 2010 Base Case (Without Project) Intersection LOS PM Peak Hour	
Intersection	
Louise Avenue/Harlan Road (Signal)	D-35.6 [1]
Louise Avenue/I-5 northbound ramps (Signal)	F-96.8 [1]
Louise Avenue/I-5 southbound ramps (Signal)	F-87.2 [1]
Gold Rush Blvd./Golden Valley Parkway (Signal)	C-34.2 [1]
Gold Rush Boulevard/Mossdale Boulevard (Signal)	N/A*
Gold Rush Boulevard/Silvera Property Access (Signal)	A-5.4 [1]
Manthey Road/Main Street (All-Way-Stop)	F-116.2 [1]
Manthey Road/River Edge Drive (All-Way-Stop)	NA*
Golden Valley Parkway/Main Street (All-Way-Stop)	F-288 [2]

[1] Signalized LOS–control delay in seconds.
[2] All-way-stop LOS–average control delay in seconds.
* Not Applicable–intersections do not exist without Mossdale Landing project.

2000 Highway Capacity Manual Analysis Methodology
Source: Crane Transportation Group, 2002 (June).

Roadway Operation

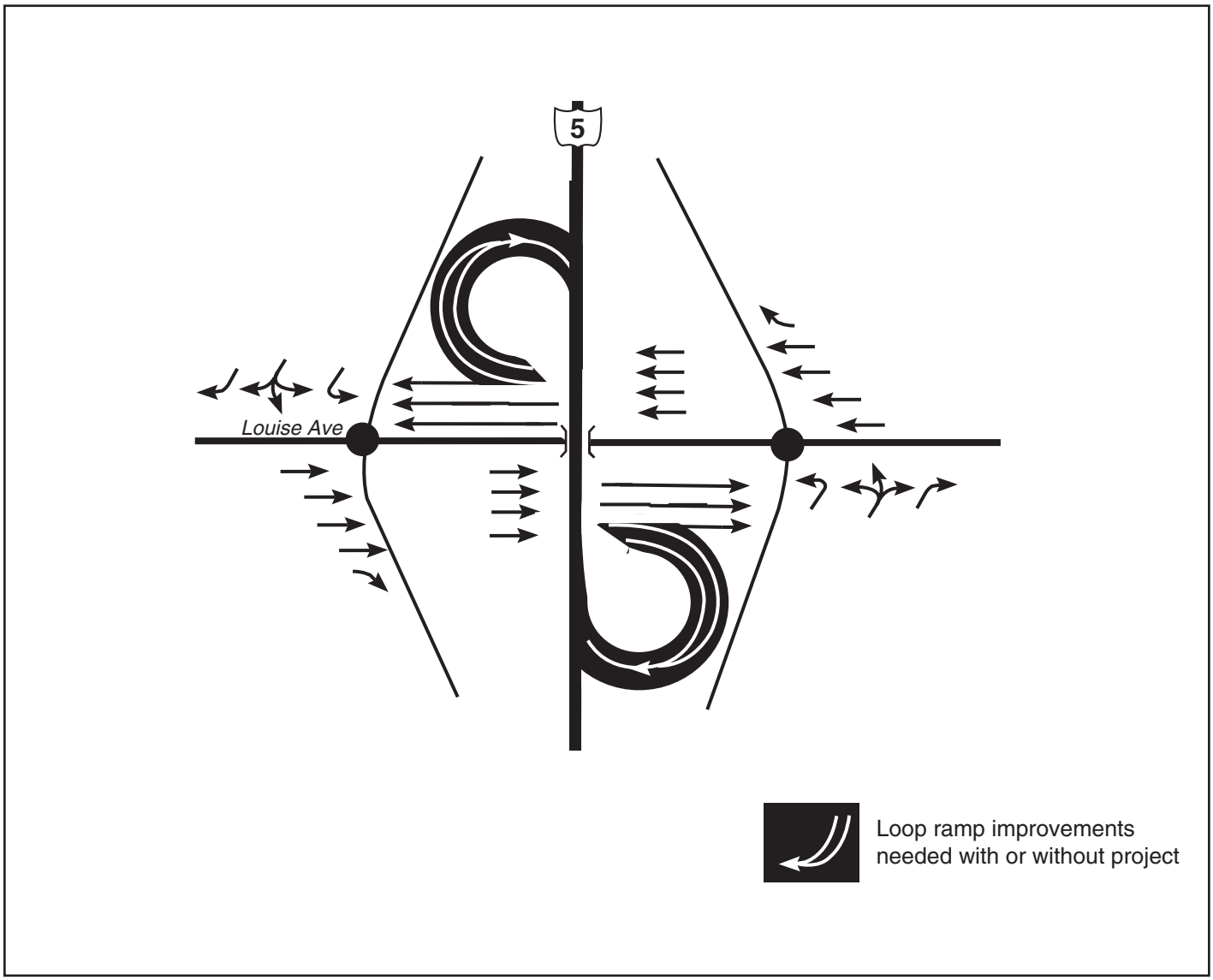
The two-lane section of Golden Valley Parkway between Main Street and Gold Rush Boulevard would have a projected two-way PM peak hour volume of 2,235 vehicles. Because there would be no intersections or driveways along the segment of roadway, it would be expected to operate at minimally acceptable levels.

Freeway Operation

Table 5-3 shows that, in the 2010 Base Case (Without Project), all local freeways would be experiencing acceptable to minimally acceptable PM peak hour operation. All eastbound flow on I-205 and SR 120 as well as all northbound flow on I-5 would be at LOS D operation. I-205 operation reflects widening to six lanes programmed before 2010.

Recommended 2010 Base Case (Without Project) Improvements

Recommended 2010 Base Case (Without Project) interchange improvements are identified in Exhibit 5-6. These improvements, along with certain traffic control improvements which are also recommended (i.e., traffic signals, signal synchronization)) were not assumed to exist in the impact analysis, but have been identified here as an informational item to demonstrate what improvements are required, in addition to the assumed future baseline (2010) improvements discussed above, to serve 2010 Base Case (Without Project) conditions. All of these improvements were previously identified as being required in the West Lathrop Specific Plan EIR, but were left off of roadway improvements assumed developed by 2010 in this analysis. A traffic fee program is in place to fund these improvements as part of the cumulative development.



Source: Crane Transportation Group, 5/02.

2010 Base Case (without Project) and Base Case (with Project)
Recommended Improvements

EXHIBIT 5-6

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 5/02

NOT TO SCALE

NORTH

EDAW

Table 5-2
2010 Base Case (Without Project) Vehicle Queues [1] and Available Storage
PM Peak Hour

Intersection	Movement	Storage Distance [2]	Storage Demand (vehicles/cycle)
Louise Avenue/ I-5 northbound ramps	Eastbound Through	440 feet [4] (± 18 cars)	30+ [6]
	Eastbound Left	410 feet (± 17 cars)	7 [5]
Louise Avenue/ I-5 southbound ramps	Westbound Through	440 feet [4] (± 18 cars)	44+ [6]
	Westbound Left	410 feet (± 17 cars)	2 [5]
	Eastbound Through/Right	NA	NA
Louise Avenue/ Manthey Road	Westbound Through/Left	NA	NA
	Westbound Right	NA	NA

[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.
[3] With Proposed Phase II Improvements per 1992 Interchange PSR.
[4] Storage Distance Would Increase by ± 40% with One Loop Ramp Incorporated into the Interchange Redesign and by 80% with Two Loop Ramps (in diagonal quadrants) Incorporated Into the Interchange Redesign.
[5] Maximum potential 95th percentile vehicles queues not realized due to congestion at adjacent upstream intersection limiting flow to this movement.
[6] 95th percentile volume exceeds capacity, queue may be longer. Queue is maximum after two cycles.

* NA = Not Applicable–Louise Avenue/Manthey Road intersection eliminated by 2010.

Source: Crane Transportation Group, June 2002.

As is evident by a comparison of the following with the mitigation measures recommended for the cumulative impacts in the last part of this report, the majority of the identified improvements would be required under 2010 conditions whether or not the proposed project is developed.

Louise Avenue/I-5 Southbound Ramps

To eliminate unacceptable LOS F PM peak hour operation and westbound vehicle queues that will extend through the northbound ramps intersection, the following is required:.

- Provide a westbound to southbound loop on-ramp in the northwest quadrant of the interchange. Widening the freeway underpass beyond 8 lanes would not be required.

  Resultant Operation:
  PM Peak Hour: LOS B – 12.0 seconds vehicle delay

Table 5-3 2010 Base Case (Without Project) Freeway Mainline LOS PM Peak Hour		
Location	**Southbound**	**Northbound**
I-5 North of Louise Avenue Interchange	C	D
I-5 South of Louise Avenue Interchange	C	D
I-5 Between SR 120 and I-205	B	C
	Westbound	**Eastbound**
SR 120 Between I-5 and Yosemite Interchange	B	D
I-205 Between I-5 and MacArthur Drive Interchange	C	D
2000 Highway Capacity Manual Analysis Methodology. Source: Crane Transportation Group, June 2002.		

Resultant PM Peak Hour Westbound Vehicle Queue per Lane (95th percentile maximum queue) and Available Storage:

Traffic Queues:
Through traffic = 12 vehicles/lane
Left turns = movement eliminated with loop on-ramp

Available Storage:
27 to 33 vehicles/lane [4]

This improvement would require right-of-way acquisition in the northwest quadrant of the interchange.

To eliminate backups of westbound left-turning vehicles out of the available left-turn storage and through the northbound ramps intersection, the following is required:

- Provide interconnected and synchronized operation of the signals at both ramp intersections.

Louise Avenue/I-5 Northbound Ramps

To eliminate unacceptable LOS F PM peak hour operation and eastbound vehicle queues that will extend through the southbound ramps intersection, the following is required:

- Provide an eastbound-to-northbound loop on-ramp in the southeast quadrant of the interchange. Widening the freeway underpass beyond 8 lanes would not be required.

[4] Additional storage for each through lane would be available with two loop ramps versus only one loop ramp as off-ramp signal controlled intersections would be moved farther apart. Storage values presented are with one loop ramp.

Resultant Operation:
PM Peak Hour: LOS B – 12.0 seconds vehicle delay

Resultant PM Peak Hour Eastbound Vehicle Queue per Lane (95th percentile maximum queue) and Available Storage

Traffic Queues:
Through traffic = 8 vehicles/lane
Left turns = movement eliminated with loop on-ramp

Available Storage:
27 to 33 vehicles/lane[5]

Provision of a loop ramp in the southeast quadrant of the interchange would require purchase and removal of the gas station now on the site required for this interchange improvement.

To eliminate backups of westbound left-turning vehicles out of the available left-turn storage and through the northbound ramps intersection, the following is required:

- Provide interconnected and synchronized operation of the signals at both ramp intersections.

Golden Valley Parkway/Main Street

To eliminate unacceptable LOS F PM peak hour all-way-stop operation, the following is required:

- Signalize the intersection.

  Resultant Operation:
  PM Peak Hour: LOS C – 24.6 seconds vehicle delay.

Manthey Road/Main Street

To eliminate unacceptable LOS F PM peak hour all-way-stop operation, the following is required:

- Signalize the intersection.

  Resultant Operation:
  PM Peak Hour: LOS B – 17.0 seconds vehicle delay.

[5] Additional storage for each through lane would be available with two loop ramps versus only one loop ramp as off-ramp signal controlled intersections would be moved farther apart. Storage values presented are with one loop ramp.

Environmental Impacts

Analysis Methodology

The 2010 Base Case (With Project) traffic impacts have been evaluated by first identifying those roadway improvements that would be added to the 2010 Base Case (Without Project) roadway system, then determining project trip generation and distribution, then adding project traffic to 2010 Base Case (Without Project) traffic, and finally calculating LOS, percent increase in traffic, and traffic queues with the project and comparing these to 2010 conditions without the project. 2010 has been selected as the year for analysis because project buildout would occur in 2010.

Proposed Project

Project Roadway Improvements

A circulation plan would be implemented under the proposed project as described in Section 3.5.3 and shown in Exhibit 3-5 of the EIR. As indicated, access to the project site would be provided by the proposed Gold Rush Boulevard as well as the existing Manthey Road and Louise Avenue.

The primary proposed access would be a new arterial named Gold Rush Boulevard which would extend from the I-5/Louise Avenue interchange to Mossdale Boulevard (the primary north-south connector proposed within the project site under the project) where it would be stubbed. From that point to the western boundary of the project site, right-of-way would be dedicated by the Mossdale Landing applicant for future extension to the Stewart Tract or other areas of Mossdale Village. A four-land Gold Rush Boulevard is assumed to exist as part of the 2010 Base Case (Without Project) roadway network as it is required to provide access to proposed projects currently under review by the City (i.e., River Islands, Lathrop Station).

Two east-west collectors would be developed under the proposed project named Main Street and River Edge Drive. These collectors would connect to the existing Manthey Road to provide ingress and egress to the southern portion of the proposed project.

Although not proposed as part of the proposed project, another arterial named Golden Valley Parkway is assumed to exist as part of the 2010 Base Case (Without Project) roadway network as it too is required to provide access to proposed projects currently under review by the City (i.e., Califia/River Islands, Lathrop Station, etc.). Although not proposed as part of the proposed project (and not assumed in the project traffic analysis in Section 4.5 of the EIR), the project's circulation plan does provide for eventual connection to Golden Valley Parkway (via Main Street and River Edge Drive) once this parkway is developed.

The Project's proposed roadway system as described above does not mesh exactly with the 2010 Base Case (Without Project) roadway system assumed to exist as described earlier in this cumulative traffic analysis. Specifically, the roadway system proposed under the Mossdale Landing project is self contained and does not assume the development of roadway improvements not currently funded (Golden Valley Parkway, etc.). Sometime between the start (2001) and end (2010) of project construction, it is assumed that the 2010 Base Case (Without Project) roadway system will be constructed. The funding required to pay for the roadway improvements assumed under 2010 Base Case (Without Project) conditions will originate with fair share

payments by the related projects (Mossdale Landing, River Islands, Lathrop Station, etc.) that will contribute traffic to the local roadway system.

Project Trip Generation and Distribution

For year 2010 conditions, full project development has been assumed, including 1,690 residential units (1,568 single family residences and 122 apartments); 175,111 square feet of village commercial, 478,288 square feet of service commercial, two K-8 schools (one north of Gold Rush Boulevard and one south of Gold Rush Boulevard) each with 1,050 students; and a fire station (see Table 3-1 and Exhibit 3-4 in Chapter 3 of the EIR).

Table 5-4 presents trip distribution from the proposed project. Table 5-5 presents trip generation from the various components of a fully developed Mossdale Landing project. While the values presented in Table 5-5 reflect the gross trip generation that would be expected on the driveways or streets serving each project residential, retail or office component, they do not reflect the net amount of project traffic that would be newly added to the street and freeway network serving southwest Lathrop. For example, conversion of gross to net new trip generation added to the subregional road and freeway system would be influenced by the following factors:

Table 5-4
Mossdale Landing Residential Trip Distribution (Trips External to Subdivision)

Direction	AM Peak Hour		PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
NORTH				
I-5	15%	20%	19%	13%
Manthey Road	5%	5%	8%	12%
	(20%)	(25%)	(27%)	(25%)
SOUTH				
I-5	22%	48%	42%	26%
Manthey Road	3%	3%	2%	5%
	(25%)	(51%)	(44%)	(31%)
EAST (of I-5)				
Louise Avenue	55%	24%	29%	44%
	(55%)	(24%)	(29%)	(44%)
TOTAL	100%	100%	100%	100%

Based upon October 1999 directional distribution surveys of traffic to/from the Valley Haven and Stonebridge subdivisions in Lathrop.

Source: Crane Transportation Group, June 2002.

- The vast majority of K-8 school-related traffic would be associated with parents in the Mossdale Landing and adjacent projects driving students to/from school. Thus, very little school-related traffic would reach the Louise Avenue interchange.

Table 5-5
Trip Generation, Proposed Mossdale Landing Project (Buildout)

Use	Size	Daily 2-way Trips (Inbound + Outbound)		Am Peak Hour Trips				Pm Peak Hour Trips			
				Inbound		Outbound		Inbound		Outbound	
		Rate	Vol	Rate	Vol	Rate	Vol	Rate	Vol	Rate	Vol
Single Family Residential	1591	9.57	15,226	0.15*	239	0.45*	716	0.52*	827	0.29*	462
Apartments	122	6.63	810	0.06*	7	0.35*	43	0.34*	41	0.16*	20
Village Commercial											
Retail	133,295	(1)	8200	(2)	116	(2)	74	(3)	364	(3)	395
Office	44,430	(4)	712	(5)	86	(5)	12	(6)	22	(6)	107
Service Commercial											
Retail	362,635	(1)	15,608	(2)	210	(2)	134	(3)	706	(3)	764
Office	120,880	(4)	1536	(5)	191	(5)	26	(6)	37	(6)	178
	1,050 students										
K-8 School North of	total	1.02	832	0.17	139	0.12	98	0.015	12	0.035	29
Gold Rush Blvd.	K-6: 813	1.45	340	0.26	61	0.20	47	0.07	17	0.09	21
	7-8: 235		1172		200		145		29		50
	1,050 students										
K-8 School South of	total	1.02	832	0.17	139	0.12	98	0.015	12	0.035	29
Gold Rush Blvd.	K-6: 815	1.45	340	0.26	61	0.20	47	0.07	17	0.09	21
	7-8: 235		1172		200		145		29		50

- A substantial portion of project PM peak hour retail trips would be made to/from project or nearby residential areas or would be made by local residents stopping on their way to/from work.

- Gross trip generation from adjacent retail areas is not directly additive. For example, adding 100,000 square feet of retail use adjacent to an existing 100,000-square-foot retail center would not double the amount of net new retail-related traffic on the local roadway system. Rather, it would only increase local area retail-based traffic by 40-50%. This is reflected in historical trip generation literature for retail centers, which indicates that retail center trip rates go down as the size of a shopping area increases (ITE 1997). Thus, when the Mossdale Landing village commercial area west of Golden Valley Parkway along Main Street is combined with the adjacent Lathrop Station Village commercial area, or when the Mossdale Landing service commercial areas between Golden Valley Parkway and Manthey Road are combined with those from Lathrop Station and other local developments into a retail center more than a mile long, the net increase in overall trip generation from the combined centers will be less to significantly less than would be expected if calculated as individual gross trip rates.

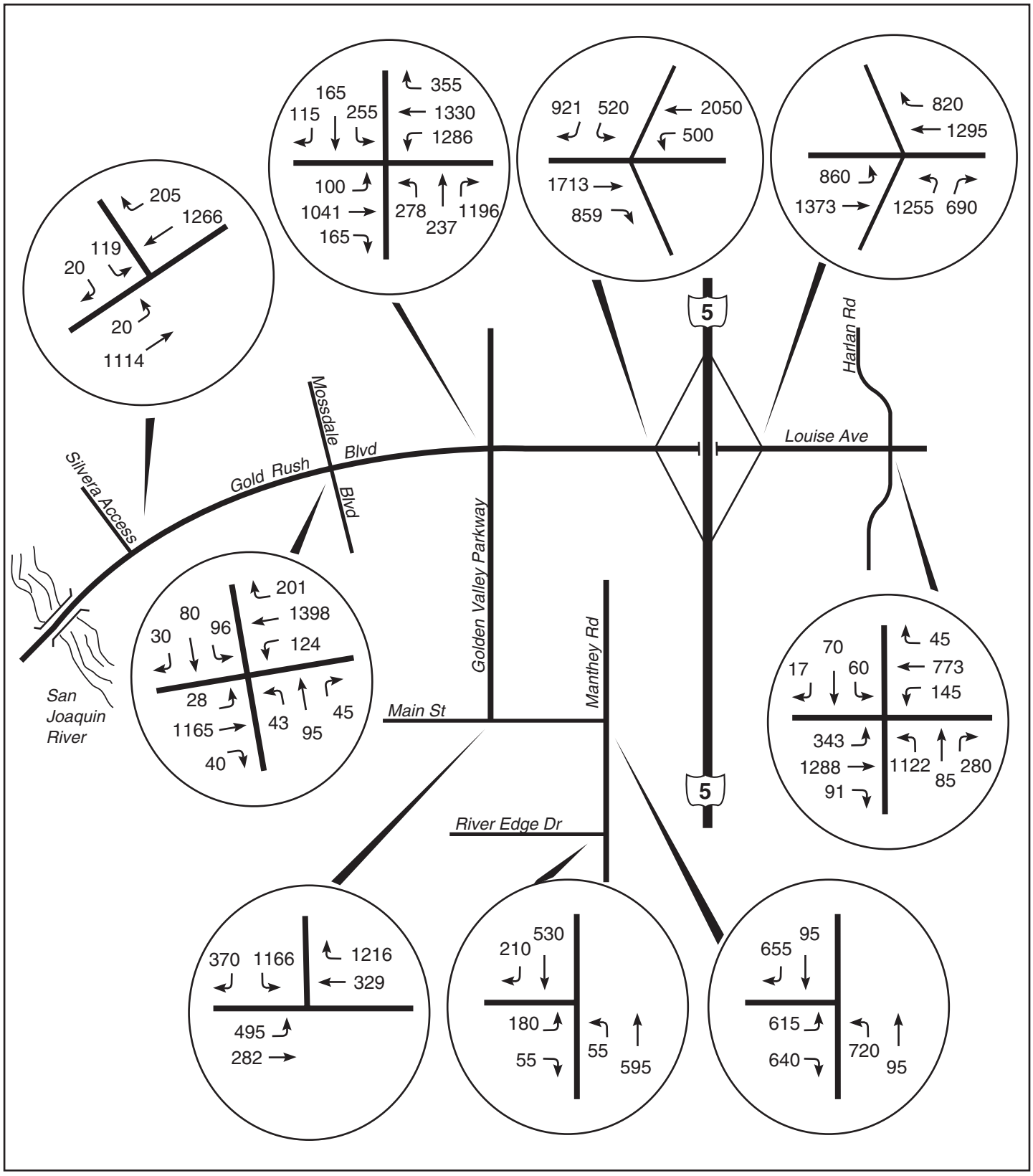
- Not all of the students attending the two elementary schools would be expected to come from the Mossdale Landing residential units. Some would come from other nearby subdivisions.

- A small portion of project residential and retail trips would be made to/from the Califia development.

Overall, approximately 760 two-way PM peak hour project residential trips (or 56% of the gross total) would be expected to travel on the freeway network, Louise Avenue east of I-5, or on Golden Valley Parkway north of Gold Rush Boulevard. Likewise, approximately 225 two-way PM peak hour project retail trips (21% of the gross total) and approximately 220 two-way peak hour project office trips (63% of the gross total) would be expected to travel on the local freeway network, Louise Avenue east of I-5, or Golden Valley Parkway north of Louise Avenue. It should be noted that with the addition of the Mossdale Landing project to 2010 Base Case (Without Project) development levels, there would be a total of approximately two million square feet of commercial development west of I-5 and within less than a five-minute drive of Mossdale Landing.

Project external residential traffic was distributed in a manner similar to that presented in Table 5-4, and project external retail and office-related traffic was distributed for the PM peak hour as presented below:

I-5 north of Louise Avenue	-	25%
I-5 south of Louise Avenue	-	25%
Louise Avenue east of I-5	-	30%
Golden Valley Parkway north of Gold Rush Blvd.	-	20%



Source: Crane Transportation Group, 5/02.

2010 Base Case (with Project) Traffic Volumes
PM Peak Hour

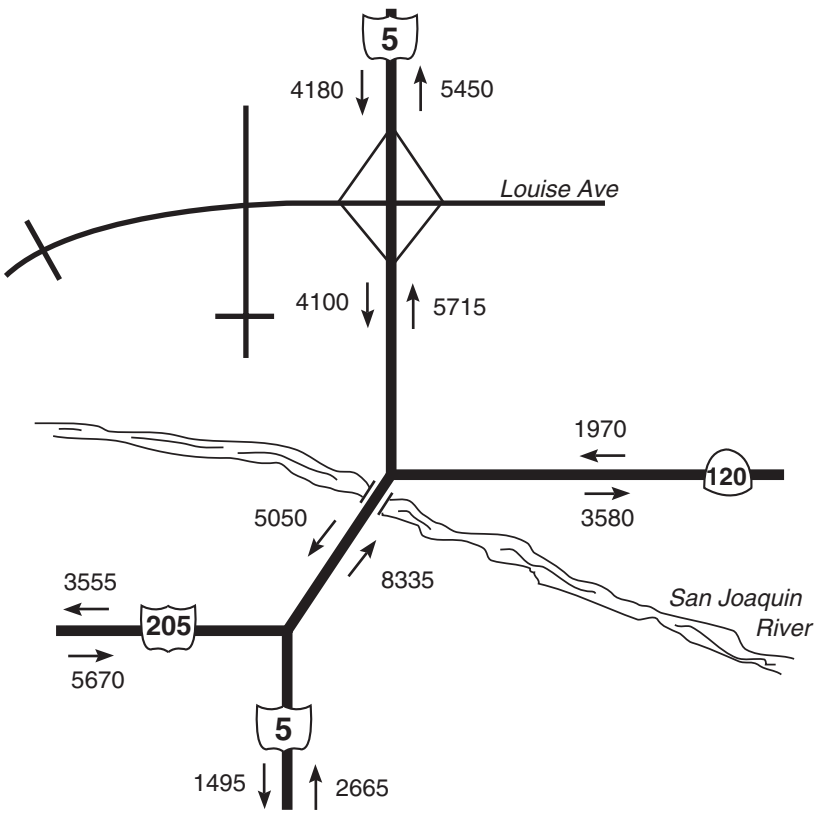
EXHIBIT 5-7

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

NOT TO SCALE

NORTH

EDAW



PM Peak Hour (4:30-5:30)

Source: Crane Transportation Group, 5/02.

2010 Base Case (with Project) Freeway Volumes
PM Peak Hour

EXHIBIT 5-8

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

NOT TO SCALE

NORTH

EDAW

2010 Base Case (With Project) Traffic Volumes

2010 Base Case (With Project) PM peak hour surface street traffic volumes are presented in Exhibit 5-7, and 2010 Base Case (With Project) freeway traffic volumes are presented in Exhibit 5-8.

Thresholds of Significance

The Mossdale Landing project would have a significant impact to cumulative traffic conditions if it would result in one or more of the following (which are based, in part, upon standards established in the City's General Plan and conventional thresholds established by the Lathrop Public Works Department):

- If project traffic reduces 2010 Base Case (Without Project) intersection operation at a signalized or all-way stop intersection from LOS A through D to LOS E or F, or reduces 2010 Base Case (Without Project) intersection operation at a side street stop-sign controlled intersection from LOS A through E to LOS F;
- If the project increases traffic 1% or more at 2010 Base Case (Without Project) signalized or all-way-stop intersections operating at LOS E or to side street stop sign controlled intersections operating at LOS F;
- If the projects adds traffic to 2010 Base Case (Without Project) unsignalized intersections such that Caltrans Peak Hour Warrant #11 criteria levels are exceeded;
- If the project increases traffic 1% or more at 2010 Base Case (Without Project) unsignalized intersections that have volumes already exceeding Caltrans Peak Hour Warrant #11 criterial levels;
- If 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) that would not under 2010 Baseline conditions (Without Project), or if 2010 Base Case (Without Project) 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 downstream intersection by 1% or more;
- If project traffic degrades 2010 Base Case (Without Project) freeway segment operation from LOS A through D to LOS E or F;
- If the project adds traffic by 1% or more to 2010 Base Case (Without Project) freeway segments already operating at LOS E or F.

Project Impacts

[redacted]

Traffic - Degradation of 2010 Baseline (Without Project) LOS at Signalized Intersections. *As indicated in Table 5-6, the proposed project would generate traffic that would degrade Base Case (Without Project) PM peak hour LOS F operation at both the Louise Avenue/I-5 southbound ramps and Louise Avenue/I-5 northbound ramps intersections. Project volume increases at both intersections would be well in excess of 1%. Therefore,* ***significant*** *impacts would occur.*

Table 5-6 shows that by 2010 the Louise Avenue signalized intersection with the I-5 southbound ramps would be operating unacceptably at LOS F conditions during the PM peak hour with Base Case (Without Project) traffic volumes and currently planned improvements.[2] The proposed project would further degrade PM peak hour operation at this intersection by increasing vehicle delay from about 87 up to 150 seconds. In addition, project traffic would degrade unacceptable LOS F Base Case (Without Project) operation at the Louise Avenue/I-5 northbound ramps intersection by increasing vehicle delay from about 97 up to 125 seconds. Project traffic would increase traffic volumes by more than 1% at both intersections. These would represent significant impacts.

Table 5-6
2010 Base Case (With Project) Intersection Level of Service
PM Peak Hour

Intersection	Base Case Without Project*	Base Case + Project*
Louise Avenue/Harlan Road (Signal)	D-35.6 [1]	D-39.8
Louise Avenue/I-5 Northbound Ramps (Signal)	F-96.8 [1]	F-125.3
Louise Avenue/I-5 Southbound Ramps (Signal)	F-87.2 [1]	F-150.5
Gold Rush Boulevard/Golden Valley Parkway (Signal)	C-34.2 [1]	D-47.3
Gold Rush Boulevard/Mossdale Boulevard (Signal)	N/A	B-13.2 [1]
Gold Rush Boulevard/Silvera Property Access (Signal)	A-5.4 [1]	A-5.4
Golden Valley Parkway/Main Street (All-Way-Stop)	F-288 [2]	F-561
Manthey Road/River Edge Drive (All-Way-Stop)	NA	F-575 [2]
Main Street/Manthey Road (All-Way-Stop)	F-116.2 [2]	F-229.3

[1] Signalized level of service–control delay in seconds.
[2] All-way-stop level of service–average control delay in seconds.
* See Exhibit 2 for projected Base Case (Without Project) and Base Case (With Project) intersection geometrics and control in 2010.

2000 Highway Capacity Manual Analysis Methodology
Source: Crane Transportation Group, June 2002.

Table 5-6 also shows that by 2010 the project's major access signalized intersection along Gold Rush Boulevard (at Mossdale Boulevard) would operate at an acceptable level of service (LOS B). In addition, the Gold Rush Boulevard/Golden Valley Parkway, Gold Rush Boulevard/Silvera Access and Louise Avenue/Harlan Road signalized intersections would also operate at acceptable levels of service.

The development of the Mossdale Landing project would include some additional improvements to Gold Rush Boulevard through the project site and to the major intersections along Gold Rush Boulevard within the site. The primary additions include third east and westbound travel lanes along Gold Rush Boulevard from the Mossdale Boulevard intersection eastward through the Golden Valley Parkway intersection.

[2] Based upon the 1992 interchange PSR.

However, the Mossdale Landing project is proposing no improvements to Golden Valley Parkway (south of Gold Rush Boulevard), Manthey Road or to the intersections along either roadway (other than a left turn lane at River Edge Drive). Therefore, all Base Case major intersections south of Gold Rush Boulevard have assumed no signalization and no lane additions for analysis purposes. Resultant Base Case + Project levels of service presented in Table 5-6 reflect these added improvements (or lack of improvements).

Impact **b**

Traffic - Degradation of LOS at Unsignalized Intersections. *As indicated in Table5-6, the proposed project would increase PM peak hour volumes by more than 1% at the Golden Valley Parkway/Main Street and Main Street/Manthey Road all-way-stop intersections, which would already be operating at unacceptable LOS F conditions with Base Case traffic. Both intersections would also have Base Case PM peak hour volumes exceeding peak hour signal warrant criteria levels. In addition, the new Manthey Road/River Edge Drive all-way-stop intersection would be operating at LOS F conditions and would have volumes exceeding peak hour signal warrant criteria levels. These would represent* ***significant*** *impacts.*

Impact **c**

Traffic - Vehicle Backups Extending from One Intersection Through an Adjacent Intersection. *As indicated in Table 5-7, the addition of project traffic would increase the frequency with which Louise Avenue westbound through traffic backs up from the I-5 southbound ramps intersection (through the I-5 northbound ramps intersection) during the PM peak hour. Likewise, the addition of project traffic would increase the frequency with which Louise Avenue eastbound through traffic backs up from the I-5 northbound ramps intersection (through the I-5 southbound ramps intersection) during the PM peak hour. These would represent* ***significant*** *impacts.*

2010 Baseline (With Project) vehicle queues and available storage capacity are identified in Table 5-7. Project traffic would increase PM peak hour volumes by more than 1% at both the Louise Avenue/I-5 southbound ramps and Louise Avenue/I-5 northbound ramps intersections, where 2010 Base Case (Without Project) volumes would already be producing east and westbound queues extending through the adjacent intersections. Each of these would represent a significant impact.

Impact **d**

Traffic - Degradation of Freeway Operations. *As indicated in Table 5-8, Base Case (With Project) traffic would not change PM peak hour LOS along any analyzed segments of I-5, I-205 or SR 120, with one exception. I-5 northbound flow between I-205 and SR 120 would change from an acceptable LOS C to an acceptable LOS D. This would represent a* ***less-than-significant*** *impact.*

Table 5-8 shows that all analyzed I-5, I-205 and SR 120 freeway segments would maintain acceptable year 2010 PM peak hour Base Case (With Project) operation. All eastbound segments of the I-205 and SR 120 freeways and all other northbound segments of I-5 would experience minimally acceptable LOS D operation. I-5 northbound flow between I-205 and SR 120 would change from an acceptable LOS C to an acceptable LOS D. Therefore, a less-than-significant impact would occur.

Table 5-7
2010 Base Case (With Project) Vehicle Queues [1] and Available Storage
PM Peak Hour

Intersection	Movement	Storage Distance [2]	Storage Demand (vehicles/cycle)	
			Base Case (Without Project)	Base Case + Project
Louise Avenue/I-5 NB Ramps	Eastbound Through	440 feet [4] (± 18 cars)	30+ [6]	32+ [6]
	Eastbound Left	410 feet (± 17 cars)	7 [5]	1 [5]
Louise Avenue/I-5 SB Ramps	Westbound Through	440 feet [4] (± 18 cars)	44+ [6]	51+ [6]
	Westbound Left	410 feet (± 17 cars)	2(5)	3 [5]
	Eastbound Through/Right	NA*	NA	NA
Louise Avenue/ Manthey Road	Westbound Through/Left	NA*	NA	NA
	Westbound Right	NA*	NA	NA

[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.
[3] With Proposed Phase II Improvements per 1992 Interchange PSR.
[4] Storage Distance Would Increase by ± 40% with One Loop Ramp Incorporated into the Interchange Redesign and by 80% with Two Loop Ramps (in diagonal quadrants) Incorporated Into the Interchange Redesign.
[5] Maximum potential 95th percentile vehicles queues not realized due to congestion at adjacent upstream intersection limiting flow to this movement.
[6] 95th percentile volume exceeds capacity, queue may be longer. Queue is maximum after two cycles.

Source: Crane Transportation Group, June 2002.

Table 5-8
2010 Base Case (With Project) Freeway Level of Service
PM Peak Hour

Location	Without Project		+ Project	
	SB	NB	SB	NB
I-5 North of Louise Avenue Interchange	C	D	C	D
I-5 South of Louise Avenue Interchange	C	D	C	D
I-5 Between S.R.120 and I-205	B	C	B	D
SR. 120 Between I-5 and Yosemite Interchange	B	D	B	D
I-205 Between I-5 and MacArthur Dr. Interchange	C	D	C	D

2000 Highway Capacity Manual Analysis Methodology.

Source: Crane Transportation Group, June 2002.

Impact **e**

Traffic - Degradation of Arterial Operation. *The addition of project traffic would increase volumes above acceptable levels along the two-lane segments of Golden Valley Parkway (between Gold Rush Boulevard and Main Street) and along Main Street (between Golden Valley Parkway and Manthey Road). These would be considered* ***significant*** *impacts.*

The proposed project would increase two-way PM peak hour volumes on Golden Valley Parkway (between Gold Rush Boulevard and Main Street) from 2,235 up to 3,245 vehicles per hour and along Main Street (from Golden Valley Parkway to Manthey Road) from 2,060 up to 2,995 vehicles per hour. These resultant volumes would be well over capacity limits for a two-lane arterial roadway.

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" will occur, no mitigation is identified below (this is the reason why some of the mitigation measures may skip numbers).

5-a **Traffic - Degradation of LOS at Signalized Intersections.** The City of Lathrop shall ensure that the improvements listed below and shown in Exhibit 5-6 (under recommended "Year 2010 Base Case (With Project)) are completed by the time the Mossdale Landing project is built out (expected in 2010) or as needed before project buildout based upon the project's ongoing traffic monitoring program. This shall be accomplished by undertaking any one of the following:

- require the Mossdale Landing applicant to pay its fair share towards the costs of the improvements if a funding and construction program currently exists for these improvements that guarantees construction of the improvements by 2010; or

- develop and adopt a funding and construction program for the improvements that identifies fair share responsibility and guarantees construction of the improvements by 2010, and obtain the fair share payments for the improvements from the Mossdale Landing applicant; or

- require the Mossdale Landing applicant complete the improvements (i.e., front the costs for the improvements) by the time the Mossdale Landing project is built out, and reimburse the Mossdale Landing applicant for other than its fair share at such time as Califia, Lathrop Station, and other development projects pay their fair share for the cost of the improvements.

Louise Avenue/I-5 Southbound Ramps

C Provide a fair share contribution towards construction of a west to southbound loop on-ramp in the northwest quadrant of the Louise Avenue interchange (Exhibit 5-6). This loop on-ramp would be needed for Base Case conditions.

Resultant Operation:
PM Peak Hour: LOS B-15.5 seconds vehicle delay

Louise Avenue/I-5 Northbound Ramps

C Provide a fair share contribution towards construction of an east to northbound loop on-ramp in the southeast quadrant of the Louise Avenue interchange (Exhibit 5-6). This loop on-ramp would be needed for Base Case conditions.

Resultant Operation:
LOS B-17.8 seconds vehicle delay

This mitigation measure would reduce Impact "a" to a less-than-significant level.

5-b **Traffic - Degradation of LOS at Unsignalized Intersections.** The City of Lathrop shall ensure that the improvements listed below and shown in Exhibit 5-6 (under recommended "Year 2010 Base Case (With Project)) are completed by the time the Mossdale Landing project is built out (expected in 2010) or as needed before project buildout based upon the project's ongoing traffic monitoring program.

Golden Valley Parkway/Main Street

- Provide a second left turn lane on the southbound Golden Valley Parkway intersection approach.
- Provide a second departure lane on the Main Street eastern intersection leg.
- Provide a second right turn lane on the Main Street westbound intersection approach.
- Provide a second departure lane on the Golden Valley Parkway northern intersection leg.

Resultant Operation:
PM Peak Hour: LOS C -28.6 seconds vehicle delay

Manthey Road/Main Street

- Provide a second left turn lane on the northbound Manthey Road intersection approach.
- Provide a second departure lane on the Main Street western intersection leg.

Resultant Operation:
PM Peak Hour: LOS B -14.9 seconds vehicle delay

These mitigation measures would reduce Impact "b" to a less-than-significant level.

5-c **Traffic - Vehicle Backups Extending from One Intersection Through an Adjacent Intersection in 2010.** To eliminate vehicle queues extending on Louise Avenue between the Louise Avenue/I-5 northbound ramps and Louise Avenue/I-5 southbound ramps, the following shall be undertaken:

Louise Avenue/I-5 Southbound Ramps

- The City of Lathrop shall implement Mitigation Measure 4.5-f. In addition, the City shall ensure that the applicant shall pay 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 4.5-f.

  Resultant PM Peak Hour Westbound Vehicle Queues per Lane (95th percentile maximum queue) and Available Storage

  Traffic Queues:
  Through Traffic: 19 vehicles/lane
  Left Turns: movement eliminated with loop ramp

  Available Storage:
  27 to 33 vehicles/lane [1]

Louise Avenue/I-5 northbound ramps

- The City of Lathrop shall implement Mitigation Measure 4.5-f. In addition, the applicant pays 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 4.5-f.

  Resultant PM Peak Hour Eastbound Vehicle Queues per Lane (95th percentile maximum queue) and Available Storage

  Traffic Queue:
  Through Traffic: 8 vehicles/lane
  Left Turns: movement eliminated with loop ramp

  Available Storage:
  27 to 33 vehicles/lane [1]

  These mitigation measures would reduce Impact "c" to a less-than-significant level.

SECONDARY IMPACTS: The development of the loop ramps 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 of an existing statuary business in the northwest quadrant of the Louise Avenue/I-5 interchange and relocation of an existing gas station in the southeast quadrant. These improvements will also be subject to future project-level CEQA review once specific design drawings for the improvements have been prepared.

5-e **Traffic - Degradation of Arterial Operation.** The City of Lathrop shall ensure that the improvements listed below and shown in Exhibit 5-6 (under recommended "Year 2010 Base Case (With Project)) are completed by the time the Mossdale Landing project is built out (expected in 2010) or as needed before project buildout based upon the project's ongoing traffic monitoring program.

Golden Valley Parkway (from Gold Rush Boulevard to Main Street)

- Provide a second travel lane in each direction.

Main Street (from Golden Valley Parkway to Manthey Road)

- Provide a second through travel lane in each direction. Alternatively, provide two travel lanes of Golden Valley Parkway between Main Street and River Edge Drive.

These mitigation measures would reduce Impact "e" to a less-than-significant level.

Residual Significant Impacts

Under both 2010 Base Case (Without Project) and Base Case (With Project) conditions, contributions would occur to unacceptable operation of the I-205 segment between I-5 and MacArthur Drive (Impact "d). This would represent a temporary significant unavoidable cumulative impact until improvements programmed for this freeway segment by Caltrans are completed (anticipated in 2007).

AIR QUALITY

The proposed project would result in less-than-significant construction and mobile source CO emissions with implementation of the mitigation measures identified in Section 4.6. However, given that the project site is located within a non-attainment area, and that the proposed project would result in the exceeding of San Joaquin Valley Air Pollution Control District (SJVAPCD) emissions thresholds for ROG and NO_x, the proposed project would result in significant long-term regional air quality impacts.

Implementation of the SJVAPCD Basic, Enhanced, and Additional Control Measures in accordance with SJVAPCD Guidelines (SJVAPCD 1998) would avoid significant construction-related air quality impacts for development projects. Adherence to these requirements on a project-by-project basis would result in less-

than-significant construction emissions for that project. However, the large scale and number of related projects, taken in total and combined with the non-attainment status of the Air Basin for PM_{10}, would result in a significant cumulative construction-related air quality impact. The proposed project would contribute to this impact.

The related projects would result in the generation of carbon monoxide (CO) emissions due to the substantial increase in traffic volumes on the local roadway network. CO concentrations were estimated for 2010 Base Case (Without Project) and 2010 Base Case (With Project) conditions at the Louise Ave/I-5 northbound and southbound ramp intersections. The intersection are projected to operate at an unacceptable LOS under each of these conditions before mitigation in the cumulative traffic analysis (Appendix G of this EIR). 1-hour and 8-hour CO concentrations were estimated based on worst-case meteorological conditions, PM peak hour traffic volumes, and emission factors modeled using the CT-EMFAC Computer Model. As indicated in Table 5-9, the estimated maximum 1-hour and 8-hour CO concentrations for 2010 Base Case (With Project) conditions would be 13.9 ppm and 7.66 ppm at Louise Ave./1-5 Northbound Ramp intersections and 15.0 ppm and 8.22 ppm at the Louise Ave./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. However, the analysis does not account for CO emissions due to future development beyond 2010, such as additional Stewart Tract and regional development, that would further increase the traffic volumes on the local roadway network. Therefore, the future related projects would contribute to CO concentrations that may exceed the recommended significance thresholds and thus result in a significant cumulative impact with respect to mobile source CO emissions. Because the proposed project would contribute to traffic volumes on the local roadway network and increase CO emissions, the project would contribute to this impact.

Table 5-9
Localized Mobile Source Carbon Monoxide (CO) Concentrations Under Cumulative (2010) Conditions

Intersection	Time Period	Maximum CO Concentration (ppm)[1]	
		2010 Base Case (Without Project)	2010 Base Case (With Project)
Louise Ave./I-5 Northbound Ramp	1-hr 8-hr	12.9 7.1	13.9 7.66
Louise Ave./I-5 Southbound Ramp	1-hr 8-hr	13.8 7.52	15.0 8.22
Significance Thresholds	**1-hr** **8-hr**	**20** **9**	**20** **9**

[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, 2010 composite emission factors from CT-EMFAC, and a persistence factor of .7, interpolated from the 2000 and 2001 Stockton-Hazelton air quality monitoring station data.

Source: EDAW 2001

The proposed project would result in regional emissions, primarily associated with mobile sources, that exceed the SJVAPCD's recommended significant threshold of 10 tons/year for ROG and NO_X. The related projects would also substantially exceed the thresholds for ROG and NO_X. For example, the build-out of the

Stewart Tract and Mossdale Village under the WLSP would result in ROG and NO_X emissions of 2,737 and 6,065 lbs/day, respectively (Grunwald 1995). Thus, the future related projects would result in a significant cumulative impact with respect to regional emissions of ROG and NO_X. Because the proposed project would result in an individual unavoidable significant impact, the project would contribute to this impact.

Note that a Statement of Overriding Considerations for this cumulative impact was adopted by the City of Lathrop during certification of the WLSP EIR and the project would not exacerbate the level of impact already considered.

NOISE

The proposed project would result in significant noise impacts before mitigation associated with construction, pump/lift station operation, traffic, activity, and the development of on-site uses adjacent to existing agricultural operations. These impacts would be reduced to less than significant levels with implementation of the mitigation measures recommended in Section 4.7, with the exceptions of off-site traffic noise and agricultural noise which would remain significant and unavoidable.

Noise is a localized occurrence, and attenuates with distance. Therefore, only future cumulative development projects within the direct vicinity of the project site would have the potential to add to anticipated project-generated noise, thus resulting in cumulative noise impacts. Several related projects are planned with the immediate vicinity of the proposed project, including Lathrop Station, Califia, RiverWalk, and the Central Lathrop Specific Plan (see Exhibit 5-1). Each of these projects would generate the types of noise anticipated under the proposed project, and like the proposed project, would each have the potential to affect existing residential uses in Mossdale Village and future noise sensitive uses proposed at each of these projects.

The City's noise regulations limit construction activities to daytime hours. For Mossdale Landing, it was determined that adherence to these noise regulations alone would not be sufficient to avoid significant construction noise impacts. It is similarly anticipated that these regulations would not avoid significant construction noise impacts associated with the related projects.

Stationary and activity noise associated with the proposed projects could potentially result in exceedance of the City's noise regulations which limit exterior noise levels from such sources to 60 dBA at the residential property line. Such exceedences could potentially occur at both existing and proposed residences or other noise-sensitive uses within the Mossdale Village area. While the noise from any stationary and activity noise sources associated with the related projects could be controlled at the source (via noise walls, enclosures, site planning, etc.), there is no guarantee that the all the related projects would include such noise controls as part of their proposals. Hence, significant cumulative noise impacts associated with stationary and activity noise sources could occur. Because the proposed project would not result in significant stationary or activity noise after mitigation, it would not contribute to any such significant cumulative noise impacts.

While construction, stationary and activity source noise can be controlled on-site at the point of origin, traffic noise may extend beyond a project site along existing and proposed off-site roadways and result in significant traffic noise impacts to sensitive uses along these roadways.

Table 5-10 identifies noise levels at the existing on-site residences and existing off-site residences in the vicinity of the project under cumulative traffic conditions (i.e., the traffic conditions under 2010 Base Case (With Project) traffic volumes identified in Exhibit 5-7). As indicated, seven existing on-site residences and three existing off-site residences would be exposed to noise level increases of greater than 3 dB under cumulative traffic conditions. This is considered a significant cumulative traffic noise impact. Because the proposed project would contribute traffic to the local roadway system, it would contribute to this significant cumulative traffic noise impact. Furthermore, because it is infeasible to construct off-site noise walls at each existing on- and off-site residence, which would be required to avoid this impact, this cumulative traffic noise impact is considered significant and unavoidable.

Table 5-10
Cumulative Traffic Noise Levels at Existing On- and Off-Site Residences

Receiver	L_{dn} in dBA		
	Existing	Future Cumulative	Increase
On-Site			
1	53	55	2
2	70	72	2
3	74	76	2
4	60	65	5
5	54	62	8
10	74	76	2
16	75	77	2
17	71	75	4
18	73	75	2
19	78	80	2
20	76	78	2
21	73	75	2
Off-Site			
6	55	60	5
7	56	60	4
8	67	72	5
9	69	74	5
11	68	71	3
12	69	72	3
13	56	60	4
14	58	64	6
15	59	65	6

Source: Charles M. Salter Associates, Inc., July 11, 2002

UTILITIES

The proposed project would generate less-than-significant electricity, natural gas, and solid waste capacity impacts before mitigation; significant water, wastewater treatment, and wastewater disposal capacity impacts before mitigation; and less-than-significant water, wastewater treatment, and wastewater disposal capacity

impacts after mitigation. As indicated in Section 4.8, utility infrastructure projects are currently being planned and undergoing CEQA review which would provide adequate water, wastewater treatment, and wastewater disposal capacity to the proposed project. These include the City Well Field Expansion Project and the WRP #1 Phase 1A/1B Expansion Project. The one exception is wastewater disposal capacity for the incremental increase in project wastewater requiring disposal between project interim and buildout conditions, for which no disposal capacity is currently being planned. However, mitigation in Section 4.8 prohibits buildout of the project until such future required off-site disposal capacity is made available. If and/or when such future off-site disposal capacity is made available, the environmental affects associated with off-site disposal of a portion of the treated wastewater generated by the proposed project would be the same as outlined in: (1) Sections 4.3 and 4.4 of this EIR (Impacts 4.3-a through 4.3-d, 4.4-c) of the disposal method is to land; and (2) the Lathrop Water, Wastewater and Recycled Water Master Plan (and outlined under Impact 4.8-f of this EIR) if the disposal method is to the San Joaquin River.

The City of Lathrop recently completed the Lathrop Water, Wastewater and Recycled Master Plan (Master Plan) which programmatically plans for the provision of adequate water and wastewater treatment/disposal capacity to serve City growth through 2030. In addition, as discussed above, the City Well Field Expansion Project and WRP #1 Phase 1 Expansion Project are currently being planned and undergoing CEQA review to provide the required water and wastewater treatment/disposal capacity to serve initial growth in the City. However, it is unclear whether the City Well Field Expansion Project and the WRP #1 Phase 1 Expansion project would be sufficient to serve all of the related projects discussed in this section. In the case of the WRP #1 Phase 1 Expansion project, the planned initial expansion would not be sufficient to accommodate all the related projects. Although the shortage of cumulative water and wastewater capacity in itself would not represent a significant environmental impact, it would lead to the need to develop additional water and wastewater capacity and infrastructure, which could lead to significant environmental effects. It is assumed that the development of the related projects, and/or development of the additional utility systems required to serve them, would be preceded by the required CEQA review. However, it cannot be assumed that all the potential environmental impacts associated with the development of the additional water and wastewater capacity and infrastructure required to serve these related projects would necessarily be less than significant after mitigation. Therefore, potentially significant cumulative utilities impacts could occur related to water and wastewater treatment/disposal capacity. Because the proposed project would not result in significant water and wastewater treatment/disposal capacity impacts after mitigation, it would not contribute to any such significant cumulative impacts.

As discussed in Section 4.8 of this EIR, an SB 610 Water Supply Assessment (Assessment) has been prepared for the proposed project. The Assessment evaluates the adequacy of existing and future water supplies to meet the water demand created by Mossdale Landing in conjunction with existing and future cumulative development in the City of Lathrop.

As indicated in Assessment, future water supply for the City will consist of groundwater from the City's existing and planned municipal wells and surface water deliveries from the SCSWSP. Groundwater pumping during normal years will range from 2,520 AFY in 2005 to 4,100 AFY in 2025. Deliveries from the SCSWSP will begin in 2005, and during normal years will range from 5,200 AFY in 2005 to 11,800 AFY in 2025. Combined normal year future supply will range from 7,720 AFY in 2005 to 15,900 in 2025. At the same time, it is projected that future water demand (i.e., proposed project plus existing/future cumulative

development) will range from 4,514 AFY in 2005 to 15,868 AFY in 2025. As indicated, future water supply during normal years will be adequate to meet future with project cumulative water demand.

As further indicated in the Assessment, groundwater pumping during single-dry years will range from 2,520 AFY in 2005 to 4,100 AFY in 2025, while deliveries from the SCSWSP during single-dry years will range from 5,164 AFY in 2005 to 11,791 AFY in 2025. Combined water supply (groundwater plus surface water) during single-dry years will range from 7,684 AFY in 2005 to 15,891 AFY in 2025. Groundwater pumping during multi-dry years will range from 2,520 AFY in 2005 to 5,800 AFY in 2025, while deliveries from the SCSWSP during multi-dry years will range from 4,524 AFY in 2005 to10,140 AFY in 2025. Combined water supply (groundwater plus surface water) during multi-dry years will range from 7,044 AFY in 2005 to 15,940[3] AFY in 2025. Future water supply during single-dry and multi-dry years will thus be adequate to meet future with project cumulative demand during each of these drought scenarios (i.e., demand = 4,514 AFY in 2005 and 15,868 AFY in 2025).

See the SB 610 Water Supply Assessment, included as Appendix L of this EIR, for further discussion.

PUBLIC SERVICES

The proposed project would generate a significant increase in demand for police, fire and school services and facilities, and significant affects on police and fire emergency response times. These impacts would be reduced to less than significant levels with the proposed dedication of land for an on-site fire station and two schools, as well as implementation of the mitigation measures identified in Section 4.9 of this EIR. These mitigation measures include, but are not limited to: implementation of standard traffic controls during construction to reduce construction-related affects on emergency response times; monitoring of emergency response times to determine when construction by the Lathrop-Manteca Fire Department of the new on-site fire station is required; payment of the start-up costs to train and equip the additional police officers required by the project; the incorporation of crime prevention features into the project; and provision in the project of required fire flow.

At this time, it is unclear whether sufficient police, fire and school facilities are planned to serve the related projects. While some of the related projects include proposals for the construction of service facilities, others do not. However, it is clear that sufficient police facilities, fire stations, and schools would need to be constructed to serve the related projects.

Although the shortage of cumulative public services and facilities would not represent a significant environmental impact, it would lead to the need to develop additional public services facilities which could lead to significant environmental effects. It is assumed that the development of the related projects, and/or development of the additional public service facilities required to serve them, would be preceded by the required CEQA review. However, conducting of the required CEQA review would not necessarily gurantee that significant environmental effects associated with construction of new police, fire and school facilities

[3] In 2025, slightly more water would be available during multi-dry years than single-dry years because substantially more groundwater would be pumped during multi-dry years during this period to make up for the larger reduction in surface water deliveries. The pumping of this greater amount of groundwater during multi-dry years would not exceed the safe yield of the applicable groundwater basin.

would not occur. Hence, significant cumulative environmental effects associated with the development of new police, fire and school facilities could potentially occur associated with the related projects. Although the proposed project would not create a significant demant for public services after implementation of the project proposals and mitigation measures identified above, and although the development of the proposed project, including the proposed on-site fire station and schools, would result in less-than-significant impacts for the majority of the environmental issues evaluated in this EIR, development of the proposed project, including the proposed on-site fire station and schools, would result in significant unavoidable traffic, farmland conversion, and light and glare impacts (see Chapter 7). It would also contribute to significant unavoidable cumulative traffic, air quality, noise, surface water quality, fisheries, odor and utilities impacts (see Chapter 7). Hence, the proposed project would contribute to significant cumulative environmental effects associated with the development of the new police station, fire station and school facilities required to serve project and cumulative development, and thus would contribute to significant cumulative public services impacts.

TERRESTRIAL BIOLOGY

The proposed project would lead to the potential elimination of the foraging and nesting habitats of multiple sensitive animal species, potential loss of individuals designated as sensitive species and potential the potential removal of wetlands and riparian habitat. Each of these would represent a significant impact that would be reduced to a less-than-significant level with implementation of the mitigation measures identified in Section 4.10 of this EIR. This mitigation includes, but is not limited to, payment of required San Joaquin County Multi-Species Habitat and Open Space Conservation Plan (SJMSCP) fees to support the purchase of habitat elsewhere, implementation of applicable SJMSCP minimization and avoidance measures, replacement of sensitive plant species/riparian habitat, performance of preconstruction surveys for those sensitive animal species identified as present or potentially present on the project site by the EIR's biotic surveys, passive relocation of sensitive species (if required), establishment of setbacks from active nests (if such nests are identified in the preconstruction surveys), and the obtaining of all necessary environmental permits for impacts to Waters of the State and Waters of the U.S.

The related projects would likely lead to the elimination of similar types of sensitive species habitat, wetlands, and riparian habitat, and the similar potential loss of individuals designated as sensitive species, as would the proposed project. San Joaquin County (County) has adopted the SJMSCP, which provides a countywide solution to the incremental loss of sensitive species and their habitat: the payment of fees to support the purchase of off-site habitat, minimization and avoidance measures, replacement requirements for sensitive plant species/riparian habitat, reconstruction survey requirements, etc. Because the City of Lathrop is a signatory to the SJMSCP, and the City and related projects are subject to it, the incremental loss in sensitive species and/or habitat that would occur associated with these related projects would be reduced to less-than-significant levels. Therefore, a less-than-significant cumulative terrestrial biology impact would occur.

The proposed project would remove both exotic and native trees such as valley oaks. The SJMSCP does not specifically call for the preservation of oak trees that are not part of riparian habitat or oak woodland, and the City of Lathrop has no heritage tree ordinance that would protect such trees. While there are no special provisions for protection of valley oaks on the project site, valley oaks are regarded by the scientific community as valuable habitats for wildlife. However, the proposed project includes a proposed preservation/avoidance plan for the largest oak trees on-site that calls for a combination of preservation and

replacement. Hence, a less-than-significant impact would occur. However, there are no assurances that each of the related projects would adopt a similar oak tree preservation/avoidance plan. Hence, a potentially significant cumulative impact could occur. Implementation of an oak tree preservation/avoidance plan as part of each related project would be required to reduce this impact to less-than-significant levels.

FISHERIES RESOURCES

The proposed project would result in significant impacts to local aquatic habitat, and to both sensitive anadromous and non-anadromous fish species before mitigation. These impacts would occur due to proposed construction activities on the river side of the east levee of the SJR associated with the proposed stormwater outfall, rather than with the proposed stormwater runoff discharges, which would result in less-than-significant water quality impacts to the SJR (see Section 4.2 of this EIR). The above impacts would be reduced to less-than-significant levels with implementation of the water quality BMPs and mitigation measures identified in Sections 4.2 and 4.11 of this EIR, respectively. The mitigation measures include BMPs to avoid disturbance of the SJR during construction of the proposed outfall (i.e., replacement of riparian and aquatic habitat disturbed during construction of the proposed outfall), BMPs to keep construction sediment out of the SJR, avoidance of construction during the months when sensitive fish are present in the SJR, and adherence of outfall construction and design to the National Marine Fisheries Service (NMFS) Guidelines for Salmonid Passage at Stream Crossings.

There is a potential that one or more of the related projects (particularly River Islands) would include construction activities on the river side of the levees. It is also anticipated that several related projects would include stormwater outfalls to the SJR. Any proposed construction activities and operaton of stormwater outfalls or other devices within the river side of levees would require regulatory review and/or permitting by the California Department of Fish and Game, NMFS, the Army Corps of Engineers, and/or the RWQCB with one of the intended goals being to protect listed fish species. Also, any such activities would be required to undergo CEQA review where, it is anticipated, mitigation measures in the form of construction and operational BMPs would be required as mitigation to avoid or minimize impacts to listed fish species. Still, such activities could result in the take of sensitive fish species, the sedimentation of the SJR, and/or the removal of riparian and aquatic habitat. While these impacts would likely not be significant on a project-by-project basis after the aforementioned regulatory review and implementation of associated mitigation, the combined effect of multiple such incursions into the river and associated impacts to listed fish species and their habitat could result in a significant cumulative fisheries impact. The proposed project would contribute to this cumulative impact, but the project's contribution would be mitigated. Mitigation for unforeseen cumulative impacts would need to be developed in conjunction with the related projects that would cause the impacts.

Because the related projects would result in less-than-significant water quality impacts to the SJR associated with stormwater discharges and recycled water use, as evaluated earlier in this section, any stormwater discharges to the SJR and/or the land application of recycled water associated with the related projects would result in less-than-significant cumulative impacts to sensitive fish in the SJR.

The related projects could include the disposal of a portion of the their treated wastewater via discharges to the San Joaquin River. As evaluated in the certified EIR for the adopted Lathrop Water, Wastewater and Recycled Water Master Plan, the discharge of tertiary treated wastewater to the river by cumulative

development in Lathrop could add a small increment (calculable but likely not measurable) of dissolved oxygen (DO) and other pollutants of concern to the San Joaquin Delta (specifically the Stockton Ship Channel) and to the San Joaquin River. These could contribute to significant surface water quality impacts and hence, potentially, significant impacts to fisheries. If a portion of the treated wastewater is river disposed instead of land disposed, the proposed project could contribute to these impacts. Regulatory agencies are currently preparing/reviewing proposed TMDLs for DO and other pollutants of concern in the Delta. If these TMDLs are adopted and prove affective in reducing DO to acceptable levels, these impacts surface water quality impacts and hence impacts to fisheries would eventually be avoided. Otherwise, significant unavoidable adverse fisheries impacts could occur.

CULTURAL RESOURCES

The areas to be affected by the proposed project includes the project site, off-site utility improvement sites, Gold Rush Boulevard PPL, and the sites of the off-site roadway improvements required by mitigation in this EIR. As indicated in Section 4.12, project acitivites within these areas would not affect significant historical resources or listed archaeological sites as none are present within the areas to be affected. As indicated, project activities could affect one recorded archaeological site which may represent a "unique archaeological resource", and could potentially affect any undiscovered archaeological resources and/or human remains which may be present within the aforementioned areas, both of which would represent potentially significant impacts. Any such impacts would be reduced to less-than-significant levels with implementation of the mitigation measures identified in Section 4.12, which include excavation of one recorded archaeological site to determine its significance, suspension of construction activities when suspected archaeological resources or human remains are found, evaluation of any uncovered archaeological resources or human remains, and contacting of the County coroner and the Native American Heritage Commission if human remains are uncovered.

Given the presence of recorded archaeological sites, including human remains, in the City of Lathrop and the potential presence of historic structures, it is almost certain that multiple related projects would affect archaeological resources, human remains, and/or historic resources. It would be critical that each related project have, at a minimum, an archaeological records search conducted to determine if recorded archaeological sites, human remains, or historic resources are present. For related projects proposed on vacant land or on large parcels of agricultural land, an archaeological field survey should be conducted by a trained archaeologist, any cultural resources found during the survey recorded, and any mitigation measures identified by the archeologist implemented. For related projects where structures are present, it should be determined whether any on-site structures are 45 years of age or older, and if they are, a trained architectural historian should be called in to perform a State Register Eligibility evaluation of the structures. Curation, avoidance, and/or photographic documentation should be undertaken as required by the archaeologist and architectural historian. Failure to undertake the above could lead to significant cumulative cultural resources impacts. The proposed project would contribute to such impacts if the one archaeological site recorded onsite that may represent a unique archaeological resource is indeed a unique archaeological resource (to be determined by required excavation of the site).

INDIRECT CUMULATIVE IMPACTS

The proposed Mossdale Landing project would not be able to be constructed/occupied without two of the related projects, the WRP #1 Phase 1 Expansion Project (formerly the WRP#1 Phase 1A/1B Expansion) and the Well #21-23 Development Project. While not directly causing any cumulative impacts associated with implementation of these projects, the Mossdale Landing project would indirectly contribute to the cumulative impacts of these projects because they would be needed to serve Mossdale Landing.

Expansion of WRP #1 and development of Well #21 (along with the development of other planned wells) was evaluated in the Lathrop Water, Wastewater and Recycled Water Master Plan EIR. The Master Plan EIR indicated that expansion of WRP #1, along with the development of two other WRPs planned for in the Master Plan and the planned disposal of treated wastewater from all three of these WRPs to the SJR, would result in significant unavoidable cumulative odor, surface water quality, and fisheries impacts. The Master Plan EIR further indicated that development of the planned wells (including Well #21) would result in less than significant groundwater impacts. Because the proposed project would not be able to be constructed/occupied without the expansion of WRP #1 and the development of Well #21, the proposed project would indirectly contribute to the significant and less-than-significant impacts identified above (i.e., indirect cumulative impacts). Below is a summary of each of these significant unavoidable cumulative impacts from the Master Plan EIR.

Air Quality (Odors)

Expansion of WRP#1 would contribute to significant unavoidable cumulative odor impacts associated with new storage and treatment processes. These impacts would occur at the existing and future land uses adjacent to WRP #1.

Surface Water Quality

Expansion of WRP#1 would contribute to minor and potentially immeasurable (downstream) amounts of mercury and BOD_5 to the SJR through discharge of tertiary treated wastewater to the river. The mercury contribution could contribute to cumulative violations of mercury standards, and the BOD_5 could contribute to DO levels in the Stockton Ship Channel. In both cases, TMDL programs are in the process of being established, and if effective, would eliminate violations of water quality standards for these constituents. If the TMDLs are not effective, the contribution of mercury and BOD_5 would be cumulatively potentially significant and unavoidable.

Fisheries

Expansion of WRP#1 would generate minor and less than significant surface water quality impacts to the SJR and Sacramento/San Joaquin Delta once it discharges treated wastewater to the SJR. These impacts, as they relate to fisheries, would include a small reduction in downstream DO levels. TMDL programs are in the process of being established; which, if effective, would eliminate violations of water quality standards for DO and other 303(d)-listed constituents. If the TMDLs are not effective, the contribution to cumulative reductions in DO would represent a potentially significant cumulative impact to fisheries that would then be unavoidable.

Surface discharge is not currently proposed as part of WRP#1 expansion, and until it is this impact would not occur.

Groundwater

Development of Well #21would contribute to the migration of the 500 mg/L salinity intrusion front eastward over time associated with increased groundwate pumpage in the Delta. It is likely that existing wells located between the existing and future 2030 500 mg/L TDS contour would either need to cease operation or require the addition of treatment facilities during the time horizon of the Master Plan to comply with safe drinking water standards. However, the Master Plan requires the City of Lathrop to provide municipal water to any uses within the City limits currently reliant on well water should closure of said wells be required. Hence, a less-than-significant impact would occur.

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6 GROWTH INDUCING IMPACTS

6.1 INTRODUCTION

The State CEQA Guidelines (§15126(d)) require that an Environmental Impact Report (EIR) evaluate the growth inducing impacts of a proposed project as follows:

> *"Discuss the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a waste water treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in an area is necessarily beneficial, detrimental, or of little significance to the environment."*

A project can have direct and/or indirect growth inducement potential. Direct growth inducement would result if a project involved construction of new housing. Indirect growth inducement would result if a project resulted in: substantial new permanent employment opportunities (e.g., commercial, industrial or governmental enterprises); a substantial construction effort with substantial short-term employment opportunities that indirectly stimulate the need for additional housing and services to support the new employment demand; and/or removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service.

As indicated above, growth inducement itself is not an environmental effect, but may lead to environmental effects. Such environmental effects may include increased demand on other community and public services and infrastructure, increased traffic and noise, degradation of air or water quality, degradation or loss of plant or animal habitats, or conversion of agricultural and open space land to urban uses.

6.2 GROWTH INDUCING IMPACTS

The Mossdale Landing project would be developed within the Mossdale Village area of the City of Lathrop. This area has been planned for development under the West Lathrop Specific Plan (WLSP) adopted by the City in 1996. The WLSP designates the project site as Single Family Residential (RL-MV), Medium Density Residential (RM-MV), Public (P-MV), Village Commercial (CV-MV), and Service Commercial (CS-MV). As indicated in Table 9-1, which compares the acreage of each designated land use category with the acreages of each land use type being proposed under the Mossdale Landing project, the acreages of the designated and proposed land uses are equivalent. Furthermore, the proposed project would develop portions of the area-wide road network consistent with that planned for in the WLSP, would pay the required WLSP transportation impact fees, and would develop a drainage system consistent with the WLSP and the Drainage Plan for Mossdale Landing. Furthermore, the project would convey its wastewater to Water Recycling Plant (WRP) #1 for treatment, and would convey the treated wastewater back to the project site for on-site land disposal, consistent with the Lathrop Water, Wastewater and Recycled Water Master Plan (Master Plan).

Finally, mitigation in Section 4.10 of this EIR requires that the project applicant pay all applicable San Joaquin County Multi-Species Habitat and Open Space Conservation Plan (SJMSCP) fees. Therefore, the proposed project would be consistent with all applicable land use, infrastructure, fee, and environmental plans. In this respect, the proposed project would not be growth inducing because it would not result in urban development in an area not already planned for such development.

As indicated above, the proposed project would contribute to the development of a new roadway network and drainage system in the Mossdale Village area consistent with the WLSP. The proposed project would also extend wastewater pipelines from the project site to WRP #1, and recycled water pipelines from WRP #1 back to the project site consistent with the "contingency pipelines" planned for in the Master Plan. Finally, the proposed project would contribute to the development of Well #21 and the WRP #1 Phase 1 Expansion Project by paying its fair share of these utility infrastructure improvements. The above would represent both an extension of roadways and municipal storm drain and utilities infrastructure to an area not currently served by such systems, and a contribution to the development of additional water and wastewater treatment capacity in the City . As the first development project in the Mossdale Village area under the WLSP, this would contribute to the removal of obstacles to growth in Mossdale Village and the Stewart Tract. In this respect, the proposed project would be growth inducing.

The project would include a substantial construction effort over an approximately eight year period which would bring between 150 and 300 construction workers to the construction site on a daily basis. Because construction workers typically do not change where they live each time they are assigned to a new construction site, it is not anticipated that there would be any substantial relocation of construction workers to the City of Lathrop associated with the proposed project. Therefore, no substantial increase in demand for housing or goods and services would be created by project construction workers, and thus no growth inducement associated with these workers would occur.

The Mossdale Landing project would include the development of 1,690 residential units 653,399 square feet of commercial development, two schools, and a fire station. The additional population in the City would spur an increase in demand for goods and services which could potentially result in additional development to satisfy this demand. In addition, the development of the on-site schools, and fire station would not only serve the Mossdale Landing project, but would eventually serve other planned development in the WLSP area. Because the proposed project would create or contribute to a demand for additional goods and services and the provision of additional public service capacity in the City, it would facilitate additional development. In this respect, the proposed project would be growth inducing.

The provision of new housing by the project would far exceed the housing demand that would be created by the on-site commercial uses and associated jobs. Thus, the proposed project would not facilitate additional housing development in the City. In this respect, the proposed project would not be growth inducing.

Overall, the Mossdale Landing project would be growth inducing because it would extend roadway and municipal storm drain and utility infrastructure to an area not currently served by such infrastructure, which would remove obstacles to growth; and would increase public service capacity and demand for goods and services, which would foster population and economic growth in the City of Lathrop. The growth the project would induce has been evaluated and provided for in the WLSP EIR and the City of Lathrop's General Plan.

7 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

7.1 INTRODUCTION

Section 15126.2(b) of the State CEQA Guidelines requires EIRs to include a discussion of any significant environmental effects that cannot be avoided if the project is implemented. Chapter 4 of this EIR provides a detailed analysis of all potential significant environmental impacts of the Mossdale Landing project, feasible mitigation measures that could reduce or avoid the project's significant impacts, and whether these mitigation measures would reduce these impacts to less-than-significant levels. Chapter 5 identifies the significant cumulative impacts of the project. If a specific impact cannot be reduced to less-than-significant levels, it is considered a significant unavoidable adverse impact.

7.2 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

The proposed Mossdale Landing project would result in significant unavoidable adverse impacts in six environmental issue areas as described below.

7.2.1 TRAFFIC

As indicated in Sections 4. 5 (Impact 4.5- f), the proposed project would contribute traffic on the I-205 between the I-5 and MacArthur Drive which would increase AM and PM peak hour traffic on this segment by more than 1%, thus exacerbating unacceptable 2010 Base Case (without project) operations during these peak hours. The impact would occur to westbound traffic during the AM peak hour, and to eastbound traffic during the PM peak hour. This would represent a temporary significant unavoidable adverse traffic impact until improvements programmed for this freeway segment by Caltrans are completed (anticipated in 2007).

7.2.2 AIR QUALITY

As indicated in Section 4.6 (Impact 4.6-c), the proposed project would result in significant long-term regional emissions during operation, associated primarily with project traffic. Mitigation Measure 4.6-c is identified to reduce this impact to the greatest extent feasible. It requires the provision of transit enhancing infrastructure (bus stops, route signs, etc.), VMT infrastructure (park and ride lots and/or satellite telecommuting centers), pedestrian and bicycle infrastructure, implementation of rideshare programs, on-site services for employees, preferential parking, transit incentives, compressed work schedules and home-based telecommuting programs, and use of energy reduction measures to reduce project traffic and energy consumption. However, even with implementation of this mitigation, the proposed project would result in long-term regional emissions that would exceed the SJVAPCD's recommended significant threshold of 10 tons/year for ROG and NO_x. Thus, the proposed project would result in a significant unavoidable adverse impact with respect to long-term regional emissions.

7.2.3 NOISE

As indicated in Section 4.7 (Impact 4.7-c), the proposed project would result in significant traffic noise impacts to two existing on-site (#14 and 15) residences and one existing off-site (#4) residence for which no feasible mitigation is available to mitigate to a less than significant level.

As indicated in Section 4.7 (Impact 4.7-e) the proposed project would expose proposed residential, school and park uses located at the agricultural/urban interface to significant intermittent agricultural noise for which no feasible mitigation is available to mitigate to a less than significant level. This impact would likely be temporary, lasting only as long as the adjacent agricultural operations last (before being replaced with urban uses as planned for under the WLSP).

7.2.4 FARMLAND CONVERSION

As indicated in Section 1.3, the proposed project would convert 477.3 acres of designated farmland (farmland identified by the Farmland Mapping and Monitoring Program of the California Department of Conservation as either Prime Farmland or Farmland of Statewide Importance) to a non-agricultural use. The development of Gold Rush Boulevard within the off-site portions of the Gold Rush Boulevard PPL would also covert existing agricultural land to an urban use. The WLSP EIR identified the conversion of agricultural land under the WLSP, which includes the project site, and the Gold Rush Boulevard PPL as a significant and unavoidable adverse impact (Grunwald, 1995, p. IV-7, IV-8, and V-2), and the City of Lathrop adopted a Statement of Overriding Considerations for this impact in 1996. While the Mossdale Landing project and Gold Rush PPL are consistent with the WLSP, and thus would not exacerbate the significant unavoidable adverse impact to farmland already identified in the WLSP EIR, they would still represent a significant unavoidable adverse impact of the project. See Section 1.3 for an explanation of why this impact is not evaluated further in Chapter 4 of this EIR.

It must be noted that, while the proposed project and Gold Rush PPL would convert existing agriculture to urban uses, they would not substantially interfere with continued farming on adjacent properties due to the City's Right to Farm Ordinance which allows continued farming evening in proximity to urban development. The presence of the proposed uses in the proximity to adjacent agricultural uses could potentially restrict the ability of farmers to apply certain pesticides and herbicides in areas directly adjacent to residential uses. However, any such restriction would not represent a conversion of existing agriculture to urban uses and/or prevent farming adjacent to the proposed project.

7.2.5 LIGHT AND GLARE

The proposed project would convert the project site from an unlit rural site to a lit urban site. The light and glare impacts of development of the WLSP area, including the project site, were evaluated in the WLSP EIR, and mitigation was identified to reduce these impacts to less-than-significant levels. This mitigation included: (1) aesthetically-designed walls and landscaping shall be installed along the perimeter or expressways in order to screen views of traffic from residential areas; and (2) exterior commercial lighting, including lighting mounted high on building walls, poles, roofs, equipment and other facilities, shall be hooded and directed away from nearby residential areas (Grunwald, 1995, p. IV-16). However, the WLSP concluded that full mitigation of this impact (i.e., conversion of the area from an unlighted rural to a lighted urban environment)

would not be possible (Grunwald, 1995, p. IV-17). Because the proposed Mossdale Landing project is consistent with the WLSP and would contribute to light and glare consistent with that assumed in the WLSP EIR, it would not alter this significance determination, and would, like the WLSP, result in a significant and unavoidable adverse light and glare impact. See Section 1.3 for an explanation of why this impact is not further evaluated in Chapter 4 of this EIR.

7.2.6 CUMULATIVE IMPACTS

As indicated in Chapter 5, the Mossdale Landing project would contribute to significant cumulative traffic, air quality, noise, utilities, public services, fisheries, and odor, and potentially surface water quality impacts.[1] Because these impacts are a product of cumulative growth, and because no feasible mitigation is available to reduce these impacts to less than significant levels, these significant impacts cannot be avoided and thus represent significant unavoidable adverse impacts. Statements of Overriding Considerations for these impacts were previously adopted by the City of Lathrop in the context of the WLSP and/or the Master Plan.

[1] The potentially significant unavoidable cumulative surface water quality impact would only occur if the incremental increase in treated wastewater generated between interim conditions and buildout of the proposed project was to be discharged to the San Joaquin River instead of land disposed. Even then, a significant unavoidable adverse surface water quality impact would only occur if TMDLs currently being reviewed by the regulatory agencies for Dissolved Oxygen (DO) are implemented and turn out not to be effective in reducing cumulative DO levels in portions of the San Joaquin Delta (i.e., Stockton Ship Channel) to acceptable levels.

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8 ALTERNATIVES

8.1 INTRODUCTION

The guiding principals for the selection of alternatives for analysis in the EIR are provided by the State CEQA Guidelines (§15126.6), which indicates that the alternatives analysis must:

- describe a range of reasonable alternatives to the project that could feasiblely attain the basic objectives of the project;
- consider alternatives that could reduce or eliminate any significant environmental impacts of the proposed project, including alternatives that may be more costly or could otherwise impede the project's objectives; and
- evaluate the comparative merits of the alternatives.

The focus and definition of the alternatives evaluated in this EIR are governed by the "rule of reason" in accordance with §15126.6(f) of the State CEQA Guidelines. That is, the range of alternatives presented in this EIR must permit a reasoned choice by the City of Lathrop's (City's) decision-makers. The State CEQA Guidelines (§15126.6) require that an EIR evaluate a "No Project Alternative," evaluate a reasonable range of alternatives to the project, identify alternatives that were initially considered but then rejected from further evaluation, and identify the "environmentally superior alternative other than the no project alternative."

The State CEQA Guidelines (§15126.6(d)) require the evaluation of alternatives in the EIR, but permit the evaluation to be conducted in less detail than is done for the proposed project. Consistent with §15126.6(d), sufficient information is provided in this EIR about each alternative to allow for a meaningful evaluation, analysis, and comparison of the alternatives with the proposed project.

The following discussion is intended to inform the public and decision-makers of feasible alternatives to the proposed project that could be implemented to attain the basic project objectives while reducing the potentially significant effects of the project.

8.2 ALTERNATIVES CONSIDERED AND REMOVED FROM FURTHER CONSIDERATION

General plan buildout and/or offsite alternatives are sometimes considered in EIRs to provide an evaluation of a greater range of possible alternatives to a proposed project. In the case of the Mossdale Landing project (proposed project), consideration of these two alternatives is inappropriate as explained below.

8.2.1 GENERAL PLAN BUILDOUT ALTERNATIVE

The City of Lathrop's West Lathrop Specific Plan (WLSP) is the land use plan applicable to the project site. The WLSP calls for development of the project site and the greater Mossdale Village area with mixed-use residential communities planned and implemented under Urban Design Concepts (UDCs). UDCs provide the City, developer, and builder with a framework for identifying and regulating permitted land uses, architecture, landscape standards, site planning standards, infrastructure improvements, and project

implementation requirements (WLSP 1995). The WLSP designates the project site as Single Family Residential (RL-MV), Medium Density Residential (RM-MV), Public (P-MV), Village Commercial (CV-MV), and Service Commercial (CS-MV). Table 8-1 compares the acreage of each designated land use category at the project site with the acreages of each land use type being proposed under the proposed project. As indicated, the acreages of the designated and proposed land uses are roughly equivalent, and the City has previously determined that the proposed project is consistent with the WLSP. Furthermore, the proposed project would develop portions of the area-wide road network consistent with that planned for in the WLSP. In general terms, a General Plan Buildout Alternative and the proposed project are roughly equivalent. For these reasons, a General Plan buildout alternative is not evaluated further in this EIR.

Table 8-1
West Lathrop Specific Plan vs. Proposed Project

Land Use Designation	Acres	
	WLSP	Proposed Project
Single Family Residential (RL-MV)	294.9	277.8
Medium Density Residential (RM-MV)	46.6	39.5
Public (P-MV)	51.2	79.8
Village Commercial (CV-MV)	11.0	12.9
Service Commercial (CS-MV)	18.6	18.5
Major Roadways	55.0	48.8
TOTAL	**477.3**	**477.3**

Source: Mossdale Landing UDC Document, MacKay & Somps , August 29, 2001.

8.2.2 OFFSITE ALTERNATIVE

The proposed project is consistent with the land use designations and circulation plan of the WLSP, and would help to implement the WLSP. Development of the project at an alternative site would not further the intent of the WLSP. In addition, there are no large undeveloped parcels in the more developed eastern portion of the City east of Interstate 5 (I-5) with similar zoning sufficient in size to accommodate the proposed project or a reasonable portion of the proposed project; the Stewart Tract and the balance of the Mossdale Village area are currently undergoing project-level planning of their own (e.g., River Islands, Lathrop Station, FarmWorld), thus calling into question the feasibility of the project applicant acquiring these parcels; and while the project site is sensitive for terrestrial biological, archaeological, historic, and groundwater resources as discussed in Chapter 4 of this EIR, the project site does not appear to be any more sensitive than the other agricultural parcels in the vicinity. It is not likely that any significant impacts of the project would be avoided or substantially lessened by the selection of an alternative site in the area. Furthermore, the 1995 WLSP EIR (the Program EIR upon which the current Mossdale Landing UDC EIR is tiered) evaluated the possibility of selecting alternative sites for analysis, and determined that while alternative locations outside the City of Lathrop potentially existed for the destination-resort portion of the WLSP project, "…the City has no alternative but to expand its housing area outward in a rational fashion from its current City limits in a mostly westerly direction, as proposed for Mossdale Village." Therefore, alternative locations for the proposed project outside the City of Lathrop were not considered feasible. For these reasons, an offsite alternative is not evaluated further in this EIR.

8.2.3 OTHER ALTERNATIVES

Two alternatives applicable to the project site were evaluated in the 1995 WLSP EIR. These include a Mossdale Village Conservation-Oriented Alternative where low density residential acreage along the San Joaquin River is decreased in favor of parks/open space, and a commensurate increase in medium density residential is made further away from the river to offset the loss of residential units (i.e., more compact urban development); and a Mossdale Village Job-Intensive Alternative, where Service Commercial acreage is increased with a corresponding decrease in residential acreage. These alternatives were evaluated in a previously certified EIR, and the City of Lathrop City Council selected the WLSP (the plan upon which the Mossdale Landing project is based) in favor of these alternatives. Therefore, these alternatives are not evaluated further in this EIR. The decision not to evaluate these alternatives in this EIR, and/or other alternatives, which aim to change the land uses permitted at the project site, is consistent with Citizens of Goleta Valley et al v. Board of Supervisors ("Goleta II") (1990) 52 Cal.3d 553 [276 Cal.Rptr. 410). This case states that a project-specific EIR "is not ordinarily an occasion for the reconsideration or overhaul of fundamental land use policy", and that "...to require a reexamination of basic land use policy with every permit application would impose an unnecessary and wasteful burden on local governments."

8.2.4 AGRICULTURE/URBAN INTERFACE BUFFER

The potential for inclusion in the proposed project and the alternatives of an agriculture/urban interface buffer was initially considered during the preparation of the Mossdale Landing UDC and this EIR.

The WLSP EIR (page V-2) identifies the following as a mitigation measure to address the urban/agricultural interface that would result from development within the WLSP area (including development of the Mossdale Landing project):

> To reduce the potential for adverse impacts from agricultural operations upon residential areas, a buffer zone of 50-100 yards shall be provided between the line of residential or commercial development and the nearest line of farmland, with fencing of each line to discourage trespass. This buffer should be assured as a condition of development approval, with removal of the buffer not to occur until the next phase of urban expansion is approved.

According to the WLSP EIR, implementation of the above mitigation measure would mitigate agricultural/urban interface-related noise impacts associated with development under the WLSP (including Mossdale Landing) to less than significant levels.

While the provision of a 50-100 yard buffer along with fencing would reduce agricultural/urban interface-related noise impacts to less than significant levels, the applicant for the Mossdale Landing project has indicated that provision of the buffer in the Mossdale Landing project would be economically infeasible given current market conditions. In response, the issue was evaluated by the EIR noise consultant (Salter). It was determined that mechanized farming (a tractor) would generate a maximum noise level of approximately 80 dBA at 50 feet, and that the Lathrop Noise Element (Noise Level Performance Standards for Non Pre-Empted Noise Sources) identifies the maximum permitted noise levels from such a source at a residential property line as 75 dBA during daytime and 65 dBA at nighttime. Based on this, it was determined that the only way to avoid significant noise impacts to proposed residential uses would be to construct an eight foot noise

barrier and limit residential units to one story directly behind the noise wall where within 100 feet of existing agricultural operations.

The development of a row of one story homes along the periphery of the project would be economically infeasible by limiting the product sold, and would be aesthetically undesirable as it would create a monotonous line of single story homes in a community of single and multiple story homes. Furthermore, a noise barrier is not feasible because: (1) the significant noise impacts from agricultural operations would occur only for a short time each month (1 to 2 hours) if and/or when a tractor is within 100 feet of proposed residential uses; (2) the impact would be temporary, lasting only as long as agricultural operations adjacent to the project site continue (which, under the WLSP, are planned to be replaced with urban development); (3) the noise wall would eventually become obsolete once the agricultural operations adjacent to the project site are replaced by urban development; and (4) the noise wall, if constructed, would be an impediment to vehicular, pedestrian, and bicycle circulation between neighborhoods which is inconsistent with multiple General Plan goals, objectives and policies.

Based on the above, both a buffer between the agriculture/urban interface and the development of a noise wall would be infeasible and thus have not been considered as project alternatives in this EIR.

8.3 DESCRIPTION AND ANALYSIS OF ALTERNATIVES

The following alternatives are evaluated in this chapter:

- Proposed Project
- No Project (No Development) Alternative
- Interim Development Only Alternative
- Environmental Constraints Alternative

Each alternative is described and a qualitative analysis is provided of the alternative for each environmental issue area evaluated in this EIR. The analysis is comparative, identifying whether the alternative would result in a "greater," "less," or "similar" impact to the proposed project. This determination is made in brackets at the end of the discussion for each environmental issue analyzed.

8.3.1 PROPOSED PROJECT

This alternative is as described in Chapter 3 of this EIR (Project Description).

IMPACT ANALYSIS

The proposed project is evaluated in Chapter 4 of this EIR. Listed below are the 12 environmental issue areas evaluated in this EIR. For each issue area, the list indicates whether the project would result in a less-than-significant impact, significant impact, or significant unavoidable impact. As indicated, the project would result in significant traffic, air quality, noise, utilities, public services, terrestrial biology, fisheries, and cultural resources before mitigation, and significant traffic, air quality, and noise impacts after mitigation (i.e., significant unavoidable impacts).

Environmental Topic	Before Mitigation	After Mitigation
Flood Control/Drainage	less than significant	less than significant
Surface Water Quality - Runoff	significant	less than significant
Surface Water Quality - Recycled Water	less than significant	less than significant
Groundwater Quality	less than significant	less than significant
Traffic	significant	significant (unavoidable)
Air Quality	significant	significant (unavoidable)
Noise	significant	significant (unavoidable)
Utilities	significant	less than significant
Public Services	significant	less than significant
Terrestrial Biology	significant	less than significant
Fisheries	significant	less than significant
Cultural Resources	significant	less than significant

8.3.2 NO PROJECT (NO DEVELOPMENT) ALTERNATIVE

Under this alternative, no actions would be taken at the project site and no development of the 477.3-acre project site would occur (in the short-term). The existing agricultural use of the site would continue until such time as a development application is submitted for the property.

The project site is located in an area of the City covered by the WLSP. Entitlements are actively being sought for development in the vicinity of the project site (e.g., Califia/River Islands, Lathrop Station, etc.). Infrastructure planning is also occurring for the area in the Lathrop Water, Wastewater & Recycled Water Master Plan (Master Plan), WRP #1 Phase 1A/1B Expansion Project, Master Drainage Plan for Mossdale Village, Gold Rush Boulevard and Golden Valley Parkway Precise Plan Lines (PLLs), and I-5/Louise Avenue Interchange PSR. As surrounding lands begin to develop, it would become more difficult (both economically and operationally) for the property owners to continue agricultural operations at the project site due to the urban/rural conflicts that arise, although the City does have a right to farm ordinance which would permit agricultural operations to continue. To remain undeveloped, the land would most likely have to be purchased as permanent open space, although there has been no expressed interest to date in the purchase of this property for public use. Therefore, it is unreasonable to assume that the site would remain in agricultural use on a long-term basis. However, consistent with CEQA requirements, this No Project (No Development) Alternative (hereafter referred to as the "No Project Alternative") is evaluated in this EIR.

The No Project (No Development) Alternative would not meet any of the objectives of the proposed project (i.e., would not: create a mixed-use residential community at the project site; provide public improvements; provide homes/jobs/revenue to the City; add to the City's park/trail/open space system; etc.). The No Project (No Development) Alternative would also not be consistent with the intent of the WLSP, which calls for development of the project site and the greater Mossdale Village area with mixed-use residential communities, and would not be consistent with the utility plans for the area listed above which assume buildout of the project site under the WLSP (as would occur under the proposed project).

IMPACT ANALYSIS

Flood Control/Drainage

Because the project site is not located within the 100-year floodplain, the No Project Alternative would not avoid any impacts related to placing housing within a 100-year floodplain, would not impede/redirect 100-year flood flows, and would not expose people to flooding from 100-year flood flows, all similar to the proposed project. Because the project site would not be developed under this alternative, this alternative would not increase surface runoff or erosion/siltation, and thus would not create a need to develop an onsite storm drain system or create a potential to affect existing drainage facilities. This alternative would also not increase stormwater runoff discharges to the San Joaquin River (SJR), and thus would not result in the consumption of a small amount of avialable existing freeboard (i.e., flood control capacity) in the SJR at and downstream of the project site that would occur under the proposed project. However, no significant flood control/drainage impacts were identified for the proposed project after mitigation, so this alternative would not reduce or avoid any significant flood control/drainage impacts of the proposed project. [***Similar***]

Surface Water Quality - Runoff

The No Project Alternative would not generate urban pollutants or cause an increase in stormwater runoff, and thus less urban pollution would be discharged to the SJR under this alternative than under the proposed project. At the same time, agricultural uses at the project site would continue. Thus the discharge of agricultural pollutants to the SJR would continue, and the water quality BMPs proposed under the proposed project would not be implemented. Under the No Project Alternative, the existing agricultural use of the project site would continue and the existing load of pollutants in stormwater from the project site, which is currently discharged to the river, would remain unchanged. In Section 4.2 of this EIR, the existing load of pollutants in stormwater runoff from the project site is compared to the loads that would occur under the proposed project. As indicated, the pollutant load under existing conditions would be higher than under the developed condition for 21 of the 23 constituents evaluated due largely to the existing use of agricultural pesticides and fertilizes which would be phased out under the proposed project. The load of two pollutants would increase under the proposed project (selenium and diazinon). However, one of these (selenium) would not exceed applicable significance thresholds while the other (diazinon) is being phased out of use in residential development by the EPA and would not be an issue for the project by the phase out date (2003). Hence, stormwater-related surface water quality impacts would be greater under this alternative than under the proposed project. **[*Greater*]**

This alternative would not include construction activities, and thus would not have the potential to discharge construction runoff containing suspended solids and other pollutants to the SJR. However, no significant construction-related surface water quality impacts were identified for the proposed project with implementation of the proposed BMPs and adherence to SWPPP requirements, so this alternative would not reduce or avoid any significant runoff-related surface water quality impacts of the proposed project. [***Similar***]

Surface Water Quality - Recycled Water

Neither the No Project Alternative or the proposed project would discharge recycled water to the SJR. Unlike the proposed project, the No Project Alternative would not land dispose of treated wastewater at the project site. Therefore, it would not present a potential for runoff from the application areas to enter the SJR. However, no significant recycled water-related surface water quality impacts were identified for the proposed project given the high level of treatment proposed (tertiary disinfected Title 22 for unrestricted use), the proposed application at agronomic rates, the fact that all stormwater would first pass through the project's proposed BMPs, the presence of the east levee between the river and the project site which will avoid gravity flow of recycled water to the river, and the required adherence to applicable regulatory discharge and application requirements. Therefore, this alternative would not reduce or avoid any significant recycled water-related surface water quality impacts of the proposed project. [***Similar***]

Groundwater Quality

The No Project Alternative would not include any activities that could potentially degrade groundwater quality. At the same time, this alternative would not eliminate the existing use of agricultural pesticides, herbicides, and fertilizers associated with agricultural operations at the project site. These chemicals are potential sources of groundwater quality degradation.

The proposed project would include construction activities, generate urban runoff, and land dispose of treated wastewater, each of which would represent a potential source of groundwater quality degradation. However, the proposed project would implement multiple measures to avoid contaminants from reaching the groundwater. These include: implementation of BMPs to reduce urban contaminants in stormwater runoff which could percolate to the ground; tertiary treatment of wastewater to Title 22 standards for unrestricted use to avoid potential contamination of the environment; application of recycled water at agronomic rates to minimize percolation of recycled water below the root zone; and compliance with discharge and application regulations and permits. In addition, (1) the source of groundwater used as a potable supply by the City of Lathrop is the deep aquifer (greater than 150 feet below the surface) rather than the shallow aquifer, and recycled water would not reach this aquifer; and (2) TDS concentrations is the primary water quality concern for groundwater in the east and south Delta, and the concentrations of TDS in the recycled water to be land applied under the proposed project would be lower than current TDS concentrations in the groundwater. The result would be less-than-significant groundwater quality impacts.

While the proposed project would result in less-than-significant groundwater quality impacts, the No Project Alternative would perpetuate existing agricultural operations at the project site, representing a potential source of groundwater quality degradation. Therefore, while it is unknown whether the existing agricultural operations are having an adverse affect on groundwater quality, it is known that this potential source of groundwater contamination would be retained under this alternative. [***Greater***]

Traffic

The No Project Alternative would not include any new development and thus would not generate traffic or associated traffic impacts. By comparison, the proposed project would generate a substantial amount of traffic on the local roadway network and would result in significant impacts at multiple locations before mitigation. These impacts would be reduced to less-than-significant levels after mitigation at all but one location, Interstate 205 (I-205) between I-5 and MacArthur Drive, where a temporary significant unavoidable

impact would occur until improvements programmed by Caltrans for 2007 are constructed. The No Project Alternative would thus avoid this significant unavoidable traffic impact, the need to develop offsite roadway improvements as mitigation at multiple locations, and use of existing and future freeway and surface street capacity. While this alternative would fail to contribute to the development of the local roadway network planned by the WLSP, this failure would pale in comparison to the lack of traffic impacts under this alternative. [***Less***]

Air Quality

The No Project Alternative would not include any new development, and thus would not generate new construction or operations-related emissions. By comparison, the proposed project would include new construction and operational activities, resulting in less-than-significant long-term mobile source emissions, significant short-term construction and long-term regional operational emissions before mitigation, and residual long-term regional operational emissions after mitigation. The No Project Alternative would avoid these significant air quality impacts. [***Less***]

Noise

Under the No Project Alternative, no construction activities would occur, no new land uses would be developed, no additional traffic would be generated, no increase in on-site human activity would occur, no on-site fire station would be developed, and no agricultural/urban interface would be created. Hence, there would be no incremental increase in noise under this alternative. By comparison, the proposed project would include construction activities, new land uses, new on-site pump/lift stations, human activity, an interim fire station, and an agricultural/urban interface.

Several of these would generate significant noise impacts to existing on- and off-site noise sensitive receptors, and to proposed sensitive receptors, before mitigation. After mitigation, residual significant noise impacts would remain associated with traffic and agricultural noise (i.e., significant unavoidable adverse impacts. Hence, this alternative would avoid the significant unavoidable noise impacts of the proposed project. For this reason, this alternative would result in less noise impacts than the proposed project. ***[Less***]

Utilities

Under the No Project Alternative, no new urban uses would be constructed or operated at the project site. Therefore, this alternative would not create additional demand for water, wastewater treatment/disposal, electricity, natural gas, or solid waste service or facilities. By comparison, the proposed project would create less-than-significant demands for water service during construction, less-than-significant demand for electricity, natural gas and solid waste service during operation, and significant demands for potable water, wastewater treatment, and wastewater disposal service during operation. All of these would be reduced to less-than-significant levels after mitigation. In addition, the proposed project would contribute to the generation of less-than-significant environmental impacts after mitigation associated with the development of Well #21, and significant unavoidable odor impacts associated with the expansion/improvement of WRP #1, although these improvements and their associated impacts would occur regardless of whether or not the Mossdale Landing project is developed.

Because the proposed project would not result in direct residual significant utilities impacts after mitigation, and the significant odor impacts associated with the Expansion of WRP #1 would likely occur regardless of whether the Mossdale Landing project is developed, the No Project Alternative would not avoid any such impacts. However, this alternative would substantially reduce the demand for potable water, wastewater treatment, and wastewater disposal capacity in the City, and thus would result in a markedly lower utilities impact than would the proposed project. [***Less***]

This alternative would not further the City's utilities infrastructure plans and objectives for the Mossdale Village area, including those set forth in the WLSP, WRP #1 Phase 1A/1B Expansion Project, and the Master Drainage Plan for Mossdale Landing. However, it is anticipated that these utility plans and objectives would be eventually be achieved without the Mossdale Landing project, albeit at a slower rate. [***Similar***]

Public Services

The No Project Alternative would not include any new development. Therefore, this alternative would not generate a demand for police, fire, and school services or facilities, would not obstruct access by service vehicles, and would not impact emergency response times. By contrast, the proposed project would include 1,610 residential units, which would create significant demands for police, fire, and school services and facilities before mitigation; significant roadway obstructions for service vehicles before mitigation; and less-than-significant impacts to emergency response times. The significant impacts would be reduced to less-than-significant levels with implementation of the recommended mitigation.

Because the proposed project would not result in any significant public services impacts after mitigation, the No Project Alternative would not avoid any significant public services and facilities impacts of the proposed project. However, the proposed project would create an incremental increase in service demand, and would incrementally increase traffic congestion and thus emergency response times, that would not occur under the No Project Alternative. [***Less***]

Terrestrial Biology

The No Project Alternative would not include any development of the project site, and would thus not disturb any existing onsite sensitive species or habitat. The project site would be retained in its existing agricultural use and would continue to provide living habitat, foraging habitat, and nesting habitat for certain listed animal species, as well as maintain existing riparian habitat and Waters of the U.S. By comparison, the proposed project would develop the project site with urban uses, resulting in potentially significant impacts to valley elderberry longhorn beetle, Swainson's hawk, burrowing owl, Cooper's hawk, yellow warbler, yellow-breasted chat, loggerhead shrike, sharp-shinned hawk, northern harrier, tricolored blackbird, black-crowned night heron, Waters of the U.S., and riparian habitat. These impacts would be reduced to less-than-significant levels after mitigation.

Because the proposed project would not result in any significant terrestrial biology impacts after mitigation, the No Project Alternative would not avoid any significant impacts of the proposed project. However, the No Project Alternative would retain, at least for the time being, 477.3 acres of farmland currently used for foraging and nesting habitat by sensitive species, as well as some riparian habitat and Waters of the U.S., which would be affected or eliminated under the proposed project. [***Less***]

Fisheries

The No Project Alternative would not include any new urban development, would not affect existing aquatic habitat, would not generate urban runoff, would not have the potential to degrade the quality of the SJR, and would not affect sensitive fish species in the Lathrop stretch of the SJR. At the same time, this alternative would continue existing agricultural discharges from the project site to the SJR (with continued potentially adverse impacts to fish). By comparison, the proposed project would result in significant impacts to local aquatic habitat, and to both sensitive anadromous and non-anadromous fish species before mitigation. These impacts would be reduced to less-than-significant levels with implementation of the BMPs and mitigation measures identified in Sections 4.2 and 4.11 of this EIR, respectively.

Because the proposed project would not result in any significant fisheries biology impacts after mitigation, and could potentially improve water quality in the SFR by ending agricultural discharges from the project site, the No Project Alternative would not avoid any significant impacts of the proposed project. It is likely that the existing condition has a similar impact to the less-than-significant mitigated condition under the proposed project. [***Similar***]

Cultural Resources

The project site does not contain any cultural resources (archaeological or historic) listed in the National Register or the California Register of Historic Places, and does not contain any historic resources. The site does contain recorded archaeological resources which may represent "unique archaeological resources" as defined by CEQA. The site may also contain undiscovered and unrecorded subsurface archaeological resources and human remains.

The No Project Alternative would not alter the project site in any way, and thus would have no impacts on cultural resources. By comparison, before mitigation the proposed project would result in: no impacts to significant historic resources as none are present at the project site; significant impacts to archaeological resources if such resources at the project site are found to represent "unique archaeological resources"; and significant impacts to human remains if any such remains are found at the project site. These impacts would be reduced to less-than-significant levels with implementation of the mitigation measures identified in Section 4.12 of this EIR.

Because this alternative would not result in deep excavations and the development of impervious surfaces over the project site, it would have a lesser potential to disrupt any as of yet undiscovered subsurface archaeological resources and/or human remains which may exist on the project site. Hence, cultural resources impacts would be slightly less under this alternative. **[*Less*]**

8.3.3 INTERIM DEVELOPMENT ONLY ALTERNATIVE

The Interim Development Only Alternative represents the maximum amount of project development that may occur at the project site while still disposing of 100% of the treated wastewater generated by the project on the project site. This condition is defined in Tables 3-1 and 3-2 under the "Interim Condition (late 2007)" column. As indicated, development under this Alternative would include 1,408 residential units, 499,197

square feet of commercial uses, two schools, a fire station, parks, major streets, recycled water storage ponds and spray fields, and and levee/open space (the same development that would occur during interim conditions under the proposed project). This alternative would avoid the need for off-site disposal (either to land or the SJR) of treated wastewater associated with the proposed project.

Under the proposed project, the 19.7 acres of interim recycled water storage ponds and 29.3 acres of interim spray fields required to provide treated wastewater storage and disposal capacity for the project's 2007 interim development would be replaced by residential and commercial development at such time as off-site locations become available to dispose of the incremental increase in treated wastewater to be generated by the proposed project between interim and buildout conditions (estimated in this EIR to occur by 2007). By contrast, under the Interim Development Only Alternative these interim recycled water storage ponds and spray fields would be retained indefinitely, and would not be replaced with residential and commercial development.

As with the proposed project, water for this alternative would be provided by future City Well #21 initially and then by the SCSWSP, while wastewater treatment would be provided by the WRP #1 Phase 1A/1B Expansion project. As with the proposed project, the wastewater generated at the project site under this alternative would be disposed of via land application at the project site through interim (2007) conditions, but would continue indefinitely. The area to be disturbed and area to be developed with impervious surfaces would both be slightly less under this alternative as the 29.3 acres of interim spray fields would be retained (and either continue to be farmed and/or to be left in a permanent fallow condition).

This alternative would include the same offsite utility improvements and stormwater outfall to the SJR as the proposed project.

This alternative is evaluated to attempt to reduce the environmental impacts of the proposed project for all environmental issues evaluated, but especially for traffic, air quality, surface water quality, terrestrial biology, fisheries, and wastewater treatment/disposal. This alternative is also evaluated as a way to avoid the need to dipose of treated wastewater generated by the project to an off-site location (either to land or the SJR).

The Interim Development Only Alternative would meet all of the project objectives, although to a lesser degree than would the proposed project as development would not occur at the density or intensity called for by the proposed project.

IMPACT ANALYSIS

Flood Control/Drainage

Because the project site is not located within the 100-year floodplain, the Interim Development Only Alternative would not place housing within a 100-year floodplain, would not impede/redirect 100-year flood flows, and would not expose people to flooding from 100-year flood flows, all similar to the proposed project. Because there would be less development and more spray field and storage pond land at the project site under this alternative than under the proposed project, this alternative would generate a slightly smaller incremental increase in surface runoff and less potential erosion/siltation. However, no significant flood control/drainage

impacts were identified for the proposed project after mitigation, so this alternative would not reduce or avoid any significant flood control/drainage impacts of the proposed project. [***Similar***]

Surface Water Quality - Runoff

Like the proposed project, the Interim Development Only Alternative would eliminate the current discharge of agricultural pollutants to the SJR through the replacement of onsite agricultural uses with residential, commercial, school and park uses. Also like the proposed project, this alternative would increase the quantity of runoff discharged to the river from the project site, and would generate urban pollutants, in this runoff. However, this alternative would generate slightly less urban runoff that would be discharged to the SJR due to the development of less impermeable surfaces and less urban development. It is anticipated that, because there would be slightly less development at the project site under this alternative, the concentration of pollutants in stormwater runoff from the project site would also be slightly less. Still, no significant runoff-related surface water quality impacts were identified for the proposed project with implementation of the proposed BMPs and compliance with the required SWPPP, so this alternative would not reduce or avoid any significant runoff-related surface water quality impacts of the proposed project. [***Similar***]

This alternative would include a lower level of construction activity than the proposed project, and thus would generate a lower level of construction-related pollutants (suspended solids, etc.) in runoff from the project site that could enter the SJR. However, no significant construction-related surface water quality impacts were identified for the proposed project with implementation of the proposed BMPs and adherence to SWPPP requirements, so this alternative would not reduce or avoid any significant runoff-related surface water quality impacts of the proposed project. [***Similar***]

Surface Water Quality - Recycled Water

Neither the Interim Development Only Alternative nor the proposed project would discharge recycled water directly to the SJR. Both projects would, land dispose of treated wastewater at the project site that has been tertiary treated and disinfected to Title 22 levels for unrestricted use (a high level of treatment). Both projects would apply the recycled water at agronomic rates, both would run the stormwater runoff from the project site (including from the recycled water application areas) through the proposed BMPs before before being discharged to the SJR, and both would adhere to all applicable regulatory discharge and application requirements. Both projects would generate little if any potential for pollutants in the treated wastewater to be washed to the SJR in stormwater runoff. While both projects would dispose of the same quantity of recycled water to land at the project site by year 2007, additional development would occur under the proposed project between 2007 and 2010 that would not occur under the Interim Development Only Alternative. This additional development would generate additional treated wastewater that would require off-site disposal (either to land or the SJR), with the potential for this additional treated wastewater to make it in part or in whole to the SJR. However, no significant recycled water-related surface water quality impacts were identified for the proposed project (either at interim 2007 conditions or at buildout), so this alternative would not reduce or avoid any significant recycled water-related surface water quality impacts of the proposed project. [***Similar***]

Groundwater Quality

Both the Interim Development Only Alternative and the proposed project would phase out the existing use of agricultural pesticides, herbicides and fertilizers at the project site, and thus reduce these as a potential source of groundwater quality degradation. At the same time, both projects would include construction activities, generate urban runoff, and disposal of treated wastewater on land, each of which would represent a potential source of groundwater quality degradation.

Both projects would implement multiple measures to avoid contaminants associated with the above activities from reaching the groundwater. These include: implementation of BMPs to reduce urban contaminants in stormwater runoff which could percolate to the ground; tertiary treatment of wastewater to Title 22 standards for unrestricted use to minimize potential contamination of the environment; application of recycled water at agronomic rates to avoid percolation of recycled water below the root zone; and compliance with discharge and application regulations and permits.

The Interim Development Only Alternative would include a lower level of construction activity, slightly less stormwater runoff, and a lower level of urban pollutants in stormwater runoff. Therefore, potential degradation of groundwater quality would be slightly less under this alternative. However, no significant groundwater quality impacts were identified for the proposed project, this alternative would not reduce or avoid any significant groundwater quality impacts of the proposed project. **[*Similar*]**

Traffic

Both the Interim Development Only Alternative and the proposed project would generate a substantial amount of traffic and associated impacts. This alternative would include 16.7% less residential development and 23.6 commercial development than the proposed project, and thus would generate correspondingly less traffic. While the specific effects of traffic on the existing and future roadway network under this alternative have not been modeled, these impacts would be less than under the proposed project. [***Less***]

Both projects would contribute to the development of the roadway network planned for in the WLSP. [***Similar***]

Air Quality

Both the Interim Development Only Alternative and the proposed project would result in development of the project site and the generation of associated construction- and operations-related air emissions. This alternative would include less development than the proposed project, and thus would generate less construction- and operations-related air emission. Because this alternative would generate a lower level of emissions than the proposed project, and becausethe proposed project would generate less-than-significant short-term construction emissions and long-term operational (CO) emissions after mitigation, the Interim Development Only Alternative would also result in less-than-significant impacts in terms of these air emissions after mitigation.

While the specific quantities of long-term regional operational emissions have not been modeled for this alternative, it is anticipated that these emissions, like those of the proposed project, would be significant and unavoidable. This is because, even assuming a reduction in the long-term regional operational emissions of the proposed project to correspond to the 16.7% reduction in residential units and 23.6% reduction in

commercial square footage under this alternative, the SJVAPCD's threshold would still likely be exceeded. Still, this alternative would reduce the significant unavoidable long-term regional operation emissions of the proposed project. **[*Less*]**

Noise

Both the Interim Development Only Alternative and the proposed project would include construction activities, develop new land uses, develop pumps/lift stations, increase on-site human activity, increase traffic, develop an onsite fire station, and create an agricultural/urban interface. Both projects would generate significant noise impacts to existing on- and off-site noise sensitive receptors and to proposed sensitive receptors before mitigation, and significant traffic and agricultural noise impacts after mitigation (i.e., significant unavoidable adverse impacts). This alternative would be expected to generate somewhat less noise than the proposed project given the reduction in development and traffic under this alternative. However, this alternative, like the proposed project, would convert the site from a rural to an urban noise setting, would develop proposed residential uses adjacent to proposed noise-generating school, park, commercial, and agricultural uses, and would generate a substantial increase in traffic on local roadway. This alternative would not avoid any significant impacts of the proposed project. For these reasons, this alternative and the proposed project would result in similar noise impacts. [***Similar***]

Utilities

Under both the Interim Development Only Alternative and the proposed project, the project site would be developed and would create a substantial demand for water, wastewater treatment/disposal, electricity, natural gas, and solid waste services and facilities relative to that currently occurring in the City. The proposed project would create a: less-than-significant demand for water service during construction; less-than-significant demand for electricity, natural gas, and solid waste service during operation; and significant demand for potable water, wastewater treatment, and wastewater disposal service during operation. All of these demands would be reduced to less-than-significant levels after mitigation. In addition, the proposed project would contribute to the generation of less-than-significant environmental impacts after mitigation associated with the development of Well #21, and significant unavoidable odor impacts associated with the expansion/improvement of WRP #1, although these improvements and their associated impacts would occur regardless of whether or not the Mossdale Landing project is developed.

It is anticipated that this alternative would generate similar utilities impacts to those described above for the proposed project, albeit the degree of the impacts would be less given the 16.7% reduction in residential units and 23.6% reduction in commercial square footage under this alternative and the associated reduction in service demand. However, no significant utilities impacts were identified for the proposed project after mitigation (except for odor impacts that would occur at WRP #1 regardless of the status of the Mossdale Landing project), so this alternative would not reduce or avoid any significant utilities impacts of the proposed project. [***Similar***]

Both alternatives would further the City's utilities infrastructure plans and objectives for the Mossdale Village area, including those set forth in the WLSP, WRP #1 Phase 1A/1B Expansion Project, and the Master Drainage Plan for Mossdale Landing. [*Similar*]

Public Services

The Interim Development Only Alternative, like the proposed project, would include development of the project site with urban uses that would generate a demand for police, fire, and school services and facilities, potentially significant obstructions of access by service vehicles during construction, and less-than-significant impacts on emergency response times. The proposed project would do the same, before mitigation. Each of these impacts would be reduced to less-than-significant levels with implementation of the recommended mitigation under either project. Although this alternative would result in smaller increases in the demand for these services and facilities, it would generate the same types of issues as the proposed project (i.e., need to hire new police officers, need to develop an on-site fire station within a certain time frame, etc.) and would require the same type of mitigation to avoid significant impacts.

Because the proposed project would not result in any significant public services impacts after mitigation, the Interim Development Only Alternative would not avoid any significant public services impacts of the proposed project. [***Similar***]

Terrestrial Biology

Like the proposed project, the Interim Development Only Alternative would replace existing agricultural uses at the project site with urban uses, thus eliminating living, foraging, and nesting habitat for a number of sensitive species. These include valley elderberry longhorn beetle, Swainson's hawk, burrowing owl, Cooper's hawk, yellow warbler, yellow-breasted chat, loggerhead shrike, sharp-shinned hawk, northern harrier, tricolored blackbird, and black-crowned night heron. Like the proposed project, this alternative would also affect small areas of Waters of the U.S., and riparian habitat. Each of these would represent a significant impact before mitigation, which would be reduced to less-than-significant levels with implementation of the mitigation measures recommended in Section 4.10 of this EIR.

Under this alternative, less urban development would occur at the project site than under the proposed project, and the 29.3 acres of proposed spray field area would be retained rather than developed. This would provide an opportunity to either: (1) preserve some of the existing agricultural fields on the project site which currently serve as marginal living, foraging and nesting habitat for several sensitive animal species; or (2) if farming within the proposed spray fields is not to continue, the possible transition of these areas to better than marginal habitat over time. Although this alternative would not avoid any significant terrestrial biology impacts of the proposed project, as none would occur after mitigation, the net retention of even a small amount of marginal habitat, and/or the potential to create a small area of better than marginal impact, would equate to less terrestrial biology impacts under this alternative. **[*Less*]**

Fisheries

Both the Interim Development Only Alternative and the proposed project would replace the existing agricultural uses at the project site with urban uses, and both projects would have the potential to affect existing aquatic habitat, generate urban runoff, degrade the quality of the SJR, and affect sensitive fish species in the Lathrop stretch of the SJR. Both projects would result in significant impacts to local aquatic habitat, and to both sensitive anadromous and non-anadromous fish species before mitigation. These impacts would

be reduced to less-than-significant levels with implementation of the proposed BMPs and the mitigation measures identified in Sections 4.2 and 4.11 of this EIR, respectively.

Under this alternative, less development would occur at the project site than under the proposed project. This would result in slightly less runoff being discharged from the project site to the SJR, with a slightly lower level of urban contaminants in this runoff. However, both projects would implement a comprehensive set of BMPs, and would develop detention basins and grassy swales to reduce contaminants in the runoff being discharged to the river. Also, both projects could potentially improve water quality in the SJR by ending agricultural discharges from the project site which contain pesticides and fertilizers (see Section 4.2 which indicates that pollutant load in the existing agricultural discharge would be greater than that in the project discharge for 21 of the 23 constituents analyzed). However, because the proposed project would not result in significant impacts after mitigation, this alternative would not avoid any significant fisheries impacts of the proposed project. Therefore, fisheries impacts would be similar between the two projects. **[*Similar*]**

Cultural Resources

The project site does not contain any cultural resources (archaeological or historic) listed in the National Register or the California Register of Historic Places, and does not contain any historic resources. The site does contain recorded archaeological resources which may represent "unique archaeological resources" as defined by CEQA. The site may also contain as-of-yet-undiscovered and unrecorded archaeological resources and human remains.

Both the Interim Development Only Alternative and the proposed project would include earth moving and other construction activities would could impact cultural resources. Before mitigation, both projects would result in no impacts to historic resources, as none are present at the project site; significant impacts to archaeological resources if such resources at the project site are found to represent "unique archaeological resources"; and significant impacts to human remains if any such remains are found at the project site. These impacts would be reduced to less-than-significant levels with implementation of the mitigation measures identified in Section 4.12 of this EIR.

Because this alternative would result in deep excavations and development of impervious surfaces over slightly less acreage than the proposed project associated with the retention of the 29.3 acres of proposed spray fields, it would have a slightly lesser potential to disrupt any as of yet undiscovered subsurface archaeological resources and/or human remains which may exist on the project site. Hence, cultural resources impacts would be slightly less under this alternative. **[*Less*]**

8.3.4 ENVIRONMENTAL CONSTRAINTS ALTERNATIVE

The Environmental Constraints Alternative represents the proposed project with certain focused modifications incorporated to reduce potential environmental affects. Under this alternative, four specific project modifications would be incorporated:

- Onsite retention of stormwater runoff (instead of discharge to the San Joaquin River);
- Onsite disposal of treated wastewater at buildout (instead of land disposal of a portion of the treated wastewater at an offsite location and/or river discharge);

- Elimination of the Village Commercial uses and reduction of the residential Service Commercial uses; and
- Preservation of certain existing wetland, riparian areas, and sensitive species habitat areas.

The onsite retention of stormwater runoff feature is intended to avoid the surface water quality and fisheries impacts of the proposed project. The onsite disposal of treated wastewater feature is intended to avoid the need to dispose of a portion of the project's treated wastewater at an offsite location. The elimination of the Village Commercial component and reduction of the residential and Service Commercial components feature are intended to reduce project traffic, air emissions, and noise, and to provide space for the required onsite retention basins. The preservation of certain existing onsite wetland, riparian, and sensitive species habitat areas is intended to reduce terrestrial biology impacts, and at the same time provide the additional onsite treated wastewater disposal capacity required under this alternative.

Exhibit 8-1 identifies the conceptual development footprint under this alternative (i.e., areas of urban development vs. preservation area), while Table 8- 2 sets forth the development that would occur under this alternative. As indicated, development under this alternative would include 210 fewer residential units, 444,311 fewer commercial square feet, and less park and major street acreage than the proposed project, and at the same time would provide 20.4 acres for stormwater runoff retention basins and 36.3 acres of preservation area. The school acreage and development would be as proposed under the proposed project. The layout of development under this alternative has not been determined, but would be similar to that under the proposed project (with the exception of the commercial and preservation areas).

As with the proposed project, water for this alternative would be provided by future City Well #21 and eventually the SCSWSP, while wastewater treatment would be provided by the WRP #1 Phase 1A/1B Expansion project.

Unlike the proposed project, all the wastewater generated under this alternative at buildout would be disposed of onsite via land application as irrigation water and via spray fields (in some of the preservation areas). Because wastewater generation would be less under this alternative than under the proposed project, and because 36.3 acres of preservation area would be available for spray fields, it is assumed that adequate wastewater disposal capacity would be available onsite under this alternative to avoid the need for land disposal at offsite locations.

This alternative would include the same offsite utility improvements as the proposed project, but would not include the stormwater outfall to the San Joaquin River as stormwater runoff would be retained onsite.

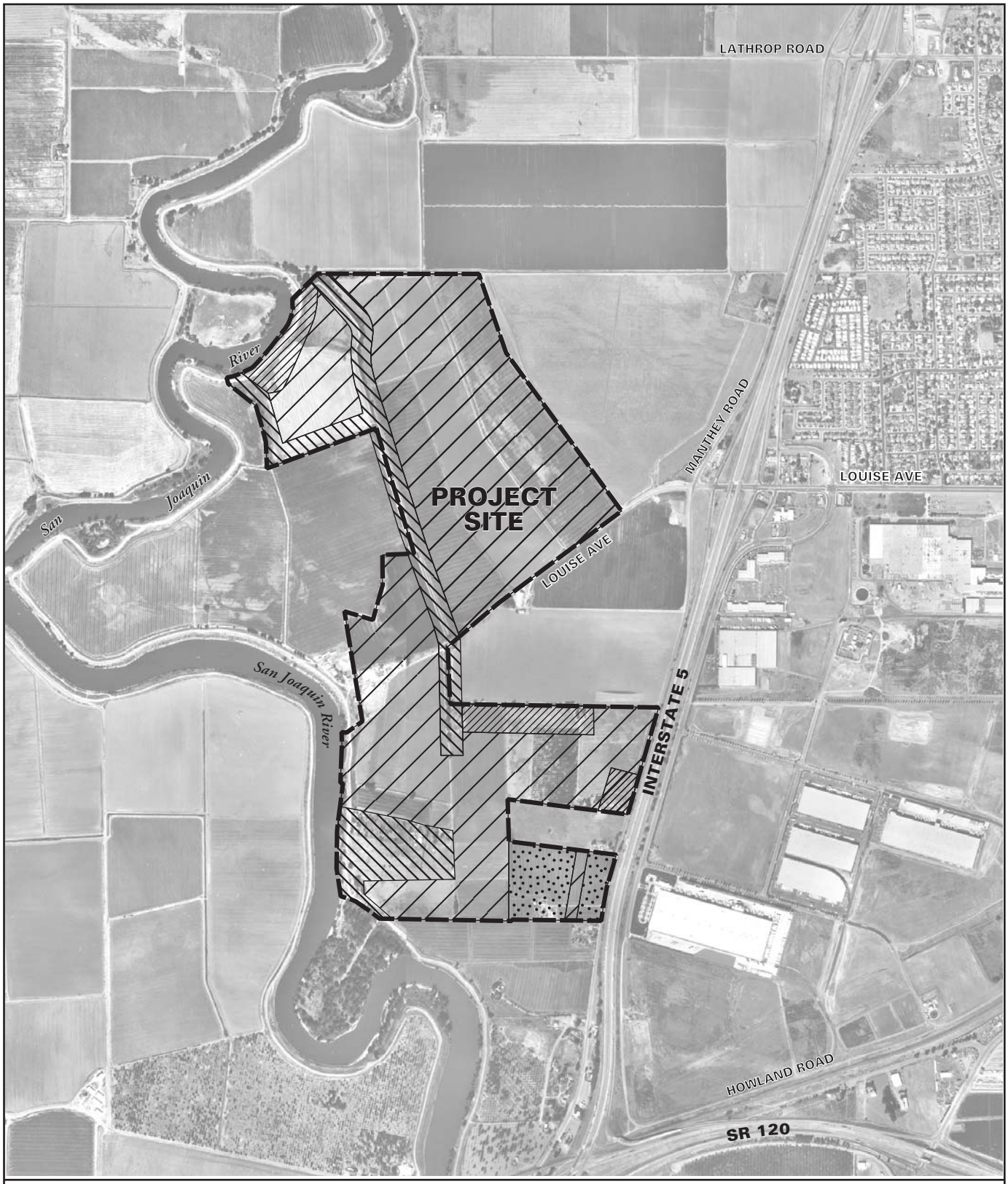
The Environmental Constraints Alternative would meet all of the project objectives, although to a lesser degree than would the proposed project as development would not occur at the density or intensity called for by the proposed project. This alternative would be generally inconsistent with the intent of the WLSP because it would represent a level of development below that planned for the site by the WLSP. Finally, the preservation feature of the alternative would be somewhat duplicative of preservation programs already applicable to the proposed project, including the WLSP, which sets aside wetland, riparian, and sensitive species habitat along Paradise Cut, and the San Joaquin County Multi-Species Habitat and Open Space

Conservation Plan, which sets forth a habitat mitigation program for development projects proposed in the County.

IMPACT ANALYSIS

Flood Control/Drainage

Because the project site is not located within the 100-year floodplain, this alternative would not place housing within a 100-year floodplain, would not impede/redirect 100-year flood flows, and would not expose people to flooding from 100-year flood flows, all similar to the proposed project. Because there would be less impervious surface (residential and commercial development, streets, etc.) and more pervious surfaces (parks, preservation area, retention basins, open space, etc.) under this alternative than under the proposed project, this alternative would generate a smaller incremental increase in surface runoff and less potential erosion/siltation.



Source: McKay and Somps, 4/2001; EDAW, 6/2002.

Environmental Constraints Alternative

EXHIBIT 8-1

Mossdale Landing UDC EIR
CITY OF LATHROP
JN 1T019.01 6/02

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NORTH

EDAW

Table 8- 2 Environmental Constraints Alternative		
Land Use Type	Buildout Condition (2010)	
	Gross Acres	Unit/Sq Ft
Low Density Residential	229.1	1,058 du
Medium Density Residential	35.5	300 du
Village Commercial	--	--
High Density Residential	6.0	122 du
Service Commercial	8.0	209,088 sq ft
Parks	34.8	--
Schools	33.7	164,000 sq ft
Levee/Open Space	13.8	--
Major Streets	40.0	--
Recycled Water Storage Ponds and Spray Fields (interim)	19.7	--
Retention Basins	20.4	
Preservation Area	36.3	
Total: **Acres** **Residential** **Commercial** **School**	**477.3**	 **1,480 du** **209,088 sq ft** **164,000 sq ft**
Source: EDAW, June 2002		

Furthermore, because stormwater runoff would be retained on-site under this alternative rather than being discharged to the river as would occur under the proposed project, the consumption of a very small amount of the available existing freeboard (flood control capacity) in the river at and downstream of the project site would not occur. However, no significant flood control/drainage impacts were identified for the proposed project after mitigation, so this alternative would not reduce or avoid any significant flood control/drainage impacts of the proposed project. [***Similar***]

Surface Water Quality - Runoff

Like the proposed project, the Environmental Constraints Alternative would eliminate the current discharge of agricultural pollutants to the SJR through the replacement of onsite agricultural uses with residential uses and would increase the generation of urban runoff (although to a lesser degree than the proposed project due to the development of less impervious surfaces under this alternative). Unlike the proposed project, stormwater runoff from the project site would be retained onsite under this alternative rather than being discharged to the SJR. This alternative would result in the cessation of the discharge to the SJR of runoff containing agricultural pollutants from existing agricultural operations without replacing this discharge with discharge containing urban pollutants. Therefore, this alternative would result in a substantial decrease in the quantity of pollutants being discharged to SJR under both existing conditions and conditions under the proposed project (a beneficial impact). While this alternative would not avoid any significant runoff-related

surface water quality impacts of the proposed project, as no significant impacts would occur with implementation of the proposed BMPs and the required SWPPP, a substantial beneficial surface water quality impact would be realized under this alternative that would not occur under the proposed project. [***Less***]

This alternative would include a lower level of construction activity than the proposed project, and thus would generate less construction-related pollution (suspended solids, etc.) in runoff from the project site that could enter the SJR. However, no significant construction-related surface water quality impacts were identified for the proposed project with implementation of the proposed BMPs, adherence to SWPPP requirements, so this alternative would not reduce or avoid any significant construction-related runoff-related surface water quality impacts of the proposed project. [***Similar***]

Surface Water Quality - Recycled Water

Neither the Environmental Constraints Alternative nor the proposed project would discharge recycled water directly to the SJR. Both projects would dispose of at the project site treated wastewater that has been tertiary treated and disinfected to Title 22 levels for unrestricted use (a high level of treatment). Both projects would apply the recycled water at agronomic rates, and both would adhere to all applicable regulatory discharge and application requirements. While the proposed project would present a very small potential for pollutants in the treated wastewater to be washed to the SJR in stormwater runoff draining from the application areas, this alternative would present no such potential as all stormwater runoff would be retained onsite. However, no significant recycled water-related surface water quality impacts were identified for the proposed project due to a combination of factors including the high level of treatment, application at agronomic rates, plant root uptake, the fact that all stormwater would first pass through the project's proposed BMPs, and the presence of the east levee between the river and the project site which will avoid gravity flow of recycled water to the river. Therefore, this alternative would not reduce or avoid any significant runoff-related surface water quality impacts of the proposed project. [***Similar***]

Groundwater Quality

Both the Environmental Constraints Alternative and the proposed project would phase out the existing use of agricultural pesticides, herbicides and fertilizers at the project site, and thus would eliminate these as a potential source of groundwater quality degradation. At the same time, both projects would include construction activities, generate urban runoff, and dispose of treated wastewater on land, each of which would represent a potential source of groundwater degradation.

Both projects would implement multiple measures to prevent contaminants associated with the above activities from reaching the groundwater. These include: implementation of BMPs to reduce urban contaminants in stormwater runoff which otherwise could percolate to the ground; tertiary treatment of wastewater to Title 22 standards for unrestricted use to avoid potential contamination of the environment; application of recycled water at agronomic rates to minimize percolation of recycled water below the root zone; and compliance with discharge and application regulations and permits.

The Environmental Constraints Alternative would include a lower level of construction activity, generate less urban pollution in stormwater runoff, and generate less recycled water requiring land application at the project

site than would the proposed project (due to less development under this alternative). At the same time, this alternative would retain all project stormwater runoff onsite, and would land dispose of all recycled water generated by the project onsite, thus potentially representing a greater source of potential groundwater contamination. While it is unknown whether the above would translate to a greater or lesser potential for groundwater quality degradation than the proposed project, several things are clear. First, the source of groundwater used as a potable supply by the City of Lathrop is the deep aquifer (greater than 150 feet below the surface) rather than the shallow aquifer, and recycled water to be applied under this alternative and the proposed project would not reach this aquifer. Second, the TDS concentration is the primary water quality concern for groundwater in the east and south Delta, and the concentrations of TDS in the recycled water to be land applied under both projects would be lower than current TDS concentrations in the groundwater. Third, both projects would implement multiple measures to prevent contaminants associated with stormwater runoff and recycled water from reaching the groundwater as discussed previously. As indicated in the analysis in Section 4.4, these factors would combine to result in less than significant groundwater quality impacts under the proposed project. It is anticipated that groundwater quality impacts under this alternative would similarly be less than significant. **[*Similar*]**

Traffic

Both the Environmental Constraints Alternative and the proposed project would generate a substantial amount of traffic and associated impacts. This alternative would include a 12% reduction in residential development and a 32% reduction in commercial development compared to the proposed project, and thus would generate commensurately less traffic. While the specific effects of traffic under this alternative on the existing and future roadway network have not been modeled, it can be reasonably anticipated that these impacts would be less than under the proposed project, and that the need to develop one or more of the off-site roadway improvements required by mitigation in Section 4.6 (Traffic) and Chapter 5 (Cumulative Impacts) of this EIR could be avoided (at least in the time frame required under the proposed project). [***Less***]

Both projects would contribute to the development of the roadway network planned for in the WLSP. [***Similar***]

Air Quality

Both the Environmental Constraints Alternative and the proposed project would result in development of the project site and the generation of associated construction- and operations-related air emissions. The Environmental Constraints Alternative would include 12% less residential development and 33% less commercial development than the proposed project, and thus would generate a lower level of construction- and operations-related air emission. Because this alternative would generate a lower level of emissions than the proposed project, and because the proposed project would result in less than significant long-term local mobile source (CO) emissions and less than significant short-term construction emissions after mitigation, the Environmental Constraints Alternative would also result in less-than-significant impacts in terms of these air emissions after mitigation.

While the specific quantities of long-term regional operational emissions have not been modeled for this alternative, it is anticipated that these emissions, like those of the proposed project, would be significant and

unavoidable. This is because, even assuming a full 33% reduction in the long-term regional operational emissions of the proposed project, the SJVAPCD's threshold of 10 tons/year for ROG and NO_x would still be exceeded under this alternative (approximately 50 tons/yr of ROG and 78 tons/year of NO_x). Still, this alternative would reduce the significant unavoidable long-term regional operation emissions of the proposed project. [***Less***]

Noise

Both the Environmental Constraints Alternative and the proposed project would include construction activities, develop new land uses (including a fire station), develop pumps/lift stations, increase traffic, increase on-site human activity, and create an agricultural/urban interface. Both projects would generate significant noise impacts to existing on- and off-site noise sensitive receptors and to proposed sensitive receptors before mitigation, and significant traffic and agricultural noise impacts after mitigation (i.e., significant unavoidable adverse impacts). This alternative would be expected to generate somewhat less noise than the proposed project given the 12% reduction in residential development, the 33% reduction in commercial development, the associated reduction in traffic, and the potential reduction in the need for stormwater pump stations under this alternative. However, this alternative, like the proposed project, would convert the site from a rural to an urban noise setting, would develop proposed residential uses adjacent to proposed noise-generating school, park, commercial, and agricultural uses, and would generate a substantial increase in traffic on local roadway. In addition, this alternative would not avoid any significant impacts of the proposed project. For these reasons, the Environmental Constraints Alternative and the proposed project would result in similar noise impacts. [***Similar***]

Utilities

Under both the Environmental Constraints Alternative and the proposed project, the project site would be developed and would create a substantial demand for water, wastewater treatment/disposal, electricity, natural gas, and solid waste services and facilities relative to that currently occurring in the City. The proposed project would create less-than-significant demand for water service during construction; less-than-significant demand for electricity, natural gas, and solid waste service during operation; and significant demands for potable water, wastewater treatment, and wastewater disposal service during operation. All of these would be reduced to less-than-significant levels after mitigation. In addition, the proposed project would contribute to the generation of less-than-significant environmental impacts after mitigation associated with the development of Well #21, and significant unavoidable odor impacts associated with the expansion/improvement of WRP #1, although these improvements and their associated impacts would occur regardless of whether or not the Mossdale Landing project is developed.

It is anticipated that the Environmental Constraints Alternatives would generate similar utilities impacts to those described above for the proposed project, except that the degree of the impacts would be less, given the 12% and 32% reductions in the amounts of residential and commercial development. The significant offsite wastewater disposal impacts of the proposed project before mitigation would be avoided, as sufficient onsite disposal area would be provided under this alternative for buildout. However, no significant utilities impacts were identified for the proposed project after mitigation (except for odor impacts that would occur at WRP #1 regardless of the status of the Mossdale Landing project) or this alternative, so this alternative would not reduce or avoid any significant utilities impacts of the proposed project. [***Similar***]

Both projects would further the City's utilities infrastructure plans and objectives for the Mossdale Village area, including those set forth in the WLSP, WRP #1 Phase 1A/1B Expansion Project, and the Master Drainage Plan for Mossdale Landing. [***Similar***]

Public Services

The Environmental Constraints Alternative, like the proposed project, would include development of the project site with urban development that would generate a significant demand for police, fire, and school services and facilities, potential obstructions of access by service vehicles during construction, and less-than-significant impacts to emergency response times. The proposed project would do the same, before mitigation. Each of these impacts would be reduced to less-than-significant levels with implementation of the recommended mitigation.

The Environmental Constraints Alternative would result in 12% and 32% less residential and commercial development than the proposed project, respectively. Therefore, it is anticipated that this alternative would result in commensurately lower public service impacts than would the proposed project. Still, it is anticipated that even with the reduction in development and associated demand, this alternative would result in similar significant public services impacts to the proposed project before mitigation, and similar less-than-significant impacts after mitigation. Because the proposed project would not result in any significant public services impacts after mitigation, the Environmental Constraints Alternative would not avoid any significant public services impacts of the proposed project. [***Similar***]

Terrestrial Biology

Like the proposed project, the Environmental Constraints Alternative would replace existing agricultural uses at the project site with urban uses, thus eliminating living, foraging, and nesting habitat for a number of sensitive species. These include valley elderberry longhorn beetle, Swainson's hawk, burrowing owl, Cooper's hawk, yellow warbler, yellow-breasted chat, loggerhead shrike, sharp-shinned hawk, northern harrier, tricolored blackbird, and black-crowned night heron. Like the proposed project, this alternative would also affect small areas of Waters of the U.S., and riparian habitat. Each of these would represent a significant impact before mitigation, which would be reduced to less-than-significant levels with implementation of the mitigation measures recommended in Section 4.10 of this EIR.

While this alternative would impact existing onsite living, foraging, and nesting habitat riparian habitat, and Waters of the U.S., the acreage affected would be less than under the proposed project. This is because, as indicated in Exhibit 8-1, the majority of the existing nesting habitat and wetland habitat at the project site would be preserved under this alternative. In addition, because stormwater runoff would be retained onsite under this alternative, no stormwater outfall to the SJR would be required, thus eliminating the need to remove several trees and undertake construction activities on the river side of the east levee of the SJR. The preserved areas of the site would represent marginal habitat, as they would be surrounded by urban development, but they could still provide some refuge for sensitive species, and in the case of riparian habitat, could result in preservation of sensitive resources.

While this alternative would not avoid any significant terrestrial biology impacts of the proposed project, as no such impacts would occur after mitigation, it would preserve some sensitive species habitat, riparian

habitat, and Waters of the U.S., thus resulting in less terrestrial biology impact than the proposed project. [***Less***]

Fisheries

Both the Environmental Constraints Alternative and the proposed project would replace the existing agricultural uses at the project site with urban uses.

The Environmental Constraints Alternative would retain all its stormwater runoff on the project site, would not discharge this runoff to the SJR, and would not construct a stormwater outfall to the SJR. Therefore, this alternative would not present a potential to affect existing aquatic habitat, degrade the quality of the SJR, or affect sensitive fish species in the Lathrop area. At the same time, this alternative would phase out the existing discharge of agricultural runoff from the project site, thus resulting in a net beneficial impact on the local water quality of the SJR and possibly on fisheries within the Lathrop stretch of the SJR.

By comparison, the proposed project would discharge urban stormwater runoff from the project site to the SJR, and would include construction of a stormwater outfall to the SJR. This would result in significant impacts to local aquatic habitat, and to both sensitive anadromous and non-anadromous fish species before mitigation, and less-than-significant impacts on these with implementation of the proposed BMPs and the mitigation measures identified in Sections 4.2 and 4.11 of this EIR, respectively. In addition, the proposed project would result in a net beneficial impact on the quality of the SJR and possibly to fisheries, for some constituents, by phasing out existing agricultural discharges from the project site.

Because the proposed project would not result in significant fisheries impacts after implementation of the proposed BMPs and the mitigation measures, the Environmental Constraints Alternative would not avoid any significant impacts of the proposed project. However, this alternative would substantially reduce the amount of pollutants in stormwater currently being discharged to the project site by phasing out the exsting discharge without resulting in any new discharge. This would represent a potential benenficial impact to fisheries. By comparison, the proposed project would reduce 21 of the 23 constituents currently being discharged to the river, but would not eliminate these constituents from the discharge completely. At the same time, the proposed project would increase load to the river of two of the 23 constituents (selenium and diazinon) which, although not significant, would still represent increases (although in the case of diazinon, the increase, if any, would be temporary as diazinon is being phased out of use in residential developments such as the proposed project under newly adopted legislation). While this alternative would not avoid significant impacts, it could potentially reduce cumulative impacts to fisheries in the SJR, and thus would have less fisheries impact than the proposed project. [***Less***]

Cultural Resources

The project site does not contain any cultural resources (archaeological or historic) listed in the National Register or the California Register of Historic Places, and does not contain any historic resources. The site does contain recorded archaeological resources, which may represent "unique archaeological resources" as defined by CEQA. The site may also contain as-of-yet-undiscovered and unrecorded archaeological resources and human remains.

Both the Environmental Constraints Alternative and the proposed project would include earth moving and other construction activities would could impact cultural resources. Before mitigation, both projects would result in no impacts to historic resources, as none are present at the project site; significant impacts to archaeological resources if such resources at the project site are found to represent "unique archaeological resources"; and significant impacts to human remains if any such remains are found at the project site. These impacts would be reduced to less-than-significant levels with implementation of the mitigation measures identified in Section 4.12 of this EIR.

The Environmental Constraints Alternative would disturb approximately 36.3 fewer acres of the project site than would the proposed project because it would preserve the nesting habitat, wetlands, and oak trees on the project site as indicated in Exhibit 8-1. Therefore, this alternative would have less potential to disturb cultural resources than would the proposed project. However, because the proposed project would not result in any significant cultural resources impacts after mitigation, this alternative would not avoid any significant impacts of the proposed project. Thus, the two projects would have similar impacts. [***Similar***]

8.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The State CEQA Guidelines require identification of an environmentally superior alternative from among the proposed project and the alternatives evaluated.

Table 8-3 identifies whether each of the three alternatives would have "greater," "less," or "similar" impacts as the proposed project for each of the 12 environmental issues evaluated in this EIR. The No Project Alternative would have greater impact than the proposed project in two issue areas, less impact in seven, and similar impact in three. The Interim Development Only Alternative would have greater impact than the proposed project in no issue areas, less impact in two, and similar impact in ten. The Environmental Constraints Alternative would have greater impact than the proposed project in no issue areas, less impact in four, and similar impact in eight.

Proportionally, each alternative would result in less impact than the proposed project. The ratio of less to greater impact would be 7:2 for the No Project Alternative, 2:0 for the Interim Development Only Alternative, and 4:0 for the Environmental Constraints Alternative. As indicated, the ratio of less to greater impacts would be highest under the Environmental Constraints Alternative. It would not have greater impact than the proposed project in any of the issue areas evaluated, while at the same time it would have less impact in four areas (traffic, air quality, terrestrial biology, and cultural resources). In addition, the Environmental Constraints Alternative would achieve all of the project objectives, although to a lesser degree than the proposed project.

Based solely on the ratio of less to greater impacts as identified in Table 8-3, the Environmental Constraints Alternative would appear to be the environmentally superior alternative.

Table 8-3
Comparison of the Impacts of the Proposed Project to Those of the Alternatives

Environmental Issues	Alternatives

	No Project (No Development)	Interim Only Development	Environmental Constraints
Flood Control/Drainage	SIMILAR	SIMILAR	SIMILAR
Surface Water Quality - Runoff	GREATER	SIMILAR	SIMILAR
Surface Water Quality - Recycled Water	SIMILAR	SIMILAR	SIMILAR
Groundwater Quality	GREATER	SIMILAR	SIMILAR
Traffic	LESS	LESS	LESS
Air Quality	LESS	LESS	LESS
Noise	LESS	SIMILAR	SIMILAR
Utilities	LESS	SIMILAR	SIMILAR
Public Services	LESS	SIMILAR	SIMILAR
Terrestrial Biology	LESS	SIMILAR	LESS
Fisheries	SIMILAR	SIMILAR	SIMILAR
Cultural Resources	LESS	SIMILAR	LESS
Totals			
Greater Impact	2	0	0
Less Impact	7	2	4
Similar Impact	3	10	8
Source: EDAW 2002			

The proposed project would result in significant unavoidable adverse impacts in three areas evaluated in Chapter 4: (1) traffic (temporary impacts on I-205); (2) air quality (long-term regional emissions); and (3) noise (traffic and agricultural noise)

While the Interim Development Only and Environmental Constraints Alternatives would reduce but not avoid any of the significant unavoidable impacts of the proposed project, the No Project Alternative would avoid all of the significant unavoidable impacts.

For this reason, the No Project Alternative is identified as the environmentally superior Alternative. As discussed previously, CEQA requires that when the No Project Alternative is identified as the environmentally superior alternative, an environmentally superior alternative must be identified from among the remaining alternatives. Given that the Environmental Constraints Alternative would have a higher ratio of less to greater impacts than the proposed project or the other alternatives, it is identified as the environmentally superior alternative.

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9 REFERENCES and PERSONAL COMMUNICATIONS

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